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January 30, 2009

Mark Hutchinson
Environmental Programs Manager
San Luis Obispo County Dept of Public Works
County Government Center Room 207
San Luis Obispo, CA 93408
State Clearinghouse Number: 2007121034

Dear Mr. Hutchinson,

Following are the comments of the Santa Lucia Chapter of the Sierra Club on the Draft Environmental Impact Report of the Los Osos Wastewater Project. The majority of our comments pertain to the CEQA requirement to accurately describe the project and alternatives.

We commend the County for its efforts in moving the LOWWP forward. We urge the project team, in its public outreach, to adopt our primary recommendation at 3.2.2 of the DEIR and immediately begin educating Los Osos Valley growers and ag landowners on agricultural exchange. This would be best effected by bringing together representatives of the Monterey Regional Water Pollution Control Agency (MRWPCA) and their customers with local growers, water purveyors and the County in a series of meetings and field trips. Along with the requirement of selecting the collection system with the least environmental impact that is best suited to the area, we believe taking steps now to assure the establishment of agricultural exchange as quickly is possible is central to the success of the LOWWP.

For the record, we strongly urge the County not to prematurely truncate the design-build process and environmental review of the collection systems in order to declare the gravity system "shovel-ready." The Statement of Overriding Concerns in the 2001 EIR on which this claim is based has been rescinded, nullifying the Final EIR's conclusion that the SOC supports construction of a wastewater treatment plant at the Tri-W site and a gravity collection system. The environmental findings of the FEIR have been left intact, including the finding of a STEP/STEG collection system as the environmentally superior alternative. Moreover, the 2001 EIR was prepared prior to the enactment of AB 32, the creation of the State Marine Reserve, and the necessity to assess the impact of sea level rise on a project that would involve the placement of pumping stations on the shore of an estuary, to name three conditions that have changed since the previous environmental review. The need to fully review each component of the present project is clear, as is the need for the County to proceed with the originally planned project timeline and receive all bids before deciding on the LOWWP's largest component.

Thank you for the opportunity to comment on this project.

For the Executive Committee,

Andrew Christie
Chapter Director

Comments of the Sierra Club on the Los Osos Wastewater Project DEIR

Executive Summary, p. 12:
"It will be necessary to pump solids from the STEP/STEG tanks on a periodic basis (every five years) and transport the solids to the wastewater treatment facility."

The pump-out of STEP tanks every five years has been represented by the County as a system design requirement, not a regulatory requirement (Mark Hutchinson, Bruce Gibson, pers. comm., 1/23/09). In communicating this to us, we presume the County is aware that the assertion on this subject in the Technical Memorandum "Septage Receiving Station Option" Final Draft, April 2008 is in error (*"...the State Water Resources Control Board's On-Site Wastewater Treatment System Regulations (AB 885) and the Central Coast Regional Water Quality Control Board's (Regional Board) pending Basin Plan update will require that all septic tanks be pumped and inspected once every five years, which will essentially double the current amount of septage pumping"*). STEP is not an onsite wastewater treatment system (OSWTS). A STEP tank is a wastewater interceptor and solids digestion tank as part of a collection system.

The County's belief that STEP tanks will require a 5-year pump-out interval has been repeatedly corrected by wastewater treatment system designers and engineers, who state that this interval is not consistent with O&M protocols for centralized managed STEP systems (see chart, Attachment 1). In this regard, the 4/08 Tech Memo is correct (*"From the available information, one can deduce that on average, septic tanks are pumped once every ten year"*). The County's continued use of 5-year pump-outs in its calculations, resulting in significantly increased GHG emissions, energy use and O&M costs die STEO in the EIR's estimates and comparisons of same between potential STEP and gravity system components, is in error.

The final EIR should correct this assertion and recalculate all environmental impacts and cost estimates attributed to a STEP system based on pump-out interval.

Executive Summary, p. 13:
"The 8-acre active leachfield area at the Broderson site would require extensive preparation to function properly including excavation, backfill with gravel for drainage, installation of perforated piping, and then covered by geotextile fabric and native materials."

The EIR needs to clarify the infiltrative surface area of the trenches proposed for the Broderson disposal site, and whether this is to be a leachfield or a Rapid Infiltration Basin (RIB). The 2001 EIR and various consultant memos circa 2000-2008, incorporated by reference in the Draft EIR, use terminology that should apply either to leachfields or Rapid Infiltration Basin dispoal methods, but not both. Terms specific to each appear to be used interchangeably.

The geotechnical report on which the DEIR's calculations for Broderson infiltration rates and application rate appear to rely (Fugro, March 2004, p. 6-42), relies in turn on "the EPA (1981) guidelines [for] infiltration rates for effluent disposal basins...." but appears to have used the guidelines for Rapid Infiltration Basins, not leachfields. The Fugro analysis goes on to refer to "percolation lines," which are not a feature of disposal basins. This strongly indicates that all calculations for this project based on the use of EPA disposal basin guidelines for

infiltration rates are incorrect if the Broderson site is to be used as a leachfield. The EIR should clarify how the EPA guidelines for rapid infiltration basin disposal came to be conflated with EPA guidelines for leachfield disposal, and clarify which use for the site is contemplated and which EPA guidelines obtain.

The design rate's safety factor of 6:1, seventeen percent of the application rate defined in prototype testing (MWH, Feb. 2005), is a safety factor appropriate to a RIB, not a leachfield. This application rate is based on the rate "for the hydraulic percolation of high quality treated effluent..." (MWH, Feb. 2005). The DEIR contemplates the disposal of secondary, not tertiary, treated effluent at Broderson, which, due to higher bacterial content, is likely to cause the Baywood fine sands to seal and repel percolation. The EIR must evaluate this impact.

The Carollo Fine Screening report states: *"For the purposes of this report, percolation ponds will be considered equivalent to leachfields since they both are located at the same site, and they have the same capacity and seawater intrusion mitigation potential. Both of these alternatives will be referred to as 'Broderson.'"* If both leachfield and RIBs at Broderson are being considered, both alternatives should both be presented in detail in the EIR (infiltrative surface area dimensions, application rate, wet/dry cycles, gpd and AFY), along with three separate monthly water balances based on dry, average, and wet-year scenarios.

"If the pores beneath the leachfield become clogged over time, the leachfield would be excavated and the ground beneath it would be ripped or disked. The estimated frequency of ripping ranges between 5 and 10 years." (Appendix B, Project Description Data, and Carollo April 2008b)

As secondary treated effluent is proposed for disposal at the site, the soils are likely to seal and repel percolation in far less time than the proposed 5 to 10 year replacement schedule. The EIR must evaluate the impacts of proposed gravel washing, the necessary construction of a gravel washing plant on site, the water source for washing the gravel and impacts thereof.

This proposal entails excavating the gravel, destroying the distribution piping, geotextile cover, etc. to gain access to the infiltrative surface, then rebuilding the same leachfield at the same location. Disking or ripping the infiltrative surface of open percolation ponds or RIBs is common practice, but the proposal of this procedure here appears to be without precedent in the design and maintenance of leachfields, which are supposed to last indefinitely as constructed. Demolishing and reconstructing the Broderson leachfield every five years appears to constitute an acknowledgment that the Broderson disposal site is likely to fail, and must be continuously rebuilt. The EIR needs to clarify this point.

The proposed monitoring of Broderson in the EIR does not constitute mitigation under CEQA and will not mitigate for the failure of the Broderson disposal site or the "increased potential for liquefaction for residences immediately downslope of the infiltration area" (Cleath, Nov. 2000), nor get the County its money back should Broderson become a stranded asset. Should monitoring indicate the site has failed, the EIR needs to determine how the project will dispose of effluent it can no longer dispose of at Broderson. This evaluation should include significantly expanded pond storage and agricultural exchange as a disposal component and mitigation measure to be brought on line sooner rather than later.

Project Description, Proposed Project 1 includes:
A septage receiving station to accept and process the septage pumped from the 4,769 STEP/STEG systems plus the 749 septic tanks (at buildout) that will remain in Los Osos but outside the Prohibition Zone.

The EIR should analyze the alternative of clustering multiple residents on one STEP tank.

Project Description, 3.2.2:

"The Supplemental Notice of Preparation mentioned two other potential effluent disposal and reuse locations: urban reuse and agricultural reuse. After extensive analysis of technical, environmental, and economic issues, these types of locations were eliminated from further consideration for the current LOWWP project. The alternatives review process that led to this conclusion is summarized in Section 7, Alternatives to the Proposed Project, and in Technical Memoranda P-1, Alternatives Development and Descriptions Index and P-2, Systems Components Appendix" (3-19).

There is virtually no discussion of agricultural exchange in the Sections or Technical Memoranda listed. The DEIR cites the significant advantage of ag exchange over disposal at the Broderson site in mitigating seawater intrusion. By deferring ag exchange to an unknown future date and relying wholly on Broderson disposal for seawater intrusion mitigation, the EIR appears to be proposing a dangerously inadequate level of mitigation, which is estimated at a necessary 550 AFY (Fine Screening Report, Carrollo, 2007). Ag exchange has a seawater intrusion mitigation benefit 150% greater than Broderson disposal.

The County's position that ag exchange will take many years to bring about and is wholly the responsibility of the water purveyors is not compelling. Following are the remarks of Bahman Sheikh, Ph.D., P.E., Water Reuse Consultant:

"Indeed, it took 20 years to get recycled water delivered and sprayed on vegetable crops grown in Northern Monterey County. The reason it took so long was that we first did an eleven-year pilot project to investigate safety of use of disinfected tertiary recycled water for irrigation of raw-eaten food crops. Once we finished that, we had to go out and get USBR funding for the treatment and distribution of recycled water. Then, the design and construction of the facilities took a few years...and we ended up with 20 years total from planning to distribution of recycled water.

"In Los Osos, we do not have to investigate safety! It has been done, and for the last ten+ years, large-scale recycled water irrigation of food crops (lettuce, broccoli, cauliflower, strawberries, etc.) has been ongoing without a glitch on 12,000 acres of prime farmland surrounding Marina.

"Several farmers from Los Osos were treated to a guided tour of the Monterey farms using recycled water about two years ago and they were quite positively inclined to emulate the experience once recycled water became available.

"The only time needed now is for completion of design and construction of the treatment and distribution facilities to get recycled water to the farmers. During this period, negotiations can be concluded with farmers to use the available recycled water at rates that are mutually agreeable--with possible incentive pricing in the first few years to assure the availability of enough demand to account for all the produced recycled water from the Los Osos treatment plant. Any suggestion that Los Osos would also take 20 years to get recycled water to the farmers ignores the historical perspective and the vastly different attitude of the Los Osos farmers who actually recognize limitations of their groundwater supplies.

"We have spoken with several of these growers and they are ready to take the recycled water as long as the price is right. Once they get off the aquifer and start using recycled water, hydraulic gradelines in the confined aquifer will respond and push fresh water toward the ocean, reversing the seawater intrusion trend" (pers. com., 12/20/08).

We note, from Project Goal #3, that the project should *"Address water resource issues by mitigating the project's impacts on water supply and saltwater intrusion. Further, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent."* To that end, the EIR should cite agricultural exchange as mandatory mitigation for reduced septic returns and require that the LOWWP include intensive outreach to local growers and water purveyors to facilitate the beginning of negotiations to use recycled water when available, and otherwise being preparations for a phased ag exchange program at or before build out. The County's outreach should be at least equivalent to that undertaken by Ripley Pacific as reported in the 2006 Los Osos Wastewater Management Plan update (See LOWWMP Update, Tech Memo #7, Attachment 2).

The Los Osos Wastewater Management Plan Update (Dec. 18, 2006, Ripley Pacific), presents a four-phase implementation plan in which the first phase of water recycling coincides with the first year of a two-phase buildout of the Wastewater Treatment Plant, representing an estimated 700-1000 AFY of water demand via ag exchange on adjacent acreage over five years. The EIR should assess the feasibility of this as a means to realize Project Goal #3.

3.3.1:
"Since the influent 5-day biological oxygen demand (BOD) and suspended solids (SS) are significantly less for the STEP/STEG system, the wastewater treatment plant for Proposed Project 1 would need to handle and dispose of fewer biosolids and meet a lower aeration demand."

The EIR needs to assess the environmental impact of the sludge produced by the proposed projects. Sewage sludge ("biosolids") constitutes a highly complex, unpredictable, biologically active mixture of organic material and human pathogens, some of which are resistant to antibiotics or cannot be destroyed through composting. This project's sludge can contain dozens of carcinogens, hormone disrupting chemicals, toxic metals, dioxins, radionuclides and other persistent bioaccumulative poisons. In 1993, the US EPA issued the land application rule 40 CFR Part 503 for the Use and Disposal of Sewage Sludges. There is growing agreement among scientists and environmentalists that the 503s need serious improvements. In 1997 the Cornell Waste Management Institute concluded that current regulations governing land application do not protect human health, agricultural productivity, and the environment (http://cwmi.css.cornell.edu/Sludge.html). In 2002, the National Research Council of the National Academy of Sciences (NAS) warned that the scientific underpinning of the 503s was based on outdated or nonexistent science. The NAS panel also warned that even if all of the contaminants of this complex and unpredictable waste mixture were known, single agent risk assessment and standard risk management strategies would not be protective of human health.

The EIR must acknowledge evolving scientific opinion on sewage sludge and evaluate and compare the relative potential impacts of the levels of sludge production from STEP and gravity systems.

Project Description 3.3.4:
"There is about a five percent reduction in the total collection system excavation requirement if a STEP/STEG collection system is constructed instead of a gravity collection system. Because the STEP/STEG collection system will be installed about four feet below grade compared to the average eight-foot depth for the gravity sewer, excavation requirements for the STEP/STEG collection pipeline will be about 64,000 cubic yards compared to 247,000 cubic yards for the gravity pipeline..... These collection pipeline excavation savings are offset by the approximately 181,000 cubic yards (CY) of excavation required to install the 4,769 new STEP/STEG tanks in the front yard of each property. Although about 17,000 CY of excavation is required to install the sewer manholes and pump stations for the gravity sewer system, this is a fraction of the STEP/STEG tank excavation requirement."

There are 254,180 lineal feet of gravity sewer pipe in the proposed project. To achieve numbers as low as those stated by the EIR for total excavated soil for a gravity collection system would require installation of the gravity sewer in a trench that was 3.3 feet wide and 8 feet deep on average. Within that 3.3 foot width, a worker would have to pull a trench box (required to support trench walls) that has 8" walls, get an excavation bucket inside the trench box to excavate material, pull the box, place bedding material, etc. The trench has to be wide enough to pull the trench without binding. The pipe layer has to work within the limits of the trench box and navigate an 8" pipe to the base of the excavation. To facilitate this, the worker would be working in an area less than 2 feet wide with a 12-inch excavation bucket.

This seems unlikely. Typical trench boxes are 6 feet wide. A service lateral for each property would also be included in this calculation. An accurate soil displacement number for a gravity sewer 254,000 feet long with a trench of realistic width would be in excess of 400,000 cubic yards. The EIR should recalculate the figures and totals it presents as measurements of comparative soil displacement.

This is a particularly vital calculation as the Draft EIR contradicts the finding of the 2001 EIR which found a STEP/STEG system to be the "Environmentally Superior Alternative" (Attachment 3). If the County has changed this finding in whole or in part on the basis of

comparative soil displacement between STEP and gravity system, this claim needs considerably more substantiation than the Draft EIR provides.

The EIR also needs to reconcile its ealculations with those in its document "Summary of Findings for STEP and Gravity Collection System," SLO County Dept. of Public Works, KEIS/DEIR Meeting Agenda, 12/19/08: *"Soil Disturbance: STEP Collection excavation = 322,000 cubic yards; Gravity collection system = 344,000 cubic yards."*

The EIR elsewhere notes that "the land under or immediately adjacent to existing roadways is typically already disturbed, so potential environmental conflicts can be minimized." (7-26). The same is true of front yards that have already had septic tanks installed, and the EIR should so note.

Ibid.:
"[It is] assumed that half of the STEP/STEG collection system will be installed by boring rather than open trench excavation."

If the STEP system were 100% directional bored the soil disturbance would be in the range of 4,000 cubic yards. If it was 100% trenched, it would be in the range of 80,000 cubic yards. If half bored and half trenched, it would displace 42,000 CY, not 64,000 CY.

"...the average wastewater generation rate of 1.2 million gallons a day estimated for the LOWWP assumes that water conservation measures would be implemented to reduce water consumption and the corresponding wastewater generation rate by 0.1 million gallons a day or 160 AFY. Reducing wastewater generation by 160 AFY by 2020 represents about a ten percent reduction from the 2006 average daily per capita wastewater generation rate." (3-42)

This 10% conservation rate represents one-third of the household water conservation rate urged by the EPA (Steve Allbee, Project Director, Gap Analysis, USEPA). The EIR must assess whether the minimum flow requirement of the gravity collection system could serve as a bar to more aggressive conservation measures, and whether the necessity of flushing the pipes of a gravity system would partially or wholly offset water conservation efforts, and by how much. We note:

"In some areas the use of conventional gravity sewers is becoming counterproductive because the use of water conservation devices continues to increase. The minimum flows required for gravity-flow sewers to operate make them problematic where development occurs slowly in a large development or where water conservation reduces the wastewater flows significantly. In many cases, the water used to flush conventional gravity-flow collection systems for the removal of accumulated solids far exceeds the water saved through water conservation measures." -*Small and Decentralized Wastewater Management Systems*, Crites and Tchobonaglaus, 1998, Nolte & Associates)

Project description, 3-53, Project 1:
"Two 1-person crews to pump about 936 STEP/STEG tanks every year since each STEP/STEG tank needs to be pumped at least every five years after an initial startup up period.
- 2 to 3 people to inspect and clean each STEP/STEG tank every two years.
- One 2-person crew to maintain and periodically replace the 1,000 carbon filters on the air-vacuum valves and the 4,679 pumps once the system has been in operation for a few years."
Projects 2 through 4:
"One 2-person crew to maintain the pump stations and appurtenances throughout the collection system.
- Annually, a 2-person crew for two months to clean the collection system.
- Every year or two a crew to inspect the physical integrity of the collection system and make any necessary repairs.

- Additional staff time to operate and maintain the raw wastewater and treated effluent conveyance systems, the storage ponds, leachfield, and sprayfields; respond to emergencies; and to process, dewater and haul the biosolids removed from the wastewater."

"The capital construction cost savings for STEP/STEG collection systems are offset by the higher operations and maintenance costs for maintaining the 4769 pump stations and periodically pumping and hauling the accumulated septage." (7.3.2)

A STEP system generally requires one maintenance worker for every 2,000 connections. Initially 2 and eventually 3 full time employees should be able to maintain a STEP system in Los Osos. Each service worker would only require a pick-up truck and a basic set of tools for maintenance. Tank pump-outs should average at least ten years between pump-outs and will normally be contracted to a septic contractor.

A gravity system requires at least 3 workers for most tasks. Lift stations generally are visited daily and at a minimum weekly. Any work within a lift station is a confined space entry and requires monitoring, ventilation, possibly pumped oxygen, a tripod and three workers. A utility truck with a boom (c. $75,000) is required to remove and service pumps. A full service preventative maintenance visit on a lift station normally occurs one to two times annually. A jet truck and three-man crew is required to inspect and clean sewer, which should be done at intervals no longer than 5 years. A TV inspection truck must either be contracted or purchased for inspection of mains. A typical truck (c. $300,000) requires a 3-man crew. Any repairs to a gravity sewer will require a rubber tired back-hoe at a minimum and track-hoe in most instances. Repairs must either be contracted or the equipment purchased. A repair crew should have 3 people at a minimum.

There are many lines in the MWH design that are designed at minimum grades. In pipes with lower flow, sedimentation and odor problems can result. To assure that these mains are not problematic, frequent line inspection and cleaning should be required. The EIR does not define the maintenance protocol required for the gravity system. The EIR needs to define costs of the O&M program for a gravity collection system as to whether estimates are based on the MWH design or on a sewer built with more grade.

The DEIR's assertion of a higher O&M costs for a STEP/STEG collection system over the O&M costs of a gravity system conflicts with the estimates of the NWRI peer-reviewed Los Osos Wastewater Management Plan Update (Dec. 18, 2006, Ripley Pacific). The LOWWMP estimated $2.61 million in O&M costs for the previously designed project (gravity collection, treatment, and disposal at Broderson) and $1.65-$1.82 million for O&M of a STEP/STEG system, with treatment, storage and ag exchange. The two project's total annualized costs were estimated at $18.4 million (gravity) and $9.5-11 million (STEP/STEG). The Final EIR should explain and resolve the significant discrepancy between the County's estimates and those of the Wastewater Management Plan Update.

In addition to comparing staffing requirements, the EIR should state comparative costs for required O&M of a gravity and a STEP system and restate totals for both staff – including number of staff and **number of man hours** -- and the cost of maintenance equipment.

Table 3-5: Proposed LOWWP Effluent Disposal System
[all projects]
Effluent Disposal Method: Broderson Leachfield
Available Area (acres): 8
Estimated Capacity per Acre (AFY1/acre): 64
Capacity (AFY1) Proposed: 448

The Los Osos Wastewater Project Geotechnical Report (Fugro, Fugro March 9, 2004, page 6-42,) cites a dispersal application rate of 30 gallons per day per square foot (gpd/sf) for the Broderson leachfield. Since then, the application rate for Broderson appears to have become a moving target, ranging steeply downward from 30gpd/sf:

LO Technical Advisory Committee Meeting, June 2008, public comment:
- CSD Director Joe Sparks, P.E.: *"County proposes a maximum application rate of 3.5 gpd/ft2."*
- TAC/CSD Engineer Robert Miller, P.E.: *"3.5, 2.5 [gpd/ft2] or less, or whatever the project engineers felt comfortable with... there is no need to put any application rate on paper until the [empirical] data is in."*

The site's reported capacity, however, has remained a constant 448AFY. We do not understand how the application rate has gone from 30 gpd/sf to an apparent 0.8 gpd/sf, a reduction of 97 percent, while the annual capacity of 448AFY and the estimated amount of mitigation for seawater intrusion have remained constant. The EIR should calculate infiltrative surface area (square feet) multiplied by application rate (gallons per day per square foot) in order to state daily capacity (gallons per day).

"O&M costs range from $2 to 3.1 million for Proposed Project 1 and $1.6 to 3.0 million for Proposed Projects 2, 3, and 4." (3-65).

The data included in the fine screening indicates that the STEP oxidation ditch is ¼ the volume of a gravity sewer oxidation ditch, making the $3.1 million estimate appear questionable.

The EIR's assertion of a higher O & M costs for a STEP/STEG collection system over the O & M costs of a gravity system conflicts with the estimates of the Los Osos Wastewater Management Plan Update (Dec. 18, 2006, Ripley Pacific). The LOWMP estimated $2.61 million in O&M costs for the previously designed project (gravity collection, treatment, and disposal at Broderson) and $1.65-$1.82 million estimated O&M for STEP/STEG collection, with treatment, storage and ag exchange. The two project's total annualized costs were estimated at $18.4 million (gravity) and $9.5-11 million (STEP/STEG). The Final EIR should explain and resolve the significant discrepancy between the County's estimates and those of the Wastewater Management Plan Update.

5.2-16:
"With the implementation of the STEP/STEG wastewater collection system, wastewater would no longer leach from the existing septic system into the Los Osos groundwater basin. Proposed Project 1 would eliminate the current leaching of approximately 997 AFY of which approximately 600 AFY currently leaches directly into the upper aquifer (Zone C) which is the main water supply. The treated effluent disposal associated with Proposed Project 1, in combination with the proposed water conservation program, would balance the inflow and outflow to/from the upper aquifer...."

The EIR simply asserts that the combination of effluent disposal and conservation will replace the recharge provided to the aquifer by septic flows. The EIR elsewhere states that *"The removal of septic recharge from the prohibition zone in the Los Osos Basin would reduce recharge to the upper aquifer zones, which in turn would reduce leakage from the upper aquifer Zone C that recharges the lower aquifer zones."* (5.2-18).

The EIR does not quantify the AFY of septic flow that eventually reaches the lower aquifer at present and therefore does not provide a direct comparison to the total AFY of seawater intrusion reduction provided by Broderson disposal and conservation. Such direct comparison should serve as the basis for the assertion that the project will not result in an adverse impact on the aquifer and will maintain or improve current levels of seawater intrusion. We do not know if the 99 AFY that will hopefully percolate to the lower aquifer via Broderson disposal is equivalent to the septic return flow that is currently making that passage via the perched/upper/lower aquifers. These figures must be presented and substantiated if we are to determine if the Broderson recharge plan represents a positive or negative environmental impact of the project.

5.2-19: Project-Specific Impact Analysis:
Long-term operational effects for all four proposed projects include the statement:
"Implementation of the proposed project would reduce septic effluent discharge into the perched aquifer (Zone A). Therefore, the project would reduce the quantity of groundwater within the perched aquifer. However, the exact quantity of reduction within the perched aquifer is unknown, and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known."

In view of the fact that the project will have a known impact to groundwater of unknown magnitude, the project should include additional groundwater mitigation. To that end, we urge the LOWWP to contact the Central Coast LID Center to incorporate infiltrative bioswales in the project design. See: http://www.lowimpactdevelopment.org/greenstreets/background.htm

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5.2.4 - Level of Significance Prior to Mitigation
"All impacts associated with groundwater quality and water supply for each of the proposed projects (project-specific as well as cumulative) were found to be Less Than Significant."

The EIR should specify the amount of dewatering likely to be required for a gravity collection system (12,000 gallons @ minute for Salinas Sewer Line Project), including pocket pumps and pump stations vs. minimal dewatering for STEP collection.

The County does not appear to wish to account for the high likelihood of I/I and exfiltration as the inevitable consequence of the selection of a gravity collection system, and has expressed the belief that a maintenance program will alleviate any possible future problems. Experience elsewhere indicates this is not an adequate response to a problem inherent in the design of the system, and that a belief in the efficacy of future maintenance efforts is not sufficient mitigation for a design flaw in a collection system that would be installed next to a National Marine Estuary and State Marine Reserve. We note:

"Untreated sewage from exfiltration often contains high levels of suspended solids, pathogenic microorganisms, toxic pollutants, floatables, nutrients, oxygen-demanding organic compounds, oil and grease, and other pollutants. Exfiltration can result in discharges of pathogens into residential areas; cause exeedances of water quality standards (WQS) and/or pose risks to the health of the people living adjacent to the impacted streams, lakes, groundwater, sanitary sewers, and storm sewers; threaten aquatic life and its habitat; and impair the use and enjoyment of the Nation's waterways."
- "Exfiltration in Sewer Systems," (Amick and Burgess, Natl. Risk Mgmt. Researeh Laboratory, USEPA, 12/2000).

5.6-13:
"The gravity collection systems allow some flexibility in the placement of the lateral across private property and thus has the potential to be less impacting than the collection system associated with Proposed Project 1."

This analysis appears to misstate the case as to which system offers more or fewer opportunities and more or less flexibility to avoid impacts to sensitive archaeological locations, and does so by impermissibly narrowing analysis to only on-lot impacts, with the apparent intent of making the impacts of a gravity system appear to be less. A STEP/STEG system uses flexible, small-bore pipe, not dependent on grade, laid by directional boring, and can easily avoid sensitive locations. The drilling head can be deflected by changes in soil composition, rocks, etc. Directional boring is not practical for a gravity sewer because it is virtually impossible to maintain line and grade. A gravity system uses a large, rigid pipe, laid in a deep trench and is required to maintain grade. While it may be possible to utilize boring on service laterals, the EIR needs to state how this can be done with sewer mains installed at minimum grades, include

a cost analysis, and reassess the likelihood of this procedure being used in avoidance of impacts to sensitive archaeological locations in view of its cost.

In discussion of avoidance of on-lot disturbance (5.6-36), the EIR mentions the option of replacing an existing septic tank with a STEP tank, impacting only previously disturbed soils. Consideration of that measure should be carried forward here, and impact reassessed accordingly.

Appendix H: Cultural Resources

"The gravity collection systems allow some flexibility in the placement of the lateral across private property. In areas of high archaeological sensitivity (e.g., within site boundaries or in the vicinity of known human burials) it may be possible to bore beneath the deposit for placement of the lateral."

Stating what "may be possible" does not constitute avoidance or mitigation of impacts under CEQA. The EIR must re-calculate its gravity collection system cost estimates to factor in the additional cost for the necessity of converting from trenching to planned and unplanned boring or tunneling to avoid impacts in areas of high archaeological sensitivity. The estimate should include cost of contractor compensation for down time, demobilizing and mobilizing the trenching crew to another location, administration costs, and costs attributed to a change order above bid.

ibid:

"The STEP/STEG method offers fewer opportunities to avoid impacts to sensitive archaeological locations, as it requires the property owner to place the new STE tank on their land thus creating new impacts."

The EIR appears to be conflating excavation of undisturbed sites for large gravity collection pipes with the excavation of front yards for STEP tanks. The potential for cultural resource impacts is far greater when excavation occurs at undisturbed sites and is of far more consequence under CEQA than the disturbance of soil in the front or back yards of homes, disturbed soils that have been previously excavated and filled for the placement of septic tanks.

The EIR's analysis should include the fact that on-site work for gravity requires installation in a trench up to 4 feet deep; the existing septic tank must be removed or crushed in place, requiring excavation. STEP on-site can be either done by replacing the existing tank in the same location. Excavated material can be stockpiled on tarping and equipment can be driven on plywood to minimize impacts. Services can be installed with a walk-behind trencher that cuts a trench that is only a few inches wide.

The EIR does not note that construction of a STEP system can normally be completed without road closures, nor does it state that gravity construction will create significantly more local impact than STEP or analyze these impacts. The EIR should evaluate the potential of leaving the existing septic tank in place for rainwater/graywater catchment.

Appendix K: Air Quality

Odors, 5.9-E

"The potential for odors exist in the collection system for Proposed Project 2, but not nearly to the same extent as Proposed Project 1, which is anaerobic.... In general, the only potential for odor is at the pump stations or if there are long lines with low flow, which is not the situation with Proposed Project 2. Therefore, odor impacts generated from operational activities associated with the collection system in Proposed Project [2 - 4] would be less than significant."(5.9-57)

Level of odor is determined by the organic content in the wastewater. A gravity sewer has a higher organic content and therefore has a higher ability to emit odors, which are common at

gravity lift stations and in minimum grade gravity sewer runs. The EIR needs to consider odor impacts based on the fact that in order to minimize the number of lift stations, the County's preferred gravity collection system is designed with minimum, shallow grades. This will result in more opportunity for stagnant wastewater flow, which can lead to significant odor problems.

Appendix K
Greenhouse gas emissions, 5.9-F:

"The implementation of the collection system under Proposed Project 1 would contribute to the annual reduction in GHG emissions. Therefore, GHG emissions associated with the operation of the collection system of Proposed Project 1 would not hinder or delay the State's ability to achieve the year 2020 goals of AB 32. The operation of the proposed collection system under Proposed Project 1 would contribute a net reduction in GHG emissions, thus, the operation of the proposed collection system would contribute to a beneficial impact on GHG emissions." (5.9-65)"

CAPCOA indicates that a project emitting more that 900 metric tons/yr of GHG will have a significant impact to global warming. This would include Operational GHG Emissions of Project 1 and Project 4. See next comment for likely misstatement of methane impacts by the EIR, and our comment on **Revised Table 5.9-15: Operational GHG Emissions** for the EIR's likely misstatement of methanol impact, and methanol alternatives that could reduce emissions of Proposed Project 1 to no significant impact.

"Also included in the long-term operations of Proposed Project 1 is the methane emissions from septic tank venting. Methane emissions are generated from the anaerobic biodegradation of domestic wastewater within septic tanks and are vented to the atmosphere, contributing to the total carbon footprint calculated for Proposed Project 1. Estimates of the annual methane emissions vented from septic tanks are included for the prohibition zone only at build-out." (5.9-69)

Domestic wastewater methane emissions in the United States are estimated using IPCC methodology. 2006 IPCC Guidelines for National Greenhouse Gas Inventories stated that "below 15°C, significant CH4 production is unlikely because methanogens (the bacteria responsible for producing methane) are not active." The same document states that "Frequent solids removal reduces CH4 production." Ground temperatures in Los Osos are below 15°C. Based on IPCC Guidelines and the County's insistence on 5-year pump-outs, it does not appear that methanogens will establish, or at least that very little methane will be produced due to the low soil temperatures.

If the EIR continues to maintain that methane production from a STEP system would be significant, it should fully evaluate the potential of biogas collection in a STEP system and the use of methane to supply the project's energy needs, potentially turning a negative environmental impact into a beneficial use.

Revised Table 5.9-15: Operational GHG Emissions:
"Chemical production offsite/ Project 1: 356 metric tons CO2e/yr"

The majority of GHG emissions posited for offsite chemical production for Project 1 are calculated as coming from the production of methanol ("GHG from Chemical Production," Carollo, GHG-8). Methanol has been utilized in the EIR's analysis to substantially justify greater capital cost for the treatment plant, increased operating cost for the plant and increased GHG emissions that would be associated with STEP effluent. The Methanol Institute states that methanol production has seen significant reductions in GHG emissions, and that plants are

producing Methanol with a GHG emission rate of 3.8 lbs of equivalent CO2 per gallon of methanol produced. The EIR analysis appears to have utilized the figure of 13.9 lbs of equivalent CO2 per gallon of methanol produced. This should be corrected.

Expanding the methodology utilized for determining the methanol use from the current population has magnified the impact by 60%. The EIR discusses the GHG impacts of the gravity collection system's construction component – a gravity system's greatest GHG impact – in figures that are annualized over 30 years; the methanol component of a STEP system is not thus annualized. The EIR should use the same methodology to compare both.

The EIR should provide a detailed discussion on methanol that establishes immediate methanol use, anticipated methanol use at build-out and a discussion for alternative strategies for mitigating the use of methanol, including alternative carbon sources, (Micro C, et al) alternative methods for reducing nitrogen in the proposed treatment process, alternative treatment processes and alternative disposal/water reuse strategies, including ag exchange as part of the immediate project, which would reduce methanol significantly or eliminate methanol use.

Alternatives to the Proposed Project 7.2.1
Table 7-3: Summary of Project Screening Evaluation Criteria:
"Energy: A. Contribute to air quality improvements - Project should minimize particulate emissions and minimize release of airborne pathogens and exposure to vectors.
B. Promote sustainability - Project should optimize energy efficiency and reduce overall use of natural resources."

The EIR states that operation of gravity collection system would consume 500,000 Kwhr/yr., whereas a STEP/STEG system would consume 425,000 Kwhr/yr. The lower energy consumption of a STEP system makes feasible the use of on-site, clean alternative energy sources to power the system. We note the concurrence of the NWRI Independent Advisory Panel (Final Report, 10/23/08) with the *Statement of Key Environmental Issues* by Surfrider Foundation et al that "the collection system for the Los Osos Wastewater Project should...provide the most energy-efficient solution and enable the use of clean, renewable energy sources, avoiding environmental impacts related to non-renewable energy production."

"Supplemental environmental documentation may be required to evaluate some aspects of the final Proposed Project and provide adequate public review of the Proposed Project's environmental impacts. The County has committed to consider thoroughly the final Proposed Project's potential environmental impacts and public comments before completing and certifying the Final EIR." (7.2.1)

The County must fulfill this commitment. Because the foregoing comments constitute significant new information added to the EIR after public notice was given of the availability of the draft EIR for public review; and because agricultural exchange is a feasible mitigation measure considerably different from others analyzed that would clearly lessen the environmental impacts of the project, but the project's proponents have declined to adopt it; and because the draft EIR is so fundamentally inadequate and conclusory in nature that meaningful public review and comment were precluded, the County must recirculate a revised draft EIR prior to certification, pursuant to *CEQA Guidelines* § 15088.5(a)(1); § 15088.5(a)(2); and § 15088.5(a)(3).

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COMMENTS ON NOP – RESUBMITTED

January 9, 2008

Mark Hutchinson
SLO County Public Works Dept
County Gov't Center, Rm 207
San Luis Obispo, CA 93408

RE: Notice of Preparation, Los Osos Wastewater Project

Dear Mr. Hutchinson,

On behalf of the 2,500 members of the Santa Lucia Chapter of the Sierra Club, please accept our compliments on the very thorough job of scoping the Los Osos Wastewater Project. We look forward to an equally thoroughgoing EIR based on Public Works' preliminary environmental scope.

We have a concern regarding the presentation of the De-Centralized Treatment option, of which it is stated that "the County is producing an engineering report on this option to determine if it has the potential for use in Los Osos. If so, the EIR will need to include an analysis of the environmental effects of this approach." (p. 18). This follows a paragraph on regional treatment, for which is stated that there will be an "initial evaluation of the environmental consequences...in concert with an engineering evaluation." No initial environmental evaluation is mentioned in the context of the de-centralized option.

The contrast in wording gives the impression that the engineer's evaluation will be weighed in concert with an environmental evaluation in considering regional treatment, but that in considering de-centralized treatment, should the engineering report determine that this option does not have "potential," the EIR will not engage in a full examination of de-centralized options.

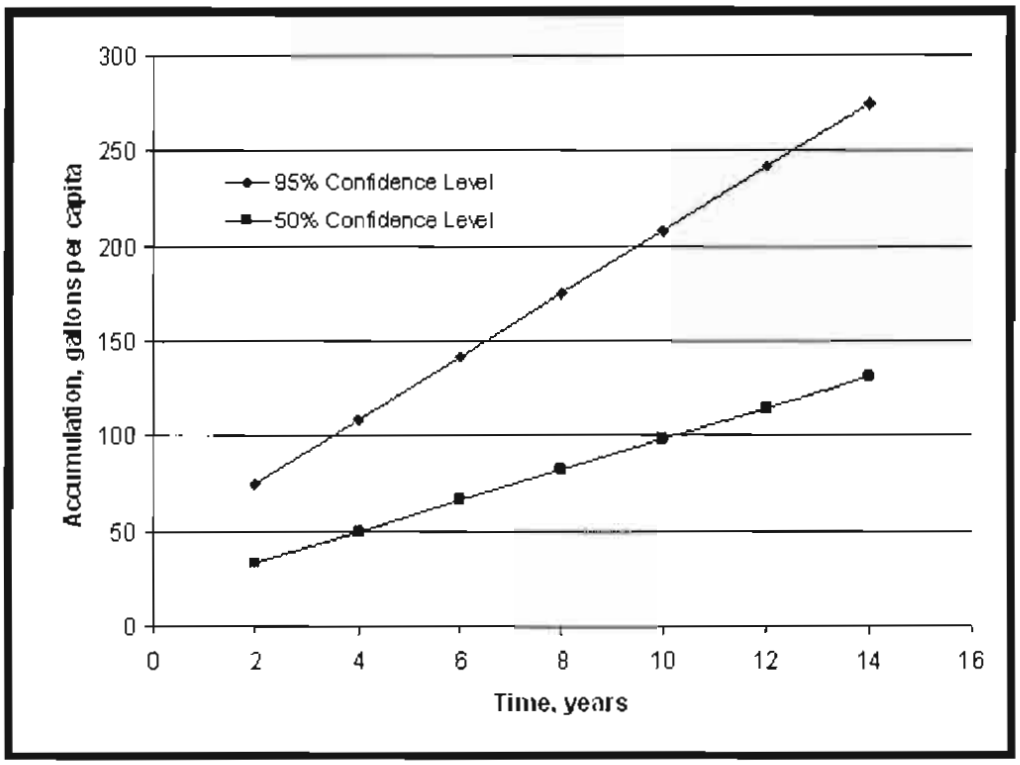
This is of concern as, presumably, the engineering report has not itself undergone a scoping process, hence we don't know how the County's engineers define "de-centralized treatment" -- if, for example, they are evaluating effluent sewers for conveyance, cleanouts in lieu of manholes, or a mix of on-site systems, cluster systems and more centralized systems within a decentralized management concept.

For conformity and parity, we recommend that the EIR's methodology of environmental and engineering evaluations undertaken "in concert" for the regional treatment option be adopted in evaluation of the de-centralized treatment option as well.

For the Sierra Club,

Andrew Christie
Chapter Director

Attachment 1: STEP Tank Pump-Out Intervals



Source: Crites, R. and Tchobanoglous, G., *Small and Decentralized Wastewater Management Systems*, McGraw Hill, 1998, Fig. 5-50 (from USPHS).

This chart shows septage accumulation per person, which at the 50% confidence level equals about 10 gallons per person per year. 25% of a 1,500 gallon tank equals @ 375 gallons. 3 persons x 10 gal/person/year x 10 years = 300 gallons. This argues for a 10-15 year pumpout, which would consist of 500-700 gallons of scum and sludge.

The chart does not factor in water conservation. With hydraulic flows per person reduced, the septage accumulation should be even lower due to increased hydraulic residence time in each STEP tank. Based on 3 persons per house in a moderate climate, 1,500-gallon STEP tanks should be pumped in a 10 to 15-year interval.

Ripley Pacific Team
Los Osos Wastewater Management Plan Update

TECHNICAL MEMORANDUM # 7

Author: Mike Huck

Reviewer: Bahman Sheikh

Date: July 24, 2006

TM Title: Los Osos Growers' Field Trips to Monterey Area

General Information

Field trips to Monterey area were organized for Los Osos area nurserymen, growers and landowners on June 16 & July 20, 2006. Although water recycling in agriculture is also being done more locally in the Santa Maria area, the Monterey Regional Water Pollution Control Agency (MRWPCA) program was specifically selected for the tours since it has over eight years of operating history. Additionally, of the over 12,000 acres served by the project, only 76 acres are non food crops (ornamental flowers and bulbs). Additionally a nearby recycled water reservoir similar in size to what the Los Osos project would require was toured in the Del Monte Forest, on the Monterey Peninsula within the Pebble Beach community.

Attendees

Over a dozen individuals representing nursery and agricultural concerns from the Los Osos area were invited via personal visits and phone calls to attend these trips. Unfortunately many of these individuals had previously scheduled personal and professional obligations (weddings, vacations, and other work related obligations, etc.) that interfered with their attendance and only four individuals were able to attend the field trips. Those individuals who could not attend mentioned that they would contact one of the attendees to discuss the information gathered regarding the Monterey water recycling project tours.

It is important to recognize that the individuals who did attend are potentially "key players" in the Los Osos recycled water irrigation reuse / agricultural exchange plan. They had interest in the program, desired more information and also represented as the landowner or land lessee over 250 irrigated acres over the groundwater basin in Phase A and over 450 acres in Phase D area off the groundwater basin.

The individuals representing the Los Osos area nursery and agricultural community attending the field trips included:

- Elliott Paulson - Owner, Clearwater Color Nursery (June 16)
- John Giacomazzi - Landowner of Site D, and Landlord to Dohi Vegetable Farms (June 16)
- Hugh Dohi - Dohi Vegetable Farms (July 20)
- Alan Eto - Agricultural Seed Salesman, Landowner and Landlord to Dohi Vegetable Farms (July 20)

Also in attendance representing the Ripley Pacific team included:

- Dana Ripley (June 16)
- Bahman Sheikh (June 16)
- Tom Ruehr (June 16 & July 20)
- Mike Huck (June 16 & July 20)

Field Trip Activities and Key Messages Presented

Each trip departed from Los Osos at approximately 7:00 am and returned around 5:00 pm. During the drive to and from the Monterey area Tom Ruehr provided an invaluably comprehensive discussion with the growers regarding the chemical differences between recycled water & groundwater and how the water can be treated to adjust pH and/or SAR. Various other subjects regarding soil science, plant nutrition and other general agricultural topics were also discussed while enroute. In Monterey, the participants were provided the following opportunities:

- Touring the Monterey Regional Water Pollution Control Agency (MRWPCA) water recycling facilities to allow the Los Osos growers to better understand what is involved in the production of Title 22 disinfected tertiary treated recycled water.
- Meeting Monterey area growers and asking questions regarding their experiences using recycled irrigation over the past eight years, regarding soil salinity management, plant nutritional and food safety concerns.
- Discussions with MRWPCA staff regarding seawater intrusion as the driving force for instituting the water recycling program.
- Touring various vegetable crop fields irrigated with recycled water, observing the turnout connections and discussing system operations with MRWPCA operational staff.
- Touring the Forrest Lake Reservoir located on the nearby Monterey Peninsula within the Del Monte Forrest's community of Pebble Beach. This tour al-

lowed growers to visualize the storage requirement for Los Osos. The Forest Lake Reservoir is comparable in size to the projected storage needed for the Los Osos project. This also demonstrated that with proper management stored recycled water presents no concern regarding odor, since multi-million dollar homes are located within 200 to 300 feet or the eastern shoreline overlooking the reservoir.

The growers learned that the MRWPCA currently has 95% voluntary participation of growers irrigating with recycled water and more recycled water would be used if recycled water was available for 100% of their needs.

As reported by the MRWPCA, they estimate that during a severe drought there would only be a 5% reduction of recycled water production.

Attendees of the July Monterey Field Trip discuss recycled water monitoring with the MRWPCA laboratory staff.

Attendees of our June Monterey Field Trip discuss field operations with MRWPCA operations staff.

Tour Results and Other Interested Parties

After the completion of the two field trips it was apparent that many of the concerns and questions of growers and landowners had been resolved. Mr. Giacomazzi shortly after his attendance to our June trip sent a letter of interest for consideration of enough water to irrigate approximately 150 acres. Mr. Eto commented that he is willing to consider recycled water when it becomes available. Mr. Paulson wanted to know when recycled water deliveries might be available for his nursery. Mr. Dohi said he feels confident there would be no problem growing his vegetable row crops with recycled water and the final decision in his case would be in the hands of his landlords. Mr. Dohi also commented that in dry seasons recycled water would assure him he had an adequate quantity of water available for irrigation.

In addition to growers on the basin two inquiries for recycled water have been received for currently dry-farmed land off the groundwater basin. Both individuals were investigating purchase of the 640 acre ranch that is currently for

sale on the west side of Turri Road and wanted to acquire an irrigation water source. Each individual has been informed that the first priority for recycled water will go towards in-lieu recharge (exchange of groundwater extracted from the Los Osos aquifer now used for irrigation purposes). After that any remaining recycled water may become available for irrigation use off the groundwater basin.

Ranking of Alternatives
(Environmentally Superior Alternatives Shown In Bold)

Project Component	Alternative
Collection	STEP/STEG
	STEP/STEG Hybrid
	Gravity (proposed)
Treatment	Extended Aeration Hybrid (proposed
	Extended Aeration
	Sequencing Batch Reactor
Treatment Sites	Andre
	Holland
	Morro Shores Southwest
	Tri-W (proposed)
	Pismo
Disposal	Subsurface Leach Fields (proposed)
Biosolids	Hauling