

**Technical Memorandum Name: Decentralized Treatment, January 2008**  
**Commenter: David Venhuizen**  
**Comments Date: January 30, 2008**  
**Responses Date: September 25, 2008**

The following comments were submitted in response to the above listed Technical Memorandum (TM). The TM was developed as part of the EIR process for the project, in order to help facilitate and broaden the discussion of project issues important to the community. The responses should be considered preliminary because the EIR process is not complete, and the information necessary to fully respond has not yet been developed. The project team is grateful to those citizens who took the time to review the TM and provide comments at this early stage in the process. The project team will endeavor to fully address the comments and concerns through the on-going project development process.

	<b>Comment</b>	<b>Response</b>
1	<p>Hello Mr. Ogren:  I was provided the link to the decentralized TM this morning, and spent a bit of time going over it. Obviously this is not a real thorough review and analysis -- as I do not have the resources for that -- but I trust you will find the observations offered to be thought-provoking. While I understand the intention that this is a "discussion level" document, I still found it disconcerting that it exhibited some of the things it did, as reflected in my comments. Please do not hesitate to call or write if you wish to discuss any aspect of my comments. Best regards,  David Venhuizen, P.E.</p>	<p>The draft Decentralized TM presented the overall concepts and issues associated with decentralized wastewater collection and treatment in Los Osos and addressed the conceptual descriptions submitted by Pio Lombardo in a letter dated June 8, 2007. Due to the uncertainty of the conceptual description, and public comments submitted in response to the draft TM, Pio Lombardo of Lombardo Associates, Inc (LAI) was retained to further develop a conceptual decentralized plan for the development of a Final TM. The LAI conceptual plan for decentralized treatment includes 7 separate collection zones and treatment plant sites. Detailed cost estimates for this decentralized plan are presented in the Final Decentralized Treatment Tech Memo and appendices.</p>
2	<p>Potential barriers are simply noted, sort of as "boogey men", with no apparent effort to meaningfully address them. Raises the question of just what is the purpose/meaning of this TM? The opening sentences says, "The purpose of this technical memorandum (TM) is to identify for further discussion a list of issues for the use of decentralized treatment with cluster/communal systems." Fair enough. But what it fails to do is provide any clue as to discussion by whom, employing what expertise, paid for how, leading to what. What was the value of simply asking a lot of questions and failing to answer them, of posing supposed barriers and doing nothing to evaluate what they might imply? To simply lay out there some innuendos about the decentralized concept?</p>	<p>The draft tech memo identified the general concepts of decentralized treatment and the potential issues that would need to be addressed. A more detailed conceptual plan has been developed by Pio Lombardo of Lombardo Associates, Inc (LAI). The plan is presented and evaluated in the Final Final Decentralized Treatment Tech Memo and attachments.</p> <p>Further analysis of these issues will take place in the context of the project's Environmental Impact Report (EIR). Should decentralized systems prove to have the potential to meet the project objectives while complying with the requirements of the applicable environmental and land use statutes, then members of the EIR team, including licensed engineers well qualified to assess all aspects of wastewater treatment systems with respect to the various requirements of California law will undertake more detailed review of decentralized systems.</p>

3	<p>In particular, is it not an insult to the people of Los Osos to imply—as this TM seems to—that any effort to more explicitly evaluate a decentralized concept option would/should be vendor-driven, rather than an integral part of the overall evaluation process? Is this TM indeed implying that it would be up to LAI (or ANY vendor) to unilaterally provide the information and analyses deemed to be necessary from sources external to this project?! Therefore, the central question about this TM is – What is the "project team" going to do to more fully evaluate a decentralized concept strategy and flesh out this sort of option so that it can be fairly and meaningfully compared with the centralized strategies?</p>	<p>See above response. If the decentralized concept is shown to meet the majority of project objectives while meeting land use and environmental requirements (least environmentally damaging alternative) then additional analysis will be included in the EIR. To this end, the County cooperated with LAI, a recognized expert in the field of decentralized wastewater systems, to develop a conceptual plan for decentralized treatment in Los Osos.</p>
4	<p>Presumptions about "economy of scale" the larger a treatment unit becomes – ignores the economics of transporting the wastewater. While this is peripherally addressed by way of asking questions about the LAI proposal, the innuendo is laid out up front, left to simply "infect" the uninitiated reader with the idea that economy of scale of treatment unit cost is a controlling factor, which is not true, since it is total system cost relative to the benefits obtained—including sustainability indicators that are not captured by first cost alone—that defines the overall value of any given option.</p>	<p>Economy of scale is an important consideration in both the construction and operation of wastewater treatment facilities. All costs are evaluated in terms of the project's life cycle. Life cycle cost estimates include capital costs for construction as well as ongoing operations and maintenance costs for labor, energy, materials, equipment replacement, and others.</p>
5	<p>Soil dispersal, nitrogen removal issue, bears some closer examination – A review of considerations regarding this matter was provided separately.</p>	<p>It is important to note that the California Regional Water Quality Control Board has indicated that any discharges in the Prohibition Zone must meet a 7 mg/L nitrogen standard; systems that would propose higher initial nitrogen levels, relying on vegetation uptake or soil treatment/dispersion, have not received a positive regulatory response.</p>
6	<p>The whole issue of septic tanks on lots to allow effluent sewerage to be used is tied to STEP with a pump on every lot as the only way to implement it, presumes the issues of pumps on lots are unavoidable. This is quite obliquely "modified" later in posing questions about the LAI proposal but is set forth up front and left to simply "infect" the uninitiated reader with the idea that STEP is inherently problematic because pumps must be on the lots. This is simply untrue, so for what purpose is it set forth in this manner?</p>	<p>See the conceptual plan developed by LAI in the final tech memo appendices. The proposal includes a large degree of STEG systems which do not require effluent pumps on each lot.</p>
7	<p>Presumption of need for "external carbon source" to achieve denitrification – ties in to presumption that very low (&lt;7 mg/L) total N is required prior to dispersal, again related to N removal in soil dispersal systems. Indicates incognizance of the sorts of treatment technologies that would be favored for use in decentralized concept strategies, even as it</p>	<p>As established by the RWQCB, any wastewater system developed for Los Osos which discharges within the Prohibition Zone will be required to meet the 7 mg/L total nitrogen standard. The Nitrex reactive media filters proposed by LAI in their conceptual plan for a decentralized system meets these requirements.</p>

	acknowledges that they are likely to be different from those that might be favored for highly centralized systems.	
8	Operational issue – asserted that larger systems are more stable and able to deliver higher quality effluent. This is dependent on the technology employed, technology with flow equalization inherent in it is relatively immune, at ANY scale. Again an explicit statement of incognizance about the nature of technologies that would be favored in a decentralized concept strategy. Assertion of backup power being needed is dependent on the design specifics and implications of the power outage on ability to get wastewater to the treatment unit. Yet it is stated as an absolute need, with the not-so-veiled implication that this makes distributed treatment units problematic. For what purpose?	Economy of scale is an important consideration for construction and operations costs. For example, backup power is expected to be required at each treatment facility. Detailed cost estimates for LAI's decentralized plan are presented in the Final Decentralized Treatment Tech Memo and appendices.
9	A team of roving operators – makes it sound like they'd have to be hovering constantly. This is subject to the sort of technology employed and specifics of the design. In any case, the management system must be organized to the manage the system implemented, a whole `pother area of discussion.	The concept of a "team of roving operators" consisting of 2 or 3 full time equivalents is in contrast to the potential for staff dedicated to each treatment facility. LAI's decentralized plan estimates 2.5 full time equivalents. Details are presented in the Final Decentralized Treatment Tech Memo and appendices.
10	The Title 22 requirement for daily monitoring applies to reuse applications with a high potential for human contact – this again is subject to specifics of system design. Later in the report, it is indeed explicitly noted that Title 22 restrictions would apply only to surface irrigation. Yet it is stated up front as an absolute barrier, left to simply "infect" the uninitiated reader with the idea that distributed reuse is highly problematic. For what purpose?	Residential reuse of treated effluent (with a high potential for human contact) was considered because it was a key element of the conceptual descriptions submitted by Pio Lombardo in a letter dated June 8, 2007. The LAI conceptual plan and cost estimates in the Final Decentralized Treatment Tech Memo and appendices includes options for Title 22 residential reuse and options for sub-surface disposal.
11	Assertion of need for long-term effluent storage for wet weather is set forth as an absolute need. This demonstrates incognizance of the ability of drip field to act as a drainfield at any time that soil moisture is driven above field capacity. Considerable information on this matter has been delivered to the County. May also indicate preoccupation with instantaneous concentration of total N in percolating effluent-derived water, while mass loading is the matter of concern.	Wet weather storage would be required if residential reuse/urban irrigation is to be maximized and therefore maximize potential benefits to the water supply. Sub-surface disposal would provide the needed disposal capacity, but would have marginal benefits to the water supply.
12	However the effluent would be dispersed from a centralized plant, that remains available for the effluent from decentralized plants. Wheeling around highly treated effluent would be significantly less costly than a collection	The LAI conceptual plan includes options for Title 22 residential reuse and options for sub-surface disposal at a few sites. Detailed cost estimates are provided in the Final Decentralized Treatment Tech Memo and appendices.

	<p>system for raw wastewater or septic tank effluent. There is no hint that such a consideration is available, rather it is simply presumed that distributed treatment would REQUIRE distributed dispersal, solely and exclusively. Incognizance? Or purposeful?</p>	
13	<p>A centralized plant – high daily flow – would only require monthly or quarterly monitoring, even though very high quality effluent must be assured, consistently and reliably?! Really? There are any number of operating/monitoring concepts that could be employed to render distributed, small treatment units more fiscally reasonable to operate. Sure, these would have to be investigated with the regulatory system, but it is implied in the TM that high monitoring costs are an absolute and immutable barrier, rather than indicating any cognizance of such possibilities. For what purpose?</p>	<p>Daily monitoring would be required for Title 22 reuse applications. Residential reuse was a key element of the conceptual descriptions submitted by Pio Lombardo in a letter dated June 8, 2007 and remains an option in the more detail plan recently developed by LAI. The centralized treatment and disposal projects analyzed in the Fine Screening Report do not propose Title 22 reuse.</p>
14	<p>Comparing an effluent sewerage system collecting wastewater to small-scale distributed treatment centers to a town-wide STEP system is invalid, as the former would be of more limited extent and would eliminate all the larger pipes. Yet the TM sets this forth as a "reasonable" comparison. For what purpose?</p>	<p>A collection system to serve the entire community, whether STEP/STEG or gravity, would require a similar length of total piping (about 45 miles) and similar pipe sizes (4" to 8") for either a centralized or de-centralized system. Detailed cost estimates for the LAI decentralized plan and comparison to a centralized collection system are presented in the Final Decentralized Treatment Tech Memo and appendices.</p>
15	<p>Why would treated effluent redistribution lines need to be 10 feet from effluent sewerage lines? Isn't that a rule for POTABLE water lines? Why can't you just drop another pipe into the same trench carrying the effluent sewer lines? Maybe requiring 1 foot vertical separation.</p>	<p>State of California regulations require minimum separation from sewer lines, even for recycled water. In California, you can't just drop a pipe carrying Title 22 recycled water (with a high potential for human contact) in the same trench as raw sewage.</p>
16	<p>It seems to be implied that the sort of STEP system previously considered is the ONLY way to do it, while there are options that might eliminate most pumps from the system when the treatment capacity is highly distributed. Again, this was implicitly modified in commenting on the LAI proposal, but that was after this idea was simply left to "infect" the uninitiated reader that STEP would be costly and problematic.</p>	<p>The conceptual STEP plan developed by Ripley Pacific required a pressurized system to deliver sewage to an out-of-town treatment facility. The LAI conceptual plan for decentralized treatment includes a large percentage of STEG systems. Detailed cost estimates for this decentralized plan are presented in the Final Decentralized Treatment Tech Memo and appendices.</p>
17	<p>Seems to be a resistance to formulating an actual, realistic model of a decentralized concept system, rather a "generic" model totally molded in the image of the STEP system serving the centralized concept is "imposed" — then they also impose a cost for redistribution, apparently without regard to the relative benefits to the water economy of each option. Recognizing the "discussion level" of this document, still this is a very incomplete</p>	<p>Pio Lombardo of Lombardo Associates, Inc (LAI) was retained to further develop a conceptual decentralized plan for the development of a Final TM. The LAI conceptual plan for decentralized treatment includes 7 separate collection zones and treatment plant sites. Detailed cost estimates for this decentralized plan are presented in the Final Decentralized Treatment Tech Memo and appendices.</p>

	picture of the benefits and liabilities of the whole system. Purposeful or simply due to incognizance?	
18	In order to derive the sort of more detailed information as referenced in discussion of LAI proposal, would have to formulate the system model. This would rationally have to be an integral part of the planning/evaluation processes. It is not realistic to expect anyone to invest this level of effort solely on speculation, in the hopes of getting a contract to implement that sort of system. Thus, this is a job that the "project team" must do, including the incorporation of the expertise needed to do it competently. Clearly, from the sorts of questions asked and assertions made in this document, the project team does not currently house that expertise.	See above. Pio Lombardo of Lombardo Associates, Inc (LAI) was retained to further develop a conceptual decentralized plan for the development of a Final TM. The LAI conceptual plan for decentralized treatment includes 7 separate collection zones and treatment plant sites. Detailed cost estimates for this decentralized plan are presented in the Final Decentralized Treatment Tech Memo and appendices.
19	The concerns about the large centralized activated sludge-based plant at Tri-W are in another universe from the concerns about small, distributed recirculating biofilter treatment units. To suggest that the "conclusions" of NWRI Peer Review Report has any significant bearing on this is, well, just flat strange.	Concerns and challenges exist with any type of system proposed to solve a problem of this large scale. The purpose of the Decentralized Treatment Tech Memo is to evaluate this option and the potential challenges associated with it.
20	One supposes there is a reason for the designation of "ESHA land". There is no apparent effort to divine how dispersing highly treated effluent on some small percentage of the total land area covered by the designation might "violate" that reason. Thus, this whole issue remains to be defined and examined, as this TM has failed to do so. Rather it just points to it as a potential barrier, leaving it there to "infect" the undiscerning reader.	California environmental law, specifically, the California Coastal Act, have strict definitions and regulations for allowable uses on ESHA. These provisions remain a significant challenge for any wastewater facilities located on ESHA.
21	There definitely was a reason for designating the "Prohibition Zone" (a reason that is hotly contested by some in the community, by the way). This TM seems to imply that the prohibition of "discharges" within the zone is a "good" in and of itself, disconnected with the reasoning for its formulation. So instead of examining if/how any option that would propose to "discharge" within the zone satisfies the reasoning for the "prohibition", this TM simply points to it as a barrier, without analysis, leaving it there to "infect" the undiscerning reader.	All discharges are currently prohibited within the Prohibition Zone. Allowance for permitted discharge is at the discretion of the regulatory agency. Permitting a decentralized system may be more challenging due to the multiple treatment and disposal processes.