



**Central Coast
Regional Water
Quality Control
Board**

81 Higuera Street
Suite 200
San Luis Obispo, CA
93401-5427
(805) 549-3147
FAX (805) 543-0397

January 23, 1998

Gary & Pandora Nash Karner
Solution Group
350 Michell Drive
Los Osos, CA 93402

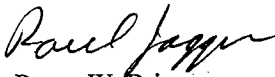
Dear Mr. and Ms. Karner:

**QUESTIONS AND ANSWERS REGARDING SOLUTION GROUP PROPOSAL FOR BAYWOOD
PARK/LOS OSOS WASTEWATER FACILITIES**

During our conversation after your January 7, 1998, presentation to the County Board of Supervisors, I agreed to provide comments on your December 30, 1997 Questions and Answers about the Community Plan. Our comments are attached, however, as a matter of clarification, I wanted to point out that the State and Regional Water Quality Control Board's mission is to "preserve and enhance the quality of California's water resources and ensure their proper allocation and efficient use for the benefit of present and future generations." It is not our policy, nor do we have the authority to specify the method of compliance. To that end we have worked with the County in a limited capacity with regards to the design of their collection and treatment project. We have circulated draft waste discharge requirements, which the County used to direct their design consultants. I recommend your designers use these same requirements as part of their design efforts.

Our comments are arranged to follow the order of issues presented in your report. For clarity we have numbered each question listed in your report and responded in a corresponding manner. I hope this information assists you in further understanding our role in the Los Osos wastewater issue. We hope these comments can help form the scope of work for the independent evaluation of the County's project and your concept. If you have further questions, please contact me at 549-3140.

Sincerely,

for 
Roger W. Briggs
Executive Officer

SMH:\LOSOSOS\solugrp.LTR
Task: 121-01 File: SLO CSA9, Los Osos

cc: Regional Board Members

State Board: Walt Petit, Fran Vitulli, Jim
Bennett, Jim Putnam, Darrin Polhemus

Mr. Steve Monowitz
California Coastal Commission
725 Front Street
Santa Cruz, CA 95060-4508

Michael Draze
SLO Co. Dept. of Planning & Building
County Government Center

George Gibson
SLO Co. Engineering Dept.
County Government Center
San Luis Obispo, CA 93408

Mike Ryan, Chairman
SLO Co. Board of Supervisors
County Government Center
San Luis Obispo, CA 93408

Honorable Jack O'Connell
Senator 18th District
1260 Chorro Street
San Luis Obispo, CA 92301

Honorable Tom Bordonaro
Assemblyman 33rd District
1060 Palm Street
San Luis Obispo, CA 93401



Pete Wilson
Governor



Questions and Answers, print date December 17, 1998

1. The County recently spent 1.3 million dollars for development of the Avila Clean Up EIR (a smaller town with a shorter-term project in an already degraded area which had few biotic impacts). Your project includes siting a new sewage treatment plant in a new area, etc. however your cost estimate is \$125,000. Also, you have estimated design, site planning and tentative plans costs as \$275,000. Both cost estimates seem unrealistically low especially when you consider how much the County has spent to date on their proposal. Do you have a qualified consultant (with design expertise) who has agreed to do the work for this price?
2. In order to evaluate public reaction to sewage ponds at your proposed site, you should clearly present the fact that this is not just raw sewage, it is septic tank effluent transported in force mains which will maintain anaerobic conditions (and hydrogen sulfide gas) in addition to septic solids trucked to the plant. While properly designed ponds can be relatively odor free (with hydrogen sulfide oxidizing to sulfate), if the ponds "turn over" (warmer anaerobic layer rises) and/or odors are trapped in the fog layer, there will be many complaining neighbors. If disposal of secondary effluent in ponds 200' from residences was objectionable, we believe it is highly likely that neighbors will object to septic effluent and solids (including floatable plastics) in ponds 50' from residences and entirely visible.
3. The County also sited its facilities in areas they thought had fewer habitat issues. Significant habitat issues were not well known until thorough evaluation was completed. Comparable rates of habitat protection (based on acres disturbed by project) should be expected and included in cost estimates.
4. Setback is primarily an odor mitigation issue. A shrubbery hedge is inadequate to mitigate odors or public health and safety issues.
5. You may be interested to learn that secondary treatment of wastewater is biological oxidation. Comparison of what you term a "biological system" (AIWPS) versus a "mechanical system" (activated sludge) is not correct. Both systems depend upon biological organisms to break down waste matter. Such organisms can be aided (in processing waste) by careful addition of air and food (waste), and management of organism population density. The County treatment plant includes many opportunities to control/optimize biological processes.

Let me explain this another way: Sewage treatment takes energy to break down waste matter to inert manageable parts (water, solids, gases). Biological organisms which break down the waste need energy (relative to amounts of time and space). If you have large amounts of space and time (such as low maintenance, remote pond systems), then large amounts of oxygen dissolved into the ponds' surface and solar energy are utilized to help organisms thrive and process wastewater. Urban wastewater facilities (where space is limited) utilize added energy (aeration) and other controls (recirculation) to reach the same goal using less space and less time.

8. There seems to be agreement that an additional pond would be needed. It should be included in land acquisition, habitat mitigation acreage, design, installation and maintenance cost estimates.
13. By approving the County project, the Regional Board agreed to a compromise approach resulting from community group recommendations. The County project includes implementation of an on-site wastewater management district. It should also be noted that alternatives using part STEP systems should use the same criteria: if STEP (or other type of pressure system, e.g., grinder pumps) are less costly on a per unit basis they should be included in the County project and the cost would be reduced. Such is the project approved by the Board of Supervisors and designed for Los Osos. It is difficult to

believe that STEP systems, with their operations and maintenance costs, would be more cost effective for those areas where gravity lines can be used at reasonable trench depths.

16. Your STEP system consultant recommends replacing all septic tanks in order for the system to function properly. Costs for additional tanks (and ability to pump back to system) should be included in your estimates.
19. We have encouraged the County to include STEP systems where such systems are cost effective (considering capital as well as operations and maintenance costs). We think your assumption that only 10% of the septic tanks will need replacement is very low and drastically affects your cost estimates, especially considering your own consultants recommendations noted above (specified in the appendices to your plan). How to collect the sewage is up to the County so long as there are contingencies to prevent overflows. We do have concern about an entire community's wastewater being septic tank effluent and septage. The potential for odors and possibly treatment difficulties is greater. Coupling this potential problem with close proximity to houses, businesses, and park users seems to be a basic conceptual problem. At the Solution Group's January 7, 1998, presentation to the Board of Supervisors, Dr. Green responded to a question from Supervisor Ovitt by saying he has no experience with, and knows of no similar arrangements (all STEP system effluent being treated by AIWPS). When asked about setback distances for pond systems for which he did have experience, Dr. Green referred to systems ranging from 300 yards (900') to a couple miles (10,500'). This is substantially different from the proposed 50' setback. Again, we are not saying it can't be done, we're just pointing out the obvious contradictions between the proposal and many of the perceived problems with the Broderson percolation ponds.

Questions and Answers. print date December 29, 1998

1. It is not clear how your comparison of nitrogen loading to ground water resulted in the statement that the Solution Group proposal would result in less nitrogen discharge and restoration of the shallow ground water six years sooner than the County project. Did your evaluation take into account discharges from septic systems not connected to the sewer system? A straight forward comparison (using your flow and nitrogen content values) indicates the Solution Group proposal would contribute considerably more nitrogen to the ground water basin as compared to the County project. Of course determining ground water restoration time requires a more complex evaluation and modeling effort.

Nitrogen Loading

Flow and nitrogen values used in the "Nitrogen Loading" calculations included in your report are from a variety of sources and appear to conflict within this chart. For example, total effluent flow for the County system is corresponds to 110 gpd/person then assumes 36mg/l nitrogen concentration. This does not correspond with 13g nitrogen/person/day also used in the calculations. The calculations specify 66% nitrogen removal in soil, but apply this removal only to septic tank discharges. Also, your project description refers to earthen ponds which are likely to contribute considerable amounts of nitrogen to ground water. This source of nitrogen is not included in your calculations.

Calculations based on applying soil column removal to all discharges and calculations based on total loading of nitrogen to the soil both indicate larger amounts of nitrogen would result from the Solution Group proposal than from the County project. A more straight forward analysis, which shows the County project will discharge 176 pounds of nitrogen per day versus 789 pounds per day for your proposal (nitrogen from treatment pond seepage is not included in these calculations):

County Project

(3.02 MGD)(7 mg/l N)(8.34 conversion to lbs) = 176 lbs N / day discharged

Solution Group

Based on Solution Group assumptions re: NO₃:

[(0.82 MGD)(3 mg/l N)+(3.02-0.82 MGD)(40 mg/l N from septics)] (8.34) = 754 lbs N / day discharged

Based on Solution Group assumptions re: total N (stated on page 25 of plan as 3 mg/l from NO₃ plus 5 mg/l from NH₄, which is part of the total N load, and will convert to NO₃ in vadose zone = 8 mg/l N in pond effluent):

[(0.82 MGD)(8 mg/l N)+(3.02-0.82 MGD)(40 mg/l N from septics)] (8.34) = 789 lbs N / day discharged

The calculations above do not include nitrogen from septic systems remaining in use in the unsewered areas of the County project as this source would be the same contribution under both proposals.