

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF APRIL 28, 2006

Prepared on April 4, 2006

ITEM NO: 3

SUBJECT: CEASE AND DESIST ORDERS REQUIRING PROPERTY OWNERS AND RESIDENTS IN THE LOS OSOS/BAYWOOD PARK PROHIBITION ZONE TO CEASE AND DESIST FROM DISCHARGING WASTE IN VIOLATION OF BASIN PLAN PROHIBITION

KEY INFORMATION

Locations:	Randomly selected addresses throughout the Los Osos/Baywood Park Prohibition Zone, San Luis Obispo County (map of locations: Attachment 1)
Type of Waste:	Domestic wastewater
Design Capacity:	Approximately 75 to 400 gallons per day (each)
Treatment:	Septic tanks
Disposal:	Percolation to groundwater via leach fields or seepage pits
Action Proposed:	Adoption of Cease and Desist Orders

This staff report, attachments, and the documents listed in Attachment 3 constitute the Prosecution Staff's comments and evidence for purposes of the Hearing Notice. All documents listed in Attachment 3 are incorporated by reference pursuant to 23 California Code of Regulations §648.3. The list contained in Attachment 3 was provided with the original draft Cease and Desist Orders (CDOs) on January 27, 2006, except additions as noted.

BACKGROUND

In 1983, the Central Coast Water Board adopted a prohibition of waste discharges from onsite systems (septic systems) in the most densely developed area of Los Osos and Baywood Park, which is now commonly known as the Prohibition Zone. That prohibition took effect in 1988, and remains in effect today. All owners and tenants of occupied improved properties in the Prohibition Zone are discharging waste from their septic systems and violating this prohibition. These prohibited discharges have degraded groundwater quality and threaten public health. Shallow groundwater discharges into Morro Bay Estuary along the approximately 2.5 mile shoreline within the Prohibition Zone. In some areas, where

shallow groundwater seeps into Morro Bay are accessible for sampling, analyses of these seeps indicate fecal coliform bacteria greatly exceed standards, and DNA testing indicates the largest source is humans. Septic systems discharge to shallow groundwater near these seeps. During wet weather cycles, high groundwater causes septic tank effluent to surface in some areas, presenting a health hazard. The Los Osos Community Services District (LOCS D) periodically operates pumping systems to dewater the most critical areas to prevent flooding of homes and streets.

Connection to a community sewer system is the most practical manner to comply with the prohibition. However, no community sewer system is available. The LOCS D is the current lead agency for constructing a sewer system. LOCS D began constructing a community sewer system in August 2005, but stopped construction and now intends to redesign the project, with the treatment plant at a new site, possibly using a completely different collection system. The LOCS D is also asking its consultants to "Review the feasibility, performance, and cost of decentralized and on-site treatment units for each developed property in lieu of a centralized

collection and treatment system¹.” These actions will delay implementation for several years.

PROPOSED CEASE AND DESIST ORDERS

The proposed Cease and Desist Orders (CDOs), included as Attachment 2, require a randomly selected group of owners and tenants of improved properties within the Prohibition Zone to 1) reduce waste discharges in violation of the prohibition by pumping out their septic tanks every two months, and 2) cease discharging all waste by January 1, 2010, or 60 days after the availability of a community sewer system, whichever is sooner.

If the community sewer system will be available by January 1, 2010, the owner or tenant must submit a statement agreeing to connect to the community sewage treatment plant within 60 days after the sewage treatment plant becomes available, or submit a technical report proposing an alternate method of complying, and monitoring compliance with the requirement to cease their discharge.

If the community sewer system will not be available by January 1, 2010, the owner or tenant must submit a technical report proposing an alternate method of complying, and monitoring compliance with the requirement to cease their discharge.

Until eliminated, the prohibited discharges will continue to discharge nitrogen and other pollutants, and threaten public health. To minimize the impact of ongoing illegal discharges, the CDOs require the owner or tenant to pump out the septic tank at least once every two months, until the community sewer system is completed and the septic systems are eliminated. Pumping out septic tanks every two months will not completely eliminate the septic system discharges (completely preventing discharge from the tanks would require tanks to be pumped every three days to two weeks), but will significantly reduce pollutant loading to the Los Osos groundwater basin, at a reasonable cost.

Staff estimates that these pumping requirements will reduce septic tank effluent volume and

nitrogen loading to groundwater from subject dischargers by about 20% (see table below for a range based on various assumptions). Staff considered a quarterly pumping frequency, but that would only achieve two-thirds as much reduction. Staff concluded this level of reduction was not acceptable since the discharges have been prohibited since 1988, groundwater is severely impaired and we expect that the cost difference would average less than \$100 per month.

Septic tank discharges have been illegal since 1988. Had the community funded treatment plant construction and operation starting in 1988, as per the 1983 schedule, each household would have paid about \$13,000 (assuming \$60 per month, with no interest calculated on that money), or \$26,000 at \$120 per month. The cost of bimonthly pumping is also less than the monthly cost of the proposed treatment plant that is no longer under construction, including all sewer fees and finance charges. The cost of complying with the pumping requirement (\$300 to \$350 per pumpout or \$150 to \$175 per month) is reasonable when measured against these avoided costs, the current uncertainty regarding when a treatment plant will be completed, much higher costs of other alternatives (alternative systems cost as much as \$15,000 to \$30,000 per household), and the need to eliminate additional environmental damage from septic system discharges.

Water Code section 13301 allows the Board to include time schedules in cease and desist orders and, in the case of threatened violations, to require the discharger to “take appropriate remedial or preventive action.” The State Water Board regulations provide additional guidance:

- a) A time schedule should always be included in a cease and desist order unless there is a lack of information upon which to base a schedule in which case the discharger should be instructed to comply forthwith. “Forthwith” means as soon as is reasonably possible.
- b) Time schedules should be periodically reviewed and updated to assure compliance at the earliest possible date. (23 Cal. Code of Regs. §2243.)

The regulations also provide for immediate corrective measures in CDOs:

¹ LOCSD Request for Proposals, February 7, 2006.

- a) Each discharger should be expected to construct emergency facilities or modify existing plant operation to achieve rapid compliance.
- b) Emergency facilities which should be constructed immediately include chemical treatment, additional disinfection, ponding with or without aeration, receiving water mixing, aeration, and any other steps which can be immediately implemented.
- c) Extra cost of such facilities is not a reasonable excuse for failure to construct them.
- d) If necessary emergency facilities are not immediately provided, the board should consider further action against the discharger. (23 Cal. Code of Regs. §2245.)

The pumping requirements are consistent with Section 13301 and the regulations.

Staff has contacted septic pumping/hauling services and the Santa Maria Wastewater Treatment Plant staff². Staff concludes that both hauling and disposal capacity are available if all septic tanks within the Prohibition Zone are pumped every other month.

Property owners and tenants must demonstrate compliance with this requirement by submitting copies of receipts from septic system pumping service companies. If an improved property is a vacation home, the owner may request a lesser pumping frequency.

The CDOs provide that the owner or tenant may propose an alternative to septic tank pumping that will achieve comparable water quality protection. In order to pursue this option, the owner or tenant must submit a written proposal for the alternative compliance method, including an installation schedule and proposed monitoring and reporting plan, no later than 60 days after Order adoption. Staff will consider alternatives on a case-by-case basis or, if a proposed alternative is appropriate for all properties, on a community-wide basis. The property owner or tenant must comply with the septic tank pumping requirement until the

² Personal communications with City of Santa Maria staff Jon Williams, January 2006.

alternative compliance method is approved by the Executive Officer and fully operational.

PROPERTY OWNERS AND TENANTS RECEIVING CEASE AND DESIST ORDERS

Central Coast Water Board Prosecution Staff randomly selected 50 properties from a list of improved properties in the Prohibition Zone³. On January 27, 2006, the Executive Officer sent proposed CDOs to those property owners and tenants and notified them of the Central Coast Water Board's hearing to consider adoption of the CDOs⁴.

After issuing the proposed CDOs, staff found that five of the randomly selected properties are located in either the Monarch Grove neighborhood, which has a regulated community sewer system, or the Bayridge Estates neighborhood, which has a community septic system that is already subject to a Cease and Desist Order through LOCSO. Staff sent letters to those five properties rescinding the CDOs⁵ on February 6-8, 2006. Staff later learned that one CDO recipient (a tenant) was a contractor who was working on the community sewer project, but moved out of state when construction stopped, prior to issuance of the CDO. Staff rescinded the CDO for that person on February 23, 2006 (the CDO remains in effect for the property owner).

³ Staff used the most recent County Tax Assessor information to generate a mailing list of property owners in the Prohibition Zone. A computer-generated set of random numbers was then applied to the mailing list. In cases where the Assessor information indicated that the property owner does not live at the property, staff checked voter registration lists, which are sorted by address, to find tenants' names. Properties were taken in numerical order of the random numbers. In other words, property owners and tenants of those properties receiving the lowest random numbers received the first group of CDOs.

⁴ The hearing was originally scheduled for March 23, 2006. However, on February 28, 2006, the Board Chairman issued a Revised Hearing Notice and Pre Hearing Order that rescheduled the hearing to April 28, 2006.

⁵ The draft Cease and Desist Order numbers rescinded are R3-2006-1006, -1010, -1011, -1022, and -1035.

A map of the 45 properties that are subject to the proposed CDOs is shown in Attachment 1.

Staff intends to continue proposing similar orders to randomly selected groups until all improved property owners and tenants in the Prohibition Zone have received an enforcement order. Staff intends to propose similar orders for much larger groups after this hearing for the initial group. As an alternative to proposing CDOs, the Executive Officer will consider issuing cleanup and abatement orders under Water Code section 13304.

COMMENTS

The persons named in the draft CDOs and Central Coast Water Board Prosecution Staff are deemed 'Designated Parties.' The deadline for Designated Parties to submit written comments and evidence is April 5, 2006. The deadline for all other interested persons to submit written comments is April 12, 2006. Prosecution Staff will submit its rebuttal to written comments by April 19, 2006.

Prosecution Staff anticipated that CDO recipients would have several questions and concerns, so held an informational workshop on February 15, 2006. The workshop was attended by 50 to 60 people and televised on the local public access channel. The workshop provided Designated Parties a good opportunity for questions and answers. Prosecution Staff also received several phone calls, letters, and emails from Designated Parties. Several Designated Parties:

- Question the basis of the figure of 22% pollutant loading reduction by pumping septic tanks every two months,
- Express concerns that frequent septic tank pumping will disrupt proper septic system function,
- Suggest that pumping out septic tanks will dewater the groundwater basin and exacerbate Los Osos' seawater intrusion problem,
- Assert that their septic system functions properly or is well separated from groundwater, and therefore is not contributing to pollution.

Following are responses to these questions and concerns. Staff's April 19, 2006 rebuttal will provide a more complete response to these issues, and other comments submitted by the April 5, 2006 (for Designated Parties) and April 12, 2006 (for interested persons) deadlines.

Anticipated Pollutant Loading Reduction. Staff's calculations of anticipated pollutant loading reductions are based on knowledge of average septic tank volume and reasonable assumptions of typical wastewater generation rates in Los Osos (LOCSD did not provide actual water use records as requested). Many homes in Los Osos are small in comparison to typical county standards because there are many very small lots (25 foot wide) in Los Osos. Assuming that a single person discharges 75 gallons per day (gpd) and has a 1000-gallon tank, pumping every other month would yield a 22% reduction in discharge (see the following table).

Montgomery Watson Harza⁶ assumed a typical Los Osos household discharges about 170 gpd of wastewater to its septic system (assuming 69 gallons per capita per day (gpcd) and 2.5 people). Under this assumption, if the septic tank is 1,500 gallons, and the septic tank is pumped out six times per year, total wastewater loading to the leachfield or seepage pit and then to groundwater is reduced by about 15%. In 2000, Oswald Engineering Associates⁷ assumed Los Osos discharges 49 gpcd of wastewater based on actual Los Osos water use. Considering that LOCSD intends to implement an aggressive water conservation program⁸, a lower per capita figure could be assumed. If 2.5 people per household discharged 45 gpcd out of a 1,500 gallon tank, the pollutant loading reduction from pumping six times per year would be 22%. Using this same

⁶ The *Los Osos Wastewater Project Revised Project Report Design Documents*, dated March 24, 2003, by Montgomery Watson Harza, used a design average dry weather flow of 69 gpcd and 2.5 persons per unit.

⁷ *The Wastewater Facilities Project Draft Project Report*, by Oswald Engineering Associates, dated January 31, 2000, assumed 49 gallons per capita per day (gpcd) discharged out of septic tanks, based on Los Osos' water use of 80 gpcd in the winter minus losses and other uses.

⁸ LOCSD Urban Water Management Plan, December 2000.

methodology for various septic tank volumes and wastewater discharge rates yields the following pollutant loading reduction rates:

Table: Anticipated Pollutant Loading Reduction by Pumping Septic Tanks Six Times per Year

Total wastewater flow to septic system	Tank Volume (gallons)		
	1,000	1,250	1,500
50	33%	42%	50%
60	28%	35%	42%
75	22%	28%	33%
120	14%	17%	21%
150	11%	14%	17%
180	9%	12%	14%
225	7%	9%	11%

There are various methods of reducing pollutant loading until the community sewer system is available, but septic tank pumping is the most reliable and easily verifiable method (no sophisticated, expensive alternative treatment system operation or maintenance are required, and alternative on-site systems would not reduce gallons of effluent discharged to the shallow aquifer). As noted above, alternative systems can cost as much as \$15,000 to \$30,000 per household, but will not achieve full compliance with the Basin Plan prohibition.

Proper Septic System Function. The primary function of a septic tank is to remove floating and settleable solids from wastewater prior to it overflowing into the disposal field. Nitrogen is highly soluble. Septic tanks do not remove appreciable amounts of nitrogen⁹. Although the solids are decomposed within the tank, there is always a net accumulation of sludge, which decreases the tank's capacity and function. Frequent pumping will maximize the tank's volume and function.

The secondary function of septic tanks is to break down solids through anaerobic decomposition.

⁹ In: Costa, J.E, G. Heufelder, S. Foss, N.P. Millham, and B. Howes. 2002, Nitrogen removal efficiencies of three alternative septic technologies and a conventional septic system, Environment Cape Cod 5(1):15-24, nitrogen removal in a conventional septic tank ranged from 1% to 3%.

Some argue that frequent pumping will disrupt this decomposition process. The rate of solids decomposition is very slow compared to the required frequency of pumping, and frequent pumping will not completely eliminate the microbiology that contributes to anaerobic decomposition (when tanks are pumped, they are not sterilized, so substantial residual and microorganisms remain in the tank after pumping), so this is a moot point.

Seawater Intrusion. Some CDO recipients have suggested that pumping out septic tanks will dewater the community's groundwater basin and exacerbate seawater intrusion. An in-depth analysis of the seawater intrusion problem reveals that this argument is not valid.

Groundwater beneath Los Osos is generally divided into upper, middle, and lower zones by defined clay layers ('aquitards'). Los Osos' primary water supply used to be the upper zone, but has shifted to the deeper zones in recent years since nitrates now contaminate the upper zone.

Over-pumping of the middle and lower zones is decreasing fresh water pressure head in those zones and causing salt water to actively intrude eastward from the Pacific Ocean. The average rate of intrusion from 1985 to 2005 in the middle and lower zones was estimated to be 50 to 60 feet per year¹⁰.

The community returns water pumped from the deeper zones to the upper zone through septic system discharges and irrigation. The upper zone is underlain with a competent aquitard that prevents significant recharge to the deeper zones. Consequently, groundwater levels in the upper zone have risen significantly since the community was rapidly developed in the late 1970's¹¹. In fact, as discussed earlier, groundwater levels are so shallow in some of the lower parts of town near the Bay that LOCSO has installed an underdrain

¹⁰ *Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Groundwater Basin*, July 2005, Cleath & Associates, page 41.

¹¹ Personal communication with Los Osos Community Services District's Hydrogeologist, Spencer Harris of Cleath & Associates, March 29, 2006.

system and must pump shallow groundwater into Morro Bay to prevent localized flooding.

There is clearly a surplus of water in the upper zone. Pumping out septic tanks and dewatering of the upper zone will not exacerbate seawater intrusion. On the contrary, pumping out septic tanks, and eventual restoration of upper zone water quality through installation of a community sewer system, may allow the community to use more of the upper zone, reduce its reliance on the deeper zones, and combat seawater intrusion. Prior to a community sewer system being functional, interim pumping will provide some relief from localized flooding and surfacing effluent, and will provide an increased vadose zone for better treatment of discharges from some septic systems.

Individual Contributions to Groundwater Impacts. Groundwater nitrate contamination is not confined to those parts of town with shallow groundwater. Los Osos Community Services District regularly monitors groundwater throughout town and develops isocontour maps of nitrate concentrations. The maps consistently indicate that groundwater nitrate concentrations exceed the drinking water standard all over town, including elevated areas of town where there is significant separation to groundwater (greater than 50 feet). The areas of highest nitrate concentration correlate to areas with greatest septic system density. This suggests that high septic system density is a greater factor contributing to groundwater contamination than separation to groundwater. Groundwater beneath 41 of the 45 properties that received proposed CDOs exceeds the drinking water standard for nitrate. All 45 systems contribute to overloading of the groundwater basin, as do all systems within the Prohibition Zone.

Some argue that their property is outside of the area where nitrate exceeds the drinking water standard, therefore they should not be required to pump out their septic tanks or should not be subject to a CDO. These properties are likely located close to the Bay where shallow groundwater is flushed into the Bay by tidal action. Well 7N1, which is also called the 3rd Street Well, exemplifies this flushing effect. Well 7N1 is less than 200 feet from the Bay, has very shallow groundwater (which suggests that groundwater is hydraulically connected with the Bay and is

seeping or spilling into the Bay), and is consistently less than the drinking water standard for nitrate. Los Osos CSD's hydrogeologist reaffirms this effect in his statement that "NO₃-N concentrations are inferred to decrease at the bay front."¹²

Whether an individual property is close to the Bay or further inland, all septic system discharges in the Prohibition Zone are contributing to pollution of groundwater or Morro Bay, and should be subject to CDOs.

Agricultural Water Exchange. The proposed pumping schedule will not interfere with the potential ability to exchange water with irrigated agricultural operations. The agricultural exchange concept is not something that is currently happening, and the concept has not been developed to any appreciable degree. There has been no feasibility study; no detailed analysis of whether water quality will be adequate for the intended use; and no analysis of demand, commitment of use by farmers, areas where water would be pumped, routes for pipelines, pump station locations, or financing means. Since the agricultural exchange program is intended to be part of the community sewer system project, the concern about septic tank pumping interference is moot because the community sewer system will end septic system pumping. In addition, agricultural use requires a treatment system to produce useable water; septic tank septage is not useable.

Maintenance District. One Designated Party¹³ is promoting establishment of an On-Site Septic Tank Maintenance District (OSMD) in lieu of the of the CDO septic tank pumping requirement. An OSMD's duties typically include maintenance of existing systems – replacing deteriorated tanks, turning valves for rotation between leachfields, checking sludge and scum levels, and periodically pumping out septic tanks. However, the problems with Los Osos are mostly related to high density of discharges, with small lots that frequently have

¹² *Los Osos Nitrate Monitoring Program, October 2005 Ground Water Monitoring*, December 2005, Cleath & Associates, page 6 (Document No. 4 of Prosecution Staff's Master Documents List).

¹³ Personal communications with Designated Party Rob Shipe, February & March, 2006

deep seepage pits, some areas with shallow groundwater, which in some areas inundates seepage pits and leachfields, providing no vadose zone treatment. The OSMD duties do not alleviate these problems. There are common elements between the two, including periodic pumping and tank maintenance or replacement. However, a typical OSMD pumping schedule is once every three years, while the CDOs require pumping every two months. An OSMD could operate a pumping service that matches with the CDO schedule or perform the tank repairs that the CDOs require. Having a community-wide OSMD perform this service could conceivably reduce costs (economy of scale, group rates). An important consideration is that the Board does not have enforcement authority over an OSMD unless it discharges or causes or contributes to a condition of pollution or nuisance (CWC §13304).

Since the CDOs and an OSMD are not mutually exclusive, and the OSMD could provide additional water quality benefits or cost savings, Prosecution Staff does not oppose an OSMD complementary to the CDOs, as long as developing the OSMD does not deflect resources from developing a community sewer system or other means to terminate all septic system discharges.

Staff expects several more questions or concerns to arise when Designated Parties submit their written comments, and that additional documentation or details of the above issues may also be included. Staff's April 19, 2006 rebuttal will provide a more complete response to these issues, and other submitted comments.

CORRECTIONS

Section A.3 of the draft Cease and Desist Orders includes a requirement that the Discharger must either submit "a statement that it agrees to connect to the community sewage treatment plant within 30 days after the sewage treatment plant becomes available," or propose an alternative method of complying with the requirement to cease its discharge. This requirement is corrected in the proposed Cease and Desist Orders to allow 60 days instead of 30 days. Sixty days is a more reasonable amount of time for the Discharger to connect to the community sewer system when it becomes available.

Section B.2.b of the draft Cease and Desist Orders includes a requirement that "By three months after the date of this Order, the Discharger shall obtain a report by a septic tank pumper, approved by the Executive Officer, that either describes recommended repairs to the Septic System or states that no repairs are necessary." This requirement is corrected in the proposed Cease and Desist Orders to not require Executive Officer approval of septic tank pumpers. Staff will use the required pumping receipts to verify that septage is disposed at an approved location.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

These enforcement actions are being taken for the protection of the environment and as such are exempt from the provisions of the California Environmental Quality Act (Section 15321, Chapter 3, Division 6, Title 14, California Code of Regulations). In addition, the subject septic systems are existing facilities and this Order allows no expansion of use beyond that previously existing. These enforcement actions are exempt from the provisions of the California Environmental Quality Act (Section 15301, Chapter 3, Division 6, Title 14, California Code of Regulations).

RECOMMENDATION

Adopt Cease and Desist Orders R3-2006-1000 through -1049 (except -1006, -1010, -1011, -1022, and -1035).

ATTACHMENTS

1. Map of Prohibition Zone Property Owners and Tenants Receiving Cease and Desist Orders
2. Template for Cease and Desist Orders R3-2006-1000 through -1049
3. Central Coast Water Board Prosecution Team Document List

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