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August 17, 1982

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Attention: Mr. James L. Jonte, Project Coordinator

Subject: Preliminary Study Conclusions, Phase I Water Quality Management Study, San Luis Obispo County Service Area No. 9

Gentlemen:

We have compiled a summary of our conclusions to date regarding groundwater quality in the Los Osos-Baywood area. These conclusions are of a preliminary nature, as our analysis of the data is not quite complete. Although subsequent analyses of the data may give cause for modification of these conclusions, we do not anticipate any major changes, merely refinements.

Summary of Conclusions

We are presenting our conclusions in numbered statements for your convenience.

1. We have assumed that a nitrate concentration in groundwater equal to, or greater than 45 milligrams per liter (mg/l) as NO_3 is indicative of contamination and not due to natural conditions. This concentration is the maximum contaminant level (MCL) for nitrate in drinking water under State of California and Federal regulations. A significant number of groundwater samples taken during the study exhibit nitrate concentrations greater than the MCL.

2. There is a groundwater contamination problem in the Los Osos-Baywood area. Much of the land area with residential and commercial development is underlain by groundwater exhibiting nitrate concentrations in excess of the MCL.

3. Nitrate and total dissolved solids (TDS) are the only parameters analyzed which appear to be indicators of groundwater contamination. (no ♀ Coliforms)

4. Our analyses of the water quality data indicate that although there is a substantially wide variation in the chemical character of the well water samples, there is no apparent distinction between the character of groundwater from shallow versus deep wells.

5. Wastewater samples analyzed for the study are similar in their chemical character. The character of the wastewater samples is markedly different from the chemical character of groundwater samples.

6. Groundwater samples do not show characteristics attributable to seawater.

7. Groundwater samples from the wells located closest to Los Osos Creek exhibit chemical characteristics which are very similar to those of the surface water sample from Los Osos Creek.

8. The areas of high wastewater discharge per unit of surface area, which were identified through the county's wastewater inventory, were carefully accounted for in the study with wells upgradient, downgradient and within the discharge areas. The analyses of samples from these wells do not exhibit chemical quality changes which correlate with the waste discharges.

9. There is an apparent correlation (areally) between water quality and development. The areas exhibiting relatively high nitrate and TDS either underly developed areas or lie directly downgradient from developed areas.

10. A very close correlation exists between areas of low nitrate (less than or equal to 20 mg/l nitrate) and high density vegetation.

Groundwater samples, even those containing high nitrate concentrations, do not exhibit chemical characteristics attributable to septic tank effluent other than TDS. Linear regression analyses of the correlation between nitrate and other constituents reveal that only TDS concentrations are found to be interdependent with nitrate. Although septic tank effluent contains higher TDS concentrations than the groundwater samples analyzed, TDS and nitrate alone are not sufficient to link groundwater degradation with septic tanks.

12. We have not yet been able to establish the source of the high nitrate concentrations. Although high nitrate concentrations are apparently associated with cultural development, we have not been able to link high nitrate with septic tank effluent.

We hope that the conclusions presented herein provide the information you require to complete your presentation. Please call me should you wish to discuss any of these items.

Very truly yours,

BROWN AND CALDWELL

N. Thomas Sheahan
Project Manager

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