LETTER 4 - Keith Winkler, Kings County Division of Environmental Health Services

Response to Comment 4-1

The commentor's concern regarding potential releases of nitrate to groundwater is noted for the record. Additionally, the preparers of the PEIR acknowledge that the most significant public health hazard associated with nitrate contamination of drinking water sources is the potential for infants to ingest elevated nitrate concentrations, which can cause methemoglobinemia ("blue baby syndrome"). The potential for increasing nitrate levels in groundwater as the result of management of dairy manure was discussed in the Draft PEIR (pages 4.3-11 and 4.3-24). The provisions of the Element that provide controls on the potential sources of pollutant (including nitrogen) releases to groundwater are discussed on pages 4.3-27 through 4.3-39 of the Draft PEIR.

Response to Comment 4-2

The potential for nutrient migration to groundwater is discussed at length in the Draft PEIR (pages 4.3-23 through 4.3-39). Throughout the discussion, policies contained in the Element that mitigate the potential for groundwater degradation are described. Under the Element, all new and expanding dairy facilities are required to implement nutrient management and irrigation management plans, line manure pits and process water lagoons, and conduct groundwater quality monitoring (including vadose zone monitoring). Specific provisions are included in the Element to ensure that a hydrogeologic sensitivity assessment is performed in any area where shallow groundwater serves as a drinking water source (**Policy DE 3.2j**).

Proper nutrient management is critical in reducing potential impacts to shallow groundwater quality. In a recent study completed by researchers at the University of California at Davis (Harter and others, 2001), groundwater quality at a dairy in the San Joaquin Valley underlain by shallow groundwater with elevated levels of nitrate was dramatically improved by reducing nutrient loading to agronomic rates. Prior to implementation of a targeted manure nutrient management program, nitrate-nitrogen concentration in groundwater at the site averaged 80 to 120 mg/L in the period 1995 through 1997. During this period, total nitrogen application was estimated to be a minimum of 1,050 pounds per acre per year on fields double cropped with corn and forage crops. Under the manure management plan, total nitrogen application was eventually reduced to 420 pounds per acre per year in 2000. Following these management changes, the average nitrate-nitrogen concentration in groundwater dropped to 50 mg/L in 2000. These results indicate that groundwater quality protection can be achieved through implementation of appropriate fertilizer and irrigation management.

The potential for existing water wells to act as conduits for contaminant migration is discussed in the analysis of Impact 4.3-8. **Policy DE 3.2i** of the Element requires that all existing wells at proposed new or modified dairy sites be inspected to ensure that appropriate well seals are in place. The California Well Standards recognize a proper well seal as the best management practice for reducing the potential for vertical migration of contaminants into wells.

Response to Comment 4-3

Manure treatment technologies are described in the Draft PEIR (pages 4.2-14 through 4.2-24). The Autogenous Thermophilic Aerobic Digestion (ATAD) technology described in the comment is one of several types of effective aerobic treatment technologies. **Policy DE 5.1c** of the Element requires that new and expanding dairy facilities develop and implement a Manure Treatment Management Plan that ensures the chosen advanced manure treatment technology effectively reduces volatile solids in treated manure and process water by at least 50 percent.

Response to Comment 4-4

The commentor is correct in pointing out that importation of manure into Kings County can be expected. Manure is recognized as a valuable fertilizer and soil amendment and is used on farmland supporting a wide range of crops. Although importation may continue to occur, **Policy DE 4.1a** of the Element requires that all new and expanding dairies demonstrate (through implementation of a nutrient management plan) that manure and process water are applied to land at agronomic rates. In addition, **Policy DE 4.2a** of the Element requires that all dairies develop and implement a Comprehensive Dairy Process Water Application Plan (CDPWAP) that identifies all lands to which manure generated by dairies would be applied. The Plan must include an enforceable and recordable agreement that specifies the terms of reuse of these materials between the dairy operator and any owner of land where manure and process water would be applied.

The policy specifies that "the land identified in the agreement for the use of dairy process water and manure shall not have any other dairy process water or water disposal agreement currently upon it or added in the future." Therefore, lands receiving manure or process water from other operations (inside or outside of Kings County) could not be included as areas for reuse of materials generated by a proposed dairy. If land within the DDOZs or NSOZs is used for application of imported manure, those areas would, in effect, become unavailable for new or expanded dairy development.

The preparers of the PEIR contacted the principal author[2] of the Draft Manure Management Strategy Report prepared for the Santa Ana River Watershed Group, which is referenced by the commentor. The potential pilot project described in the report and the comment letter in which a landowner in Kings County would apply manure on 50,000 acres has not been brought forward. The location of the potential project could not be verified.

Response to Comment 4-5

The County concurs with the commentor's opinion that potential impacts related to air quality, water resources, and public health require thorough analysis. The analyses presented in the PEIR reflect this concern. The commentor's support of protection of the quality of life and environmental health in implementation of the Element is appreciated and noted for the record.

[2] Marsh, L., 2001, Siemon, Larsen & Marsh, personal communication with Kevin O'Dea of BASELINE, 10 December.