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June 8, 2001

Bill Zumwalt, Director, Kings County Planning Agency  
Government Center Building #6  
1400 Lacey Blvd.  
Hanford, CA 93230

Dear Bill:

Enclosed are some comments for the revised draft dairy element of the Kings County General Plan. The comments are intended to be included in the document.

Under *Aerobic Treatment Systems* on page 4.2-17, the following text could be added to the document:

Currently, research is being conducted at the dairy lagoon at California State University, Fresno, through the Center for Irrigation Technology (CIT). Dave Goorahoo, Ph.D. is the principal investigator. The grant-funded study is investigating the feasibility of creating an aerobic dairy lagoon on the surface strata, and lowering the water pH to 6.5 to 7.0. Adequate levels of dissolved oxygen (DO) need to be maintained in order to prevent excessive levels of hydrogen sulfide (H<sub>2</sub>S) from forming. The private industry sponsors are Rain-for-Rent and Mazzei Injector Corporation, both of Bakersfield, and Verdegaal Brothers, Inc. of Hanford. The design entails injecting air through a series of floating manifolds and circulating the lagoon water and thereby maintaining the desired level of DO. Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) is injected into the flush line as the water is picked up from the lagoon. The treated water is transported hydraulically to the head of the free stall alleys, through the manure separator, and back into the lagoon. Acid is only injected during the flush cycles. This process prevents struvite accumulation in the flush lines and cleans the concrete alleys more efficiently. The study includes air monitoring of ammonia and hydrogen sulfide. The university study is investigating the combined process of acidification, circulation, and aeration, and to determine if these procedures can be a Best Management Practice (BMP) for dairy lagoons.

The primary goal of the university study is to determine if lagoon buffering is effective in breaking down manure solids so the manure can be more effectively managed when it is in suspension. Currently there are eight dairy producers in Kings County who have adapted this technology with several modifications.

Hopefully this information will be a worthwhile addition to the document.

Sincerely,

Jim Gregory

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