

**COMMENT LETTER 9 - UNIVERSITY OF CALIFORNIA, COOPERATIVE EXTENSION,
R. H. BENNETT, PH. D. (OCTOBER 3, 1996), RECEIVED OCTOBER 4,
1996**

Response to Comment 9-1

Comment Summary: The comment indicates that water reclamation is highly desirable and should continue in spite of time or economic pressures, and that “protecting in-stream water resources and maximizing the reuse of reclaimed water will serve the best interest of the regional and global ecology and economy.”

The EIR/EIS authors appreciate the review and comments of the University of California Cooperative Extension. Specific concerns were expressed in subsequent comments and these comments are addressed specifically in the Responses to Comments below.

Response to Comment 9-2

Comment Summary: The comment expresses concern that some options were eliminated during scoping, and suggests that options were eliminated due to “regulatory urgency.”

Appendix D-6 (Documentation in Support of the Elimination of Alternatives) explains why options recommended during scoping were not carried forward. The majority of suggestions brought forward during scoping were incorporated in some fashion in the list of Project Alternatives and components that are evaluated in the Draft EIR/EIS. The Scoping Phase of the process began in July 1993 and was completed in April 1995, a duration of almost two years. Scoping was considered extremely important, and no alternatives were eliminated from further consideration because of a lack of time to research them.

Response to Comment 9-3

Comment Summary: The comment suggest that the scoping process did not allow for hybridization of Project components and recommends Project phasing.

The organization of the impact evaluation by components is specifically designed to allow hybridization of components, including agricultural irrigation in several areas, urban irrigation, geysers recharge, and a variety of potential discharge rates. Refer to Master Response 14, located in Section 6.2 of this document for a discussion of Project phasing.

Response to Comment 9-4

Comment Summary: The comment indicates that an alternative should be considered where commercial use of reclaimed water would be allowed to expand as businesses grow, and costs for reclaimed water would be shared by the urban waste producers and the parties using the reclaimed water.

The Draft EIR/EIS is based on the assumption that since the City is responsible for management of wastewater, all costs will be borne by the City (i.e., the urban waste producer); however during the Project selection process (subsequent to Final EIR certification), the City has the option of considering other alternatives for sharing costs with reclaimed water users.

Response to Comment 9-5

Comment Summary: The comment expresses concern that use of an irrigation district to manage reclaimed water deliveries is not included in the Project, because there is much historic precedent for same in California. The comment also states: It would indeed be unfortunate should the very goals and policies intended to protect water resources act to forestall affective water reclamation options."

The City of Santa Rosa has traditionally managed its own reclaimed water system, and the Project is structured to continue with City management of the system. Section 2 of Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives), discusses inter-agency program coordination, including coordination with the Natural Resources Conservation Services and the Resource Conservation District. At this time, formation of a special irrigation district is not envisioned; however, the formation of such a district is not precluded.

Regarding the comment's statement on goals and policies, the EIR/EIS authors are unable to determine which goals and policies the comment refers to, and are, therefore, unable to respond. The authors assume, however, that the wise use of water resources is of concern to the commentor and the authors believe the goal has been measured against each alternative.

Response to Comment 9-6

Comment Summary: The comment states that Measure 2.2.1: Irrigation Conservation and Management Programs on page 2-21 does not contain enough detail to evaluate effectiveness, and without more detail, the Management Programs will not be implemented successfully.

Additional detail regarding the Irrigation Conservation and Management Programs is presented in Measures 2.2.2 through 2.2.7 on pages 2-22 through 2-37 of the Draft EIR/EIS. These measures are themselves based on a more detailed set of recommendations, which are presented in Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives). The EIR/EIS authors concur that general practice guidelines do not prevent mis-irrigation. For that reason the Measures described above require preparation of a specific program for each parcel to be irrigated, and establish performance standards that must be achieved. It is not possible to present these detailed plans in the Draft EIR/EIS because it is not yet known which land owners would contract for reclaimed water. Ongoing monitoring and management will be an important part of the irrigation program.

Response to Comment 9-7

Comment Summary: The comment suggests objective monitoring using California Irrigation Management Information System (CIMIS) or electronic soil moisture monitoring devices.

Measure 2.2.3 in the Draft EIR/EIS calls for high efficiency irrigation management, using methods that may include real-time weather data and soil moisture monitoring data (page 2-23). Refer to pages 28 through 32 of Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives) for further discussion of irrigation scheduling system, developing irrigation schedule, and soil moisture monitoring. Construction of a CIMIS station is recommended on page 28. Use of an electric capacitance probe for monitoring soil moisture is recommended on page 30.

Response to Comment 9-8

Comment Summary: The comment states that the Irrigation and Conservation Management Programs need to consider nutrient-laden farm wastes.

Measure 2.2.6 in the Draft EIR/EIS calls for “a nutrient and manure management component that takes into account the individual problems and needs for disposal of solids and liquid wastes (page 2-34). Also, refer to page 44 of Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives) for a discussion of integration of animal/dairy waste management. Reclaimed water can provide opportunities for better management of wastes.

Response to Comment 9-9

Comment Summary: The comment asks for more definition of chemical and fertilizer application practices. The comment states that common herbicides, such as Atrazine, may exceed tolerances in surface waters adjacent to irrigation areas.

Measure 2.2.6 on page 2-34 of the Draft EIR/EIS describes how agrochemical use will be managed to assure that their impact is less than significant. Additional details regarding agrochemical recommendations are presented on page 50 of Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives) of the Draft EIR/EIS. Specific Best Management Practices (BMPs) would be tailored to individual users and their particular agricultural situation, and so cannot be defined further at this time. Impacts of increased use of agrochemicals are evaluated in the Draft EIR/EIS beginning on page 4.9-80, and in Appendix K-4 (Ecological Risk Assessment). The comment does not state how Measure 2.2.6 is inadequate or how the Project would cause common herbicides to exceed tolerances in adjacent surface waters, so a more detailed response cannot be provided. No water quality objective for atrazine has been established.

Response to Comment 9-10

Comment Summary: This comment states that irrigation land suitability needs to consider such factors as soil levels of nitrogen and pesticides, and that a risk assessment of sorts needs to be completed to determine proper kinds and amounts of fertilizers and pesticides. The comment also indicates a nitrogen balance should be completed in advance of irrigation water delivery.

Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives), provides guidance for suitability and risk analysis in judging which lands should be irrigated with reclaimed water. The Irrigable Lands Inventory utilized suitability/risk criteria developed by the U.S. Bureau of Reclamation. On page 35 in Appendix D-19, the guidelines require a consideration of existing soil nitrogen levels and a nitrogen balance be completed when deciding to fertilize a field with organic or inorganic sources of nitrogen. Application guidelines, including completion of pesticide risk assessment screens are included on page 40 in Appendix D-19.

Response to Comment 9-11

Comment Summary: The comment states the assumption that an EQ of less than 10 is low risk is subject to speculation and varies with species. The comment recommends that an independent expert provide review of the ecological risk assessment.

It has been accepted by EPA and risk assessment experts that conditions with EQs less than 10 are low risk. Several safety factors (multipliers) are built into each analysis to assure that all assumptions regarding individual species and related ecological systems are accounted for in the calculation of EQs. Refer to Appendix K-4 (Ecological Risk Assessment) for more information

Response to Comment 9-12

Comment Summary: The comment requests evaluation of copper in soils.

Impact 2.7.4, discussed on pages 4.2-23 through 4.2-27 of the Draft EIR/EIS, evaluated impacts of agricultural irrigation on soil productivity and found all trace elements, including copper, to have a less than significant impact relative to three different evaluation methods. Table 4.2-12 on page 4.2-25 of the Draft EIR/EIS presents projected metals loading in soils, including copper levels. Projected loading included accumulation from use of reclaimed water plus loading from fertilizer and manure. Mitigation to reduce copper in irrigation water will also reduce loading to soil. Measure 2.2.6: Agrochemical and Fertilizer Best Management Practices, will also minimize inputs of copper from use of agricultural chemicals (page 2-34 of the Draft EIR/EIS).

Response to Comment 9-13

Comment Summary: The comment requests additional specificity regarding nitrogen balance for each irrigated field, and states that paying for use of irrigation water encourages over irrigation.

Because specific lands for irrigation have not been identified, it is not possible to provide the requested level of detail. However, Measure 2.2.1: Irrigation Conservation and Management Programs (ICMPs) on page 2-21 of the Draft EIR/EIS specifies that each ICMP must integrate irrigation with other resource management needs. Measure 2.2.6: Agrochemical and Fertilizer Best Management Practices on page 2-34, specifies "verification of the need and amount of pesticides and fertilizer through soils and plant tissue testing ... and application of the lowest amount of agrochemical that will achieve the management goal. The City will require that ICMPs include a nutrient and manure management component that takes into account the individual problems and needs for disposal of solids and liquid wastes." The City will not pay for irrigation water application, except in the case of winter irrigation during extreme climatic conditions. In fact, it is recommended in Appendix D-19 (Irrigation Management Guidelines for the West County and South County Alternatives) that the City charge for irrigation water to encourage responsible management of irrigation. Over irrigation will be strictly prohibited, and the City will cease delivery of water to any users that are over irrigating.

Response to Comment 9-14

Comment Summary: The comment states that the additive effect of copper from existing farm use and that of reclaimed water irrigation should be considered.

Impacts of existing agricultural practices are included in the copper impacts analysis, as described on page 186 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS.

Response to Comment 9-15

Comment Summary: The comment refers to Impact 6.7.3 on page 4.6-89 and says the EIR/EIS is unclear as to why Measures 2.2.1 through 2.2.7 will be effective in the Laguna but not in West County.

The Draft EIR/EIS does not discuss the effectiveness of Measures 2.2.1 through 2.2.7 in the Laguna because these measures do not apply to the Laguna. They apply only to irrigation areas that would be added as part of the Project alternatives considered in the Draft EIR/EIS. The conclusion that there will be significant impacts in West County is based, in part, on the fact that the criterion for the esteros requires that any change, even a beneficial one, be considered significant. Proper management will reduce nitrogen loading in West County, but according to the special site criterion such a reduction is considered a significant impact. Several impacts in the Sanctuary, such as a change in salinity, a decrease in the manure nitrogen load, and an increase in dissolved oxygen are

not necessarily adverse, and some of these changes would be considered beneficial were it not for the Sanctuary's interpretation of the Sanctuary regulations.

Response to Comment 9-16

Comment Summary: The comment asks if the absence of a prohibition of livestock consumption of reclaimed water reflects "the official position of the State." The comment also states that pathogens in reclaimed water may be bio-amplified and then excreted into surface waters.

Title 22 of the California Code of Regulations currently specifies that reclaimed water can be used for irrigation of food crops (including field crops, orchards and vineyards); fodder, fiber and seed crops; pasture for milking animals, and landscape (including parks, playgrounds, schoolyards, golf courses, cemeteries, freeway landscapes, and other landscapes with public access). Reclaimed water can also be used for recreational and landscape impoundments and for groundwater recharge. The Draft Revisions to Title 22, which are expected to be adopted this summer, add other approved uses to the list, including: residential landscaping, ornamental nursery stock and sod, cooling systems, flushing of toilets and urinals, priming drain traps, industrial processes, fire fighting, decorative fountains, commercial laundries, backfill consolidation, soil compaction, concrete mixing, dust control, flushing sanitary sewers, and cleaning roads, sidewalks and outdoor work areas. Neither the existing or proposed regulations contain any prohibitions on use of reclaimed water. However, the Department of Health Services does not allow direct potable reuse.

Animal waste discharge to surface waters is a violation of State and federal water quality regulations and should not be occurring regardless of any possible bio-amplification. The Project Description includes measures to reduce discharge of animal waste to surface waters (refer to Measure 2.2.6 on page 2-34 of the Draft EIR/EIS).

Response to Comment 9-17

Comment Summary: The comment states that coliform bacteria data do not correlate with disease and may not be a suitable indicator of microbiological purity of water.

EPA is in the process of regulating pathogens in drinking water that it does not currently regulate. EPA has established a regulation known as the Information Collection Rule that requires water utilities to collect data on *Giardia* density and submit it to EPA. EPA intends to evaluate such data and establish a drinking water treatment standard in the Enhanced Surface Water Treatment Rule. Until such new regulations for disease-causing contaminants are proposed or promulgated, the EIR/EIS authors have insufficient basis to determine points of significance for these as yet unregulated pathogens. Also refer to Master Response 8, located in Section 6.2 of this document, concerning pathogens in reclaimed water.

Response to Comment 9-18

Comment Summary: The comment states that the “data are somewhat limited” for unspecified pathogens, and that more data would be required for a risk assessment.

Appendices H-2 (Reclaimed Water Quality) and H-3 (Reclaimed Water Quality Update) of the Draft EIR/EIS describe the data upon which the biological hazard assessment was based. Also refer to Master Response 8, located in Section 6.2 of this document, concerning pathogens in reclaimed water and to Master Response 5 concerning use of data. The EIR/EIS authors deem the risk assessment to be appropriate, but have also acknowledged that all risk assessments contain some uncertainties. Uncertainty is discussed on page 3-17 of Appendix J-3 (Human Health Risks from Chemical and Biological Components of Reclaimed Water).

Response to Comment 9-19

Comment Summary: The comment states that the Draft EIR/EIS should use a point of significance more stringent than state standards; that a more sensitive method for Cryptosporidium and Giardia measurement should be used; and that pathogens should be measured both as effluent leaves the Laguna Plant and as it leaves storage areas.

The analysis used current approved methods for detecting protozoan pathogens. Appendix 4 of Appendix H-3 (Reclaimed Water Quality) in the Draft EIR/EIS describes the limit of detection for samples that were analyzed for *Cryptosporidium* and *Giardia*. Method imprecision is an unfortunate attribute of the EPA-approved method. The EPA has determined that no reliable methods are currently available for determining cyst viability (refer to the Proposed Enhanced Surface Water Treatment Rule 40 CFR 141 and 142, published in the Federal Register on Friday July 29, 1994). The effect of storage on pathogens in reclaimed water is addressed in the Response to Comment 9-20 and in Master Response 8, which is located in Section 6.2 of this document.

Response to Comment 9-20

Comment Summary: The comment states that reclaimed water storage may become contaminated by wild animals, and such contamination may threaten the health of irrigation management and food handling personnel, and the public.

Reclaimed water is disinfected prior to storage. As described in Master Response 8, located in Section 6.2 of this document, some protozoan pathogens that may not be completely removed and killed in the treatment process die in storage ponds because conditions are unsuitable for their survival. Also as described in Master Response 8, bacteria and viruses are effectively removed or killed in the treatment process. Thus, pathogens in storage ponds are not of human origin. All surface-stored irrigation supply, regardless of its source, is subject to contamination by wild animals. The Project has been evaluated with respect to public health regulations that apply to reclaimed water reuse, and found to have no significant impacts. They are intended to minimize risk of

disease from exposure to pathogens of human origin, and the EIR/EIS discloses impacts associated with exposure to reclaimed water (refer to Master Response 8). The Project will comply with Title 22 regulations for use of reclaimed water, which are intended to protect agricultural and food handling workers at facilities that use reclaimed water, as well as the public.

Response to Comment 9-21

Comment Summary: The comment reports that a recent NAS/NRC report on use of reclaimed water indicated California had a 14-day no sale hold on food crops; this would limit crop production.

The EIR/EIS authors reviewed the report, *Use of Reclaimed Water and Sludge in Food Crop Production*, (National Research Council 1996) but could not find the referenced statement. The comment may refer to restrictions placed on undisinfected secondary reclaimed water. The Draft Revisions Title 22 regulations contain a provision that ornamental nursery stock and sod farms can be irrigated with undisinfected secondary reclaimed water "provided no irrigation with reclaimed water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public." The City's reclaimed water is thoroughly disinfected and would not be subject to these restrictions.

Response to Comment 9-22

Comment Summary: The comment requests evaluation of water quality at the farm, and expresses concern about water quality in ponds and mixed with manure.

Please refer to Master Response 8, located in Section 6.2 of this document, regarding water quality in ponds, and also to Response to Comment 9-20 regarding pathogens of non-human origin. Manure is part of the existing environment on dairy farms. Use of reclaimed water will not adversely affect the microbial character of existing manure.

Response to Comment 9-23

Comment Summary: The comment states that reclaimed water discharge may be significant to public health by accelerating the transfer of wild animals' pathogens from the Laguna to the Russian River.

Pathogens from wild animals are deposited directly, and run off the land into the Laguna, the Russian River and all tributaries of the Russian River regardless of reclaimed water discharge operations. As reclaimed water discharge increases, the density of pathogens from these sources are decreased due to dilution. Thus, the density pathogens in the Laguna and Russian River from wild animals that are from runoff and direct deposit sources is reduced by reclaimed water discharge. Pathogens in reclaimed water of human origin are addressed in Master Response 8, located in Section 6.2 of this document.

Response to Comment 9-24

Comment Summary: The comment notes that the risk assessment, while “state of the art,” has several sources of uncertainty (e.g., does not account for chemical or pathogen interactions, uses limited data, does not account for sensitive subpopulations).

The EIR/EIS authors agree that there are sources of uncertainty associated with the risk assessment process. Refer to Appendix J-3 (Human Health Risks from Chemical and Biological components of Reclaimed Water) of the Draft EIR/EIS. Some of the uncertainty may cause risk to be underestimated while some may cause it to be overestimated. One reason that conservative assumptions such as exposure to 100 percent reclaimed water in a domestic water supply and maximum detected concentrations, which may overestimate risk, were incorporated into the risk assessment was to assure that risk would not be underestimated. The risk assessment does take into account sensitive subpopulations, such as the elderly, “by using toxicity values (derived by the U.S. EPA or the State Department of Toxic Substances Control) that have been adjusted to be protective of sensitive subpopulations” (refer to page 2-7 of Appendix J-3 of the Draft EIR/EIS). Because no specific evidence or recommendations have been included in the comment, a more specific response cannot be provided.

Response to Comment 9-25

Comment Summary: Referencing a document known as the “Wingspread Statement”, the comment states that there are no validated risk assessment models for “hormone mimics” but that this lack of information and the lack of regulatory standards should not be a reason for denial of responsibility.

The study of “hormone mimics” or endocrine disrupters is a new area of investigation and there is still much debate in the scientific community about the nature of endocrine disrupters and the concentrations at which they act. The consensus of the Wingspread Statement is that there is a potential concern and that there should be more research. No scientific consensus has been reached on effective dosages that may be used in risk assessment equations. A qualitative discussion of this topic is presented in Appendix J-2 (Human Health Effects and Wildlife Effects of Environmental Estrogens) of the Draft EIR/EIS. Also refer to Master Response 9, located in Section 6.2 of this document, concerning endocrine disrupters.

Response to Comment 9-26

Comment Summary: The comment recommends use of ultraviolet disinfection for the purpose of mitigating hormone mimics.

The City of Santa Rosa is proceeding with conversion of their disinfection system to ultraviolet light. The impact of ultraviolet disinfection is addressed in Master Response 8, located in Section 6.2 of this document.

Response to Comment 9-27

Comment Summary: The comment expresses hope that the City of Santa Rosa will choose to reclaim its municipal wastewater, and that the best information will be incorporated as it becomes available.

The City's objectives are defined on page 1-3 of the Draft EIR/EIS. One of the City's primary objectives is to "promote wise use of water resources." The City also has an objective to "Maximize reclamation, recycling, and reuse of advanced treated wastewater to the greatest extent feasible". Through the efforts of the City in preparing the EIR/EIS and through the many comments provided by agencies and the public, the best information available has been incorporated into the environmental review process, and where appropriate, into the Project.