

COOPERATIVE EXTENSION
UNIVERSITY OF CALIFORNIA

Sonoma County

October 3, 1996

Ms. Marie Meredith
City of Santa Rosa
100 Santa Rosa Avenue Room 10
Santa Rosa, California 95403

CITY OF SANTA ROSA
P.O. Box 1678
Santa Rosa, CA 95403

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**DEPARTMENT OF
COMMUNITY DEVELOPMENT**

Dear Ms. Meredith,

Enclosed is my comments on the Santa Rosa Subregional Long
Term Wastewater Project *draft* EIR/EIS.

I have attempted to follow the format requested, yet I have added
some considerations of the project and its environment that are not
specifically mentioned in the Draft EIR.

Question about my comments should be addressed directly to me,
care of this office.

Thank you.

Sincerely,



R. H. Bennett Ph.D.
Environmental Sciences Advisor
University of California Cooperative Extension

R. H. Bennett Ph.D.
University of California

Comments: Santa Rosa Subregional Long-term Wastewater Draft EIR/EIS

Section 1: General policy Comments

Section 2: Water Quality

Section 3: Public and Animal Health

Section

1

General Policy Comments:**Background:**

Almost 20 years ago the County of Sonoma, as the lead agency, began studies and proposals for the county wide reclamation of municipal waste water. The goals were to reduce or eliminate discharges of treated effluent to the rivers and to maximize the reuse of water as an important natural resource. Twenty years later those goals remain highly desirable. These goals are especially germane in the knowledge that water resources are becoming increasingly scarce and the rivers and oceans of the world increasingly polluted. The choices of the city do not occur in a void. Rather they occur in combination of the aggregate activities of the biome, as reflected in the common adage "we all live downstream". No EIR/EIS can accurately address those effects and interactions. Most importantly the reuse of the reclaimed water resource will go a long way to extending the supply of the high quality water resources needed for the most basic of human needs. 001

The previous policies of the city and county recognized these facts and should not be abandoned in the face of time or economic pressures. In the longer term the goals of 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.

I have been involved with agriculture and natural resources as an educator and a researcher in this region for over 18 years. I have worked with virtually every agency and group involved with water management and reclamation. My background in animal and human health and natural resource use provides an opportunity to make some constructive comments on the draft EIR/EIS.]

Alternative Selection:

In the project scoping process options were either eliminated or not effectively researched. It is unfortunate that the regulatory urgency eliminated these options from effective study. The scoping process did not allow for a hybridization of the projects, nor allowed for the phasing of projects. Specifically, the cost and environmental feasibility may be cast more favorably should the agricultural reclamation project be designed and constructed in phases. The phases would coincide with the need to utilize reclaimed water and the commercial demand for agricultural and landscape water for irrigation. By allowing the commercial interest and use in reclaimed water to expand in the natural processes of business growth, opportunities for the water to develop a true market value occur. In this way the demand for water grows with the uses. Water supply and delivery influence cost to the new user. When water supply exceeds demand the cost of water disposal increases to the urban waste producers. When demand exceeds supply the cost increases for new water users. The costs are shared between the need to dispose and the demand to reuse.

The use of an irrigation district to manage water delivery has much historic precedent in California and models of effective water management are readily available. Yet this option appears to be lost as well.

It would indeed be unfortunate should the very goals and policies intended to protect water resources act to forestall effective water reclamation options.

Water Quality

Chapter 2: Mitigation and Monitoring

Page 2-21, 2.2.1: ICMP's

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The document refers to Irrigation and Conservation Management Programs (ICMP's). While in concept, they may serve to protect the quality of land and water, there is insufficient detail given in the report to comment on the possible effectiveness of such a program. Much more management detail and monitoring system information is needed for the EIR. In working with the town of Windsor, we found that general practice guidelines or Best Management Practices (BMP) did not prevent mis-irrigation. (Bennett 1990- 1993 Annual Irrigation Reports, Town of Windsor)]

In order to effectively manage irrigation some type of objective monitoring system needs to be in place. Systems such as CIMIS, or electronic soil moisture monitoring device needs to be applied to each application area.]

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Moreover, the ICMP needs to be implemented in consideration of the nutrient laden water wastes generated on the farm, as is the case for dairies and wineries.]

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Page 2-34 2.2.6: Chemical and Fertilizer BMP's

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This component is essential and needs to be further defined in more detail. Irrigation leachates that contain herbicides are a major environmental concern. Summer crops in the region often require weed control utilizing herbicides such as Atrazine. Irrigation adjacent to waterway presents a potential for movement of these chemical into the receiving waters. Water in the immediate proximity may exceed tolerances for this or other chemicals.]

The BMP and ultimately the suitability of a lands irrigation needs to be made on a assessment of factors such as pre-existing soil levels of constituents such as nitrogen and selected pesticides. A criteria for predetermining which lands present untoward risk needs to be

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established. Nitrogen balance information should be conducted in advance of irrigation water delivery.] 010 (cont.)

Page 2-119, 2.4.16: Wildlife EQ and Risk

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The assumption that an EQ of less than 10 is low risk is subject to speculation. The risk threshold for each specie identified as a potential risk should be evaluated by independent experts to provide reasonable assurance that the risk assessment is valid.]

Page 2-123, 2.5.2: The mitigation addresses the copper levels in irrigation water and does not address the copper in the soil. The extent to which farm use of copper compounds adds to the copper burden in soils and water needs to be addressed.]

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Page 2-131, 2.5.6: The movement of nitrogen compounds from farm land is a major concern. The specific farm irrigation site mitigation's lack specificity. In addition to a nitrogen balance for the farm, each irrigated field should be evaluated as well. The city's practice of paying for water irrigation water applied encourages over irrigation and movement of nitrogen compounds into receiving waters. Animal waste nitrogen in the Laguna is due in part to over irrigation. Water balance and nitrogen balances on irrigated lands should be a criterion for mitigation.]

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Chapter 4

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Page 4.6-87, 6.7.1 Copper: The additive effect of copper in farm use and as applied to the lands in dairy waste needs to be accounted for as well as the copper resident in the irrigation water.]

Page 4.6-89, 6.7.3 It is not clear why that mitigations 2.2.1 through 2.2.7 will be effective in the Laguna yet not effective in the West County in reducing irrigation impacts on the waterways, relative to alternative 3. It seems quite feasible that very well managed irrigated pastures could actually improve the quality of rain runoff leaving the farm lands. Please explain.]

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Section

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Human and Animal Health:

Page 4.7-7, The text reads, "However, the use of reclaimed water for livestock watering (drinking) is not prohibited." Is this the official position of the State? The risk of drinking this water to livestock is not evaluated in the EIR. Moreover, animals may be sources of bio-amplification or organisms originating in reclaimed water and as the result of infection excrete elevated numbers of pathogens into surface waters. Such is the case for infections due to Salmonella, E. coli, Cryptosporidium and others.] 016

Page 4.7-28 and Vol. X. The use of Coliform and Fecal Coliforms as the indicator of water purification and safety is being called to question by the worlds best microbiologists. (Am Academy of Microbiologists 1995, National Academy of Sciences 1996) The use of these very traditional tests do not correlate with disease from human exposure. (EPA 1992).] 017

The city is to be recognized for it attempt to measure specific pathogens in reclaimed water. Yet, these data are somewhat limited. Specific species tests in a significant sample size are needed before any risk assessment model can be fully evaluated.] 018

The intent to discharge into waters used for recreation and drinking purposes in addition to using this water for the irrigation of crops that are consumed raw, e.g. lettuce, warrants more detailed investigation. The city should be willing to go beyond the state standards and rise to the recommendations of science. There are more sensitive methods for the detection of Cryptosporidium and Giardia. They are becoming more available and should be employed to further determine the presence of these pathogens in effluent at processing and at the end use or disposal.] 019

Page 4.7-41, 4th paragraph: The data in the EIR speak to water quality predominantly as it comes from the treatment plant. No studies are mentioned that document the microbial quality of water after it has resided] 020

for months in storage ponds. Most ponds have broad exposure to wild and domestic animals. These animals can add significant numbers of pathogens to the water. Subsequent irrigation is select site could present risk to handlers and the public through consumption of contaminated foods.] 020 (cont.)

In the recent NAS report on the use of reclaimed water and sludge on food crops, The NRC indicates that the state of California has a 14 day no sale hold on food crops. If this is the case it will limit certain type of production in the West and South County options.] 021

A similar comment pertains to Impact 7.7.1. The microbial quality of the water at the farm needs to be determined at the farm. Pondered reclaimed water and water mixed with other waters including manured water will have a very different microbial population. We are in the process of proposing a study that will address this concern.] 022

Page 4.7-61, Impact 7.9.1: The discharge of water through the Laguna may indeed be significant to public health. This is more likely if the water is discharged from Delta pond directly into the Laguna. Pathogens potentially added in the pond and to the Laguna by natural fauna may be conveyed at faster rates out to areas of public access to the river. This potential needs to be addressed.] 023

Chapter X, Risk Assessment 024

The models used are essentially state of the art. Yet the art of risk assessment has well recognized limits. Assumptions based on incomplete or less than representative data, e.g. Coliform bacteria become weak assumptions. The risk models do not account for interactions of chemicals nor interactions of pathogens. Most risk assessment models can only evaluate one risk type at time. Most models do not address special at risk populations, e.g. Elderly or immune compromised. Hence there is uncertainty and potentially high risk to certain sub-populations. Sonoma County has a significant population of HIV infected persons and represents an "at risk" group.]

With respect to environmental "hormone mimics" there are no validated risk assessment models. More over the "science" is quite new. As a result there are no guidelines or regulatory standards. The lack of standards should not be a reason for denial of responsibility. A scientific consensus known as Wingspread Statement (1991) suggest large scale hormonal 025

disruption of physiologic function in a variety of mammals, including man, 025 (cont.)
from the environmental release of synthetic hormone disrupters.]

The value of reclaimed water is at stake. The EIR and the city should 026
document the extent to which these hormone mimics can be mitigated.
For example the use of ultraviolet light to replace chlorine may be more
beneficial in this regard.]

Concluding remarks:

These comments are offered in the expressed hope that reclamation of municipal will be a choice for this and all regions of the country. However, we must do so with our eyes wide open and incorporate that best information as it becomes available. There are some who believe the goal is to dump this water some where and when its gone, its gone. We know better. The ways the water naturally moves and recycles itself means the we do indeed live in a grand fish bowl and what we do here today, will be back here tomorrow.] 027