

**CALIFORNIA URBAN WATER AGENCIES
STUDY OF DRINKING WATER QUALITY IN DELTA TRIBUTARIES
SUMMARY OF PROJECT ADVISORY COMMITTEE MEETING
SEPTEMBER 27, 1994**

October 5, 1994

The fourth Project Advisory Committee (PAC) meeting for the Study of Drinking Water Quality in Delta Tributaries was held on September 27, 1994. The meeting agenda and list of attendees are attached.

INTRODUCTION--Lyle Hoag

Lyle Hoag began the meeting by asking PAC members to reintroduce themselves.

REVISED PESTICIDE TECHNICAL MEMORANDUM -- Jeanne Wallberg

Jeanne Wallberg discussed the status of the revised Pesticide Technical Memorandum (TM). The revised TM was sent to PAC members for review on September 19. The revisions incorporated changes based on PAC member comments, comments made by external agencies (Regional Water Quality Control Board, Department of Fish and Game, and US Geological Survey (USGS)), and comments from the California Rice Industry Association (CRIA) and the Northern California Water Association (NCWA). PAC comments were summarized in the meeting minutes from the July 7, 1994 PAC meeting. External agency comments were mostly minor technical corrections. The CRIA and NCWA comments were similar in content to PAC comments but expressed concern about the way in which the rice industry was presented. Lyle talked to Richard Golb with the NCWA and offered to meet to discuss their concerns. Mr. Golb requested that he and John Roberts (CRIA) review the revised draft and then determine whether a meeting was needed.

Additional PAC comments at this meeting were:

- The need for continued monitoring should be more strongly stated.
- Human health risk pesticide levels should be included.

Any additional PAC comments were requested by October 4th.

Jeanne also advised the PAC that the pesticide data from the reports which are reviewed in the Pesticide TM, had been compiled into a binder which would be available at the CUWA office for use by the PAC members.

**DRAFT MASS LOADING TECHNICAL MEMORANDUM -- Jeanne Wallberg,
Marvin Jung, Michael McGuire**

The draft Mass Loading TM was sent to PAC members for review the week of October 19. Jeanne introduced the draft Mass Loading TM by reviewing the contaminants, benchmark locations, and discharges selected for evaluation at the last PAC meeting. These were:

Contaminants: organic carbon, bromide, alkalinity, total dissolved solids, arsenic, and nutrients.

Benchmark locations : Sacramento River at Greene's Landing, San Joaquin River at Vernalis, and Banks Pumping Plant.

Discharges : Colusa Basin Drain and Sacramento Slough, Sacramento urban runoff, Sacramento combined sewer overflow, Sacramento Regional Wastewater Treatment Plant (SRWTP) effluent, and Mud and Salt sloughs.

Jeanne further outlined the major findings of the TM. These are: 1) the data do not adequately describe the significant sources in the Delta tributary watersheds, i.e. much of the source of loadings remains unknown, particularly in the Sacramento watershed, 2) additional monitoring would be needed to characterize the sources, 3) Mud and Salt Sloughs appear to be significant sources to the San Joaquin River at Vernalis, and 4) that, with the exception of ammonia, no sources were identified which, if controlled, would significantly improve water quality at either Greene's Landing or Banks Pumping Plant.

Marvin Jung then discussed some of the choices the project team made in selecting the data, the period of record, and in evaluating the data. The Department of Water Resource Municipal Water Quality Investigations (MWQI) data base was used as the main source of data because it includes most of the contaminants of concern at the benchmark locations. The MWQI benchmark location data were supplemented with USGS and East Bay Municipal Utility District data. Discharge data were MWQI data, USGS data, and local Sacramento monitoring program data. The period 1990 to 1993 was selected primarily because this was the period when there was the most overlap of data at the benchmark locations and discharges, so that the same period of time could be compared. The time-series plots were evaluated by overlaying graphs of rainfall, flow, concentration, and loads and inspecting for periods when trends agreed and disagreed. A statistical technique was used to supplement the time series plots in order to compare the proportions of the discharge loads to the river loads.

Mike McGuire then discussed some of the choices the project team made in how far the evaluation was taken for each of the selected contaminants. Organic carbon and total dissolved solids were evaluated the most extensively; organic carbon because of its concern to water utilities; and total dissolved solids because of the extensive data available. Alkalinity loads were not calculated because of the non-conservative nature of alkalinity. Bromide loads were not

calculated because the team considered the Delta tributary bromide sources so small in comparison to Delta sources. Arsenic loads were not calculated due to the similar low concentration levels in the rivers and discharges and because much of the data were so close to or below the detection level. Selected nutrient loads (ammonia) were calculated.

Mike went on to state that the team had hoped to identify sources which could be clearly shown to contribute significant amounts of the contaminants of concern, but that, with the exception of ammonia in the SRWTP effluent, the significant sources of contaminants to the Sacramento River at Greene's Landing remained unidentified. This may be attributable to the amount and quality of the data available to examine the sources or it may reflect that the sources are highly diffuse in nature.

The PAC comments on the Mass Loading TM were:

- If possible, it would be helpful to state what the possible range of organic carbon contribution from the Sacramento urban area might be.
- The explanation on Figures 2, 4 and 5 should be modified to show only those sources which are shown on the figures.
- The issue of nitrification of the SRWTP ammonia in the river was discussed. It was agreed that nitrogen loading to the Delta would not be further examined in the TM.
- Nitrogen and phosphorus loads from the SRWTP should be calculated and added to the loads at Freeport to look more comprehensively at nutrient loading from the SRWTP.
- The sampling frequency may understate the concentrations in the discharges as well as during wet periods in the rivers.
- The use of Natomas East Main Drain (NEMD) as a surrogate for Colusa Basin Drain (CBD) was questioned as NEMD is considerably less turbid than CBD.
- Rick Woodard has some organic carbon data on Sacramento urban runoff that he will transmit to the project team.
- The findings need to more clearly state where conclusions were firmly supported by data versus where the data made the conclusions tentative.
- Recommendations need to identify further areas of study that are worth pursuing.

- The nature of organic carbon in urban runoff will affect disinfection byproduct formation potential. Recommendations for organic carbon should consider a two-step approach - monitoring for total organic carbon levels followed (if the levels are significant) by a research study characterizing the nature of the organic matter.

Written comments from the PAC were requested by October 12, 1994. It was agreed that the Mass Loadings TM would not be revised independently, but would be incorporated as a chapter of the project report.

HEALTH RISK ANALYSIS -- Mike McGuire

Mike proposed to qualitatively discuss rather than quantitatively evaluate health risks. Because controllable sources of contaminants were not identified, it will not be possible to estimate reduced concentrations from source control and then reduced health risks. The PAC agreed with this proposal. Additional PAC comments were:

- Discuss the high chlorine demand resulting from ammonia in source waters.
- Add some discussion of the health risks of each of the contaminants.
- Discuss the significance of brominated THMs under the section on bromide.
- Be careful in phrasing statements about whether health risks can be reduced by controlling sources in the Delta tributaries.

MONITORING RECOMMENDATIONS -- Jeanne Wallberg

Jeanne described the project team's proposed approach to monitoring recommendations. The team will develop a matrix which shows the entire set of contaminants which could not be evaluated due to insufficient data. Monitoring recommendations will involve a subset of this list and will reflect a prioritization of the most critical data insufficiencies and the results of this study. Monitoring recommendations will likely be made with respect to sampling frequency, pathogen monitoring at the SRWTP, and organic carbon monitoring for Sacramento urban runoff. Where monitoring recommendations are made, the project team will also discuss the likely agency for implementing the recommended monitoring. Marv added that he would like to incorporate a recommendation on standardizing water quality data base format and definitions.

Lyle requested that any research monitoring, such as characterization of organic matter in Sacramento urban runoff be identified only.

PROJECT REPORT -- Elaine Archibald

Elaine Archibald distributed copies of a draft project report outline for PAC review (attached). The report is proposed to incorporate the work done in technical memoranda 1 and 5 in describing the mass loading work and findings. The report will also describe the data identification and collection process, a qualitative discussion of health risks, and the monitoring recommendations. Technical memoranda 2A, 2B, and 4 on mine drainage, Delta agricultural drainage, and pesticides are proposed to be incorporated primarily by reference as appendices to the report.

Lyle re-stated the two main objectives of the project as 1) investigating quantitatively the sources of contaminants in the Delta tributaries and 2) evaluating whether the management alternatives should be further investigated. He suggested the report should emphasize the work accomplished with respect to the first objective.

PAC comments on the outline were requested by October 12, 1994. The draft report will be transmitted to PAC members at the end of November or early December.

SUMMARY OF DECISIONS AND ACTION ITEMS -- Elaine Archibald

1. Pesticide Technical Memorandum

- Lyle will review the revised Pesticide TM before it is sent to the CRIA and NCWA for their comments.
- Additional PAC comments are requested by October 4, 1994. Bruce Macler will transmit the human health risk pesticide levels for incorporation into the Pesticide TM.

2. Mass Loading Technical Memorandum

- PAC written comments are requested by October 12, 1994.

3. Health Risks

- The project team will discuss health risks qualitatively in the project report. A quantitative analysis will not be undertaken.

4. Project Report

- PAC written comments are requested by October 12, 1994. The draft report will be developed and transmitted to the PAC by the end of November.

5. Next PAC Meeting

The next PAC meeting is scheduled for January 11, 1995 at the CUWA office in Sacramento from 9:30 to 3:30. The meeting will be primarily devoted to discussing the draft project report.