SWRCB Workshop Southern Delta Salinity Objectives

January 16 and 19, 2007

Department of Water Resources

Reasonable Objectives to Protect Southern Delta Agriculture

Delta soils (peat and mineral) are subject to the same leaching requirements for removal of salts as other drainage impaired soils in the San Joaquin Valley and in the Imperial and Coachella Valleys.

If salts cannot be leached and drained away from the root zone, then crops can not be grown.

Farmers in the Delta have ability to drain their fields for both surface and subsurface water.

Reasonable Objectives to Protect Southern Delta Agriculture

Imperial ID Example

Imperial Valley Farmers managed to be one of the most productive agricultural areas of California using Colorado River water at 1.25 dS/m (800 ppm) to grow their crops:

Alfalfa, wheat, sugar beets, cotton, broccoli, carrots, lettuce, cauliflower, melons, onions, asparagus, beans, etc.

Many of these crops are also grown in the Delta.

In the SJV some water districts blend tail water and some also blend tile water to EC 1 dS/m to grow crops and reduce their saline drainage discharges into the SJR.

Reasonable Objectives to Protect Southern Delta Agriculture

Perform Studies Review:

Basis for 0.7dS/m standard was the Ayers and Westcot analysis (1985 FAO Report).

Many studies submitted to the Board point out the deficiencies on the A&W analysis.

Deficiencies included assumptions of unrealistic field conditions (steady-state conditions: continuous flow trough the soils and constant soil solution concentrations) and underestimating contributions of rainfall.

Reasonable Objectives to Protect Southern Delta Agriculture

Perform Studies Review:

"Establishing Water Standards that are Protective for Agricultural Crop Production," Report to DWR by Dr. John Letey, Oct. 14, 2005.

"An Approach to Develop Site-Specific Criteria for Electrical Conductivity to Protect
•Agricultural Beneficial Uses that Accounts for Rainfall," Dr. Isidoro Ramirez, and Dr.
•Steve Grattan, UC Davis Department of Land, Air and Water Resources, 2004.

"Concerning Southern Delta Electrical Conductivity Water Quality Objectives," Mr.
•William Johnston, P.E., 2005. (discussing the evolution of the existing Southern Delta EC
•Objectives, research and crop changes that have taken place since the existing objectives
•were established, and recommendations on whether or not changes should be made to the
•existing objectives, based on updated research and current cropping patterns).

Dr. James R. Brownell presentation for March 2005 SWRCB Workshop (concluding that
•there is no agricultural reason supporting the 0.7 dS/m objective for Agricultural
•Water Quality Objective in the South Delta and recommending 1.1 dS/m based on the
•more recent work of Hoffman, Grattan and his co-workers, and himself).

Reasonable Objectives to Protect Southern Delta Agriculture:

Perform Studies Review:

DWR recommends that the SWRCB

Reassess the information provided and perform a technical review of all evidence presented on the irrigation water quality needs of the south Delta.

Conduct such review by contracting with a qualified, independent consultant, accepted by all parties.

After such review; the consultant should make a recommendation to an appropriate value to protect agriculture in the Delta under various hydrologic conditions.

Reasonable Objectives to Protect Southern Delta Agriculture Recommended Additional Studies:

Perform a Scientific Investigation of South Delta Agriculture and Water Quality:

1. Nature, location, and extent of irrigation diversions, agricultural returns, crops and salinity constituents in irrigation water

2. Identify salt balance over short and long term periods in the fields study

3. Identify irrigation management, crop cultural practices, soil and drainage conditions

4. Characterize any impairments for growing crops

A recommended scope of work is included on appendix B.

Reasonable Objectives to Protect Southern Delta Agriculture
Recommended Additional Studies:

Evaluate if on-farm measures used to control salinity upstream Vernalis can be performed on the South Delta:

Are there ways to reduce surface and subsurface drainage water discharges in the south Delta?

Can drainage discharges be consolidated and timed when there is assimilative capacity on the River?

Is it possible to reduce points of diversions to improve water quality?

Are Delta farmers employing best irrigation management practices?

Is it possible to increase irrigation efficiency?