



Route

Memorandum

To: CVCWA
From: David Stringfield
Date: June 16, 2009 **WO#:** 75.86
Subject: Tulare Lake Basin Plan Source + 500 EC Limit.

PURPOSE: The purpose of this Memorandum is to present the understanding that I have gained concerning the source and intent of the Tulare Lake Basin Plan EC Limit of Source + 500. Others have done more work looking at the administrative record and that research would be the best information available. My understanding comes from discussion with the older engineers in the Valley such as Loren Harlow, Lonnie Wass, Bert Van Voris, and Harry Tow and my permitting experience in the Tulare Lake Basin since 1985.

THE TULARE LAKE BASIN PLAN SOURCE + 500 LIMIT:

SECTION IV. IMPLEMENTATION PLAN: *“The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC shall not exceed the EC of the source water plus 500 micromhos/cm. (Tulare Lake Basin Plan at p. IV-11.)*

It is my understanding that this limit was set for the specific purpose of limiting the rate of salt degradation until a firm plan for the removal of salt from the basin is implemented. The Source + 500 came after a review of the typical increase in EC after one domestic use AND from a review of discharges at the time the Basin Plan was written. At that time, most or all dischargers were meeting this limit including commercial and industrial contributions. The purpose was to set an interim limit all could live with (a level playing field) for a period of time. It has now been 30 plus years with no firm plan for the removal of salt implemented. I think it has served the basin well, but after 30 years, it is time to re-evaluate what BPTC for point source dischargers should be.

THE BASIN PLAN STATEMENTS

The following statements in the Basin Plan support this theme:

SECTION I. INTRODUCTION

“Adequate control to protect the quality of these resources is essential, as imported surface water supplies contribute nearly half the increase if salts occurring within the Basin.” (Tulare Lake Basin Plan at p. I-1.)

This confirms the recognition that point source domestic discharges are not the primary culprit and reinforces the understanding that point sources affect small areas whereas irrigation spreads EC over very large areas.

SECTION III. WATER QUALITY OBJECTIVES

“Controllable factors are not allowed to degrade water quality unless it is demonstrated that degradation is consistent with maximum benefit to the people of the State.” (Tulare Lake Basin Plan at p. III-1.)

The Source + 500 requirement is an outcome of this conclusion. Degradation is allowed. The Plan writers needed a methodology to cap the rate of degradation.

“At a minimum, waters designated MUN shall not contain concentration of chemical constituents in excess of the maximum contaminant levels (MCLs)...” (Tulare Lake Basin Plan at p. III-7.)

This section has been difficult to interpret. Clearly the Plan allow an EC discharge above the EC Secondary MCL if the Source + 500 criteria is applied as BPTC. It is therefore a reasonable assumption that a controlled degradation is anticipated and justified in the Basin Plan.

“The average annual increase in electrical conductivity will be determined from monitoring data by calculation of a cumulative average annual increase over a 5-year period.” (Tulare Lake Basin Plan at p. III-8.) Example from Table III-4 (same page), Kings River Max. Ave. Annual Increase in EC: 4 umhos/cm.

This section specifically sets an allowable degradation for each hydraulic unit that would be considered BPTC. This section has been difficult to interpret and implement. Initially, each permit was given an allowable degradation that was interpreted to be in the discharge plume, which assumed integration of the plume into the groundwater (mixing). It was then understood that the allowable degradation was in the overall hydraulic unit. Each discharger would then have to have their share allocated. Without sufficient ground water data, this could not be done. This rate of degradation limit has been dropped from permits in favor of the Source + 500 which is enforceable.

SECTION IV. IMPLEMENTATION PLAN

“Degradation of ground water in the Tulare Lake Basin by salts is unavoidable without a plan for removing salts from the Basin. A valleywide drain to carry salts out of the valley remains the best technical solution to the water quality problems of the Tulare Lake Basin. ... The only other solution is to manage the rate of degradation by minimizing the salt loads to the ground water body.” (Tulare Lake Basin Plan at p. IV-5.)

This is the basic assumption that was correct. There is no solution to salt build up until there is a plan to remove salt from the basin. An acceptable, BPTC, rate had to be set. Source + 500 was selected.

“These salt sources, (several listed such as imported water etc.) all contributors to salinity increases, should be managed to the extent practicable to reduce the rate of groundwater degradation.” (Tulare Lake Basin Plan at p. IV-6.)

Again, this supports that domestic dischargers are small sources and localized in comparison to irrigation waters and need to be managed with an enforceable mechanism. Source + 500 was the selected mechanism.

“Discharges to areas that may recharge to good quality ground waters shall not exceed and EC of 1,000 micromhos per centimeter, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.” (Tulare Lake Basin Plan at p. IV-11.)

Because the Secondary MCL for salt is less than the 1,000 EC limit, we have understood that the Basin Plan anticipates an EC discharge above the MUN secondary limit, i.e. the Plan anticipates degradation of the groundwater above the MUN EC limit. This is BPTC according to the Basin Plan. The Plan does limit the Source + 500 rule with the 1000 limit for high quality groundwater to assure a high EC source is not combined with domestic EC additions resulting in excess groundwater degradation.

By setting a cap on chloride and boron, the Plan again limits the rate of degradation for these important agricultural salt constituents.

Antidegradation

Compliance of this Basin Plan to Resolution No. 68-16 is discussed in this section. (Tulare Lake Basin Plan at p. IV-20.) It reiterates that there is no proven means that will allow ongoing human activity and maintain the ground water salinity at current levels.

This states why the Source + 500 limit complies with the antidegradation regulations. It was anticipated that ‘Source + 500’ would manage the degradation in the interests of the people of the State.