



**CONTRA COSTA
WATER DISTRICT**

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January 10, 2005

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Ms. Debbie Irvin, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

RE: Issue 4a: 150 mg/L M&I Chloride Objective

Dear Ms. Irvin:

Contra Costa Water District (CCWD) serves raw and treated water to 500,000 people in central and eastern Contra Costa County. The 150 mg/L municipal and industrial (M&I) chloride objective in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 Plan) and State Water Resources Control Board (SWRCB) Water Rights Decision 1641 provides some of the only protection for the quality of the drinking water provided by CCWD to its customers.

For Issue 4a of the SWRCB's Periodic Review of the 1995, the SWRCB asks:

Should the SWRCB amend the value or description of the 150 mg/l Chloride Objective in the Water Quality Objectives for Municipal and Industrial Beneficial Uses (Table 1 of the 1995 Plan)? How should the value or description be modified and what are the scientific and legal arguments in support of and against such modifications?

CCWD requests that the SWRCB not consider any modification to the 150 mg/L objective that would degrade CCWD's source water quality and put the public health of CCWD's customers at risk.

CCWD's main comments regarding Issue 4a are summarized below:

1. The 150 mg/L objective, originally intended to protect an industrial use, should not be eliminated as this would allow degradation of the drinking water quality for more than 23 million Californians
2. The historical compliance data suggest that the 150 mg/L objective has typically been easily met historically – the only exception is the critically dry year 1992. The X2 estuarine habitat, which came in effect with the 1995 Plan, requires higher Delta outflows during February-June, which make it even less likely that the 150 mg/L objective will control Delta operations.

3. Historical compliance data show no significant difference between calendar year and water year accounting for total number of days of 150 mg/L compliance. There is no compelling reason to change to a water year accounting. However, if a change is made, additional numbers of days of water year compliance may be needed to avoid any net degradation of water quality for CCWD and other users of Delta water.

The City of Antioch, which has been diverting water from the Delta under its own water rights, and is also a raw water customer of the District, and the Diablo Water District, which receives raw and treated water from CCWD, both sent letters to the SWRCB requesting that the 150 mg/L objective not be modified (December 2, 2004 and January 4, 2005, respectively).

The 150 mg/L chloride objective must be retained

The M&I water quality objective in the 1995 Plan requires a chloride concentration of 150 mg/L chloride or better be maintained at either the Contra Costa Canal at Pumping Plant #1 or San Joaquin River at Antioch Water Works Intake for at least a given number of days each calendar year, depending on water year type:

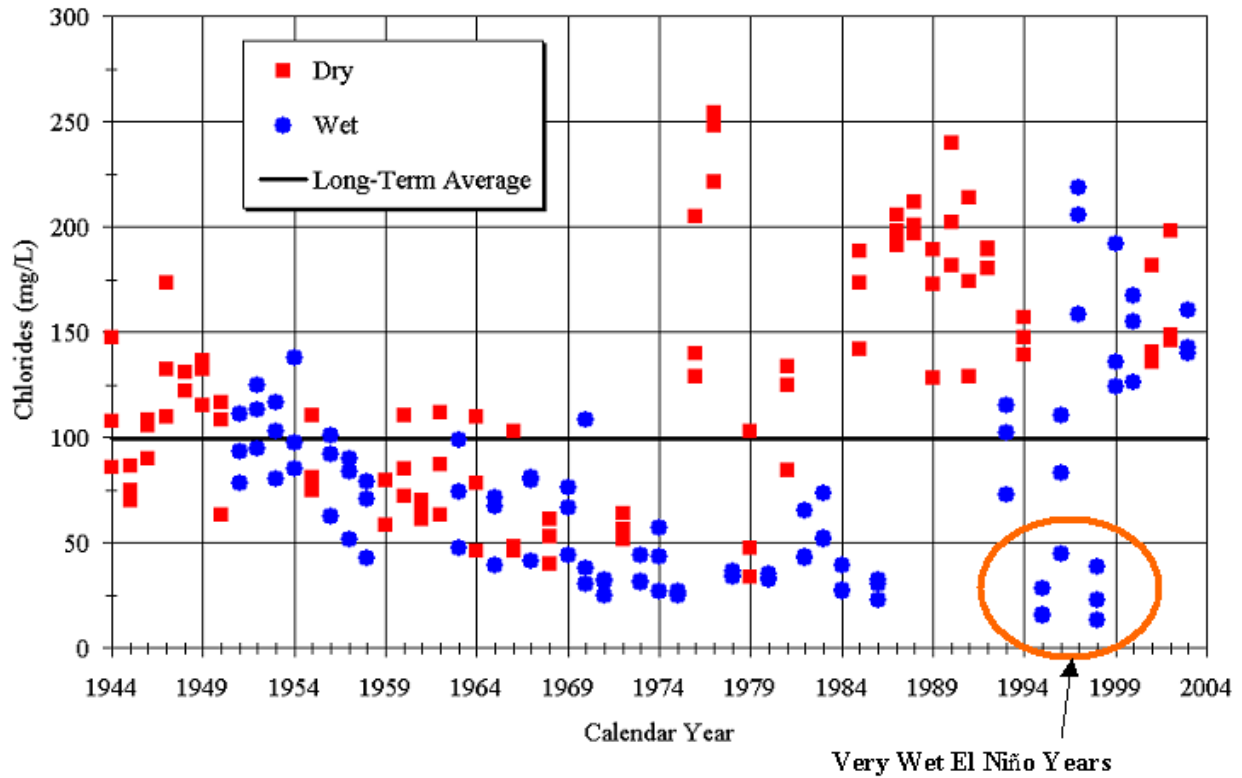
Wet	240 days	(66% of year)
Above Normal	190 days	(52%)
Below Normal	175 days	(48%)
Dry	165 days	(45%)
Critical	155 days	(42%)

The objective of 150 mg/L chlorides must be provided in intervals of not less than two weeks duration.

Although the 150 mg/L objective was originally intended to protect an industrial use, as acknowledged by the SWRCB in the 1991 Plan and the 1995 Plan, this objective provides some protection of drinking water quality for the 23 million Californian's that rely on the Delta for their water supply. Without the 150 objective (about 520 µg/l bromide), the only remaining M&I objective would be the year-round 250 mg/L chloride objective (about 850 µg/L bromide). Eliminating, or otherwise diminishing, the 150 mg/L objective would degrade source water quality for urban agencies and increase public health risk.

Figure 1 shows graphically the historical degradation in Delta water quality, measured in Rock Slough, since the mid-1980s. The best water quality in the fall is now worse than what CCWD used to get, except for El Niño (extremely wet) years. Water quality can be expected to continue to degrade with increasing population in the Central Valley. Historically, the Delta seldom exceeded 150 mg/l chloride in the fall (or at other times). Now, it is regularly exceeded. Elimination of the objective would lead to further water quality degradation at a time when the goal is to improve water quality.

Figure 1: Delta water quality has severely degraded since the mid-1980s



Meeting the 150 mg/L M&I chloride objective historically has not been difficult

Table 1 presents the historical number of days of compliance, each calendar year, with the 150 mg/L chloride objective since it took effect in 1979 (Decision 1485).

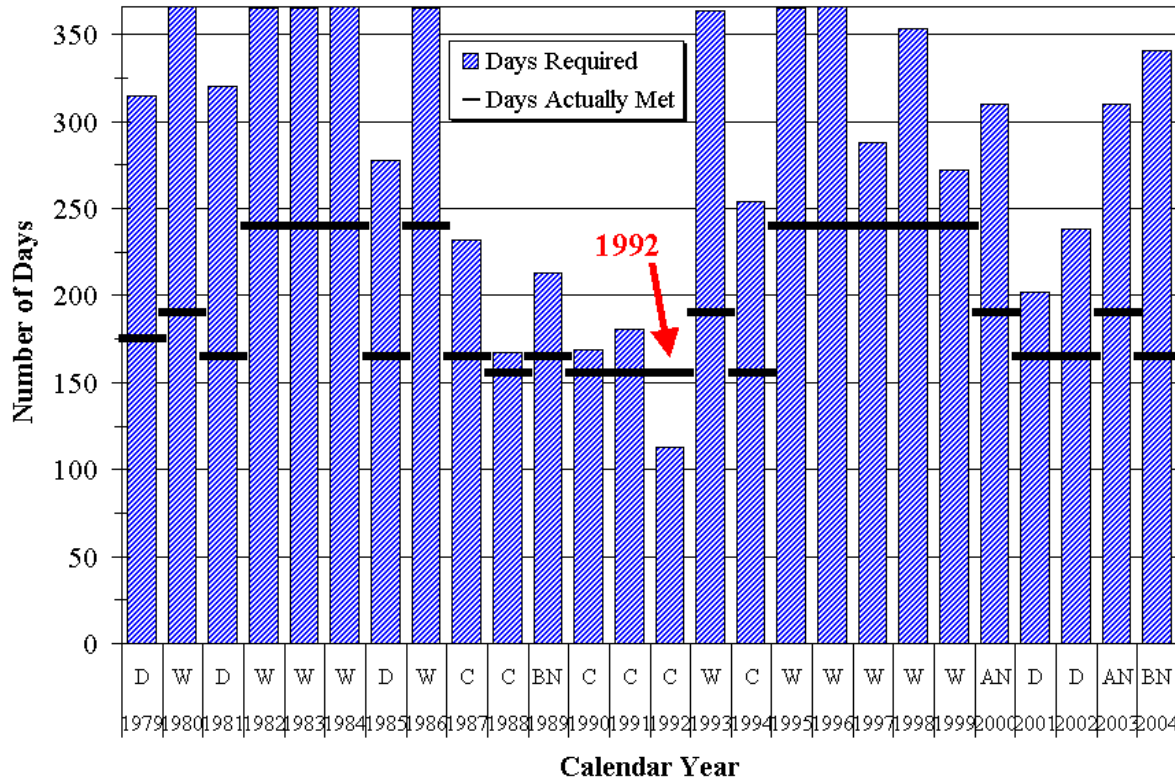
Table 1: Historical number of days of compliance with the 150 mg/L chloride objective

Year	Water Year Type	Compliance Days Required	Days Actually Met
1979	D	175	315
1980	W	190	366
1981	D	165	320
1982	W	240	365
1983	W	240	365
1984	W	240	366
1985	D	165	278
1986	W	240	365
1987	C	165	232
1988	C	155	167
1989	BN	165	213
1990	C	155	169
1991	C	155	181
1992	C	155	113
1993	W	190	364
1994	C	155	254
1995	W	240	365
1996	W	240	366
1997	W	240	288
1998	W	240	353
1999	W	240	272
2000	AN	190	310
2001	D	165	202
2002	D	165	238
2003	AN	190	310
2004	BN	165	341

Figure 2 shows the historical compliance data plotted by calendar year. These data (Table 1 and Figure 2) show that the 150 mg/L M&I chloride objective has been met in all years except the critical year 1992. Only in a few years was the objective was only met by a few extra days such as 1988 and 1990¹

¹ Note that the water year type prior to 1995 was based on Sacramento Valley northern 4-river index, per Decision 1485. The water year type for 1995 and subsequent years is based on the

Figure 2: 150 mg/L Typically Met Without any Water Supply Impact



Review of the 150 Standard compliance record indicates that the standard is typically met, and for more days than required, the only exception being in 1992, a critical year following two critical years. In that year, CCWD worked with the Delta exporters and the SWRCB to ensure that operational controls would be used to prevent similar issues in the future. The X2 estuarine habitat, which came in effect with the 1995 Plan, requires higher Delta outflows during February-June, which make it even less likely that the 150 mg/L objective will control Delta operations.

Sacramento Valley 40-30-30 hydrologic classification index, per Decision 1641. The 150 mg/L M&I chloride objective in D-1485 took effect for the first time in 1979, so did not apply to years prior to 1979. Compliance is calculated according to calendar year, as required by D-1641 and preceding D-1485. The official water year type is determined on May 1 of each year. Data are from CCWD's daily chloride monitoring at Rock Slough (Pumping Plant #1) and daily-averaged electrical conductivity (EC) measured at Antioch. Antioch EC is from DWR's California Data Exchange Center and STORET (RSAN007)

There is no compelling reason to use Water Year rather than Calendar Year accounting

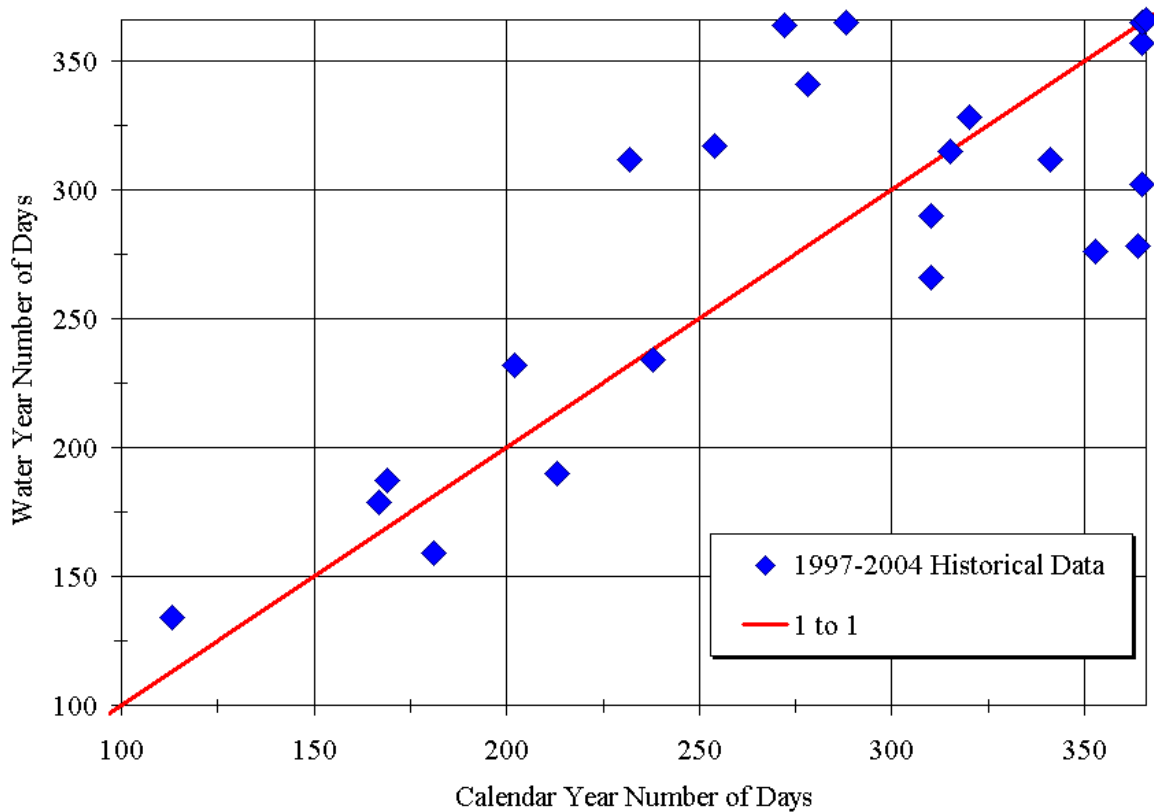
Table 2 presents the 150 Standard compliance record calculated by calendar year, as is currently required in the 1995 Plan, and by water year, as has been proposed.

Table 2: Historical compliance with 150 mg/L chloride objective by quarter, and by calendar and water year

Year	Water Year Type	Days Required	Days at or Better Than 150 mg/L Chloride Objective					Calendar Year	Water Year
			Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec			
1979	D	175	90	91	42	92	315	315	
1980	W	190	91	91	92	92	366	366	
1981	D	165	90	91	55	84	320	328	
1982	W	240	90	91	92	92	365	357	
1983	W	240	90	91	92	92	365	365	
1984	W	240	91	91	92	92	366	366	
1985	D	165	90	91	68	29	278	341	
1986	W	240	90	91	92	92	365	302	
1987	C	165	90	91	39	12	232	312	
1988	C	155	71	86	10	0	167	179	
1989	BN	165	15	91	84	23	213	190	
1990	C	155	45	30	89	5	169	187	
1991	C	155	5	75	74	27	181	159	
1992	C	155	42	65	0	6	113	134	
1993	W	190	89	91	92	92	364	278	
1994	C	155	90	91	44	29	254	317	
1995	W	240	90	91	92	92	365	302	
1996	W	240	91	91	92	92	366	366	
1997	W	240	90	91	92	15	288	365	
1998	W	240	78	91	92	92	353	276	
1999	W	240	90	91	91	0	272	364	
2000	AN	190	83	91	92	44	310	266	
2001	D	165	52	91	45	14	202	232	
2002	D	165	90	91	39	18	238	234	
2003	AN	190	89	91	92	38	310	290	
2004	BN	165	91	91	92	67	341	312	

Figure 3 shows a graph comparing water year accounting with calendar year accounting. Figure 3 and the data in Table 2 suggest that, on balance, water year accounting and calendar year accounting produce very similar results. While the days of compliance can vary under the two accounting methods for a given year, the differences do not appear to favor one accounting method over the other.

Figure 3: There is no apparent persistent difference between water year and calendar year accounting



Because historical compliance data show no significant difference between calendar year and water year total number of days of 150 mg/L compliance, except perhaps in some critical years, there is no compelling reason to change the accounting period at this time.

However, if further studies do indicate that accounting using a water year does produce a net water supply advantage, conversion to a water year accounting would result in a corresponding degradation in Delta water quality. To ensure no further degradation in existing water quality, a change to water year compliance would need to include increased number of days of compliance to ensure the existing water quality is at least maintained and not degraded. For example, the required 155 days of compliance in critical years would need to increase to ensure no net degradation of water quality for CCWD.

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If you or your staff have any questions regarding these comments, please contact me at (925) 688-8187.

Sincerely,

A handwritten signature in blue ink, appearing to read "Richard A. Denton". The signature is stylized and cursive.

Richard A. Denton
Water Resources Manager

RAD/MM

cc: Chester V. Bowling (USBR)
Alf Brandt (DOI)
Cathy Crothers (DWR)
Ken Landau (CVRWQCB)