

Exponent[®]

City of Antioch Rebuttal Testimony to SWRCB WaterFix Part 2 Proceedings

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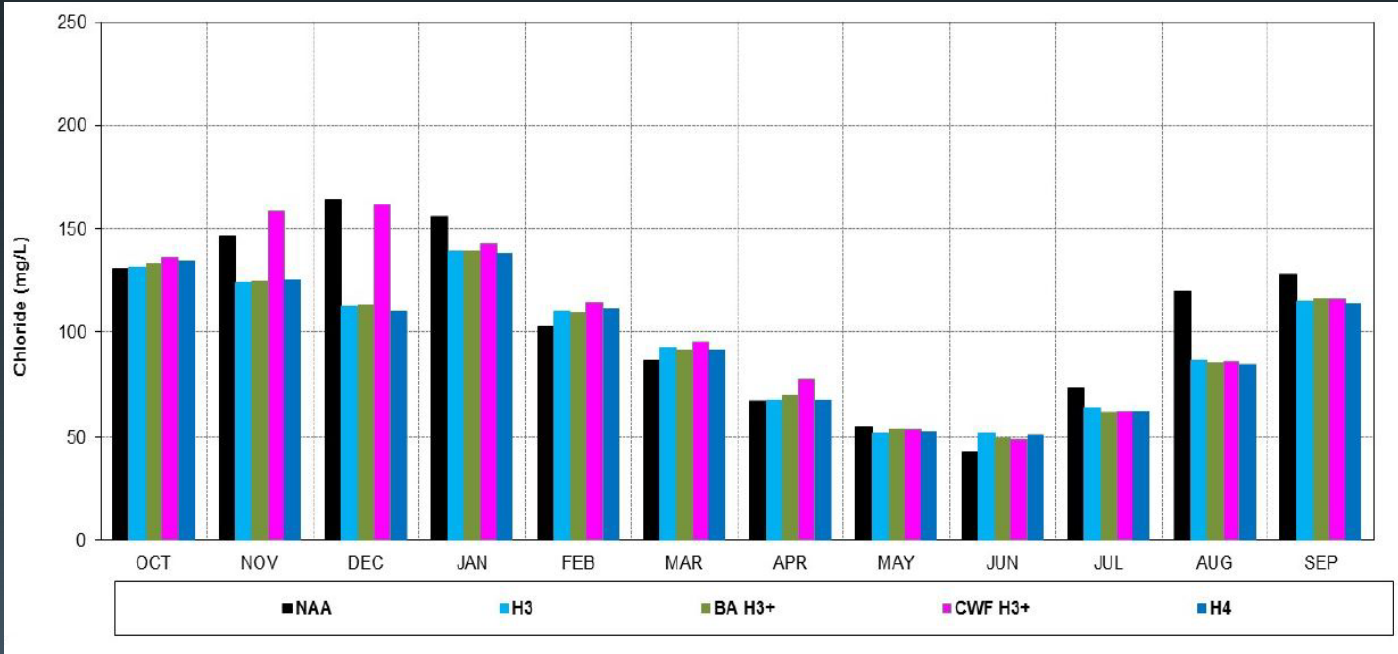
Antioch-601

Summary of Testimony

- Opinion 5: CWF H3+ results in periods of higher salinity in the western Delta than other WaterFix scenarios; fewer days of useable water at Antioch's intake compared to scenarios H3, H4, BA H3+, and Boundary 2; and fewer days of compliance with the D-1641 chloride criterion of 250 mg/L at Contra Costa Canal than scenarios H3, H4, BA H3+, and Boundary 2.
- Opinion 6: Total exports from the NDD and south Delta are greater during some months for CWF H3+ than all other scenarios, including the Boundary scenarios.
- Opinion 7: Water quality at Antioch's intake and in the western Delta will be worse than modeled for Scenario CWF H3+ if, through adaptive management, the Project is operated to Boundary 1.

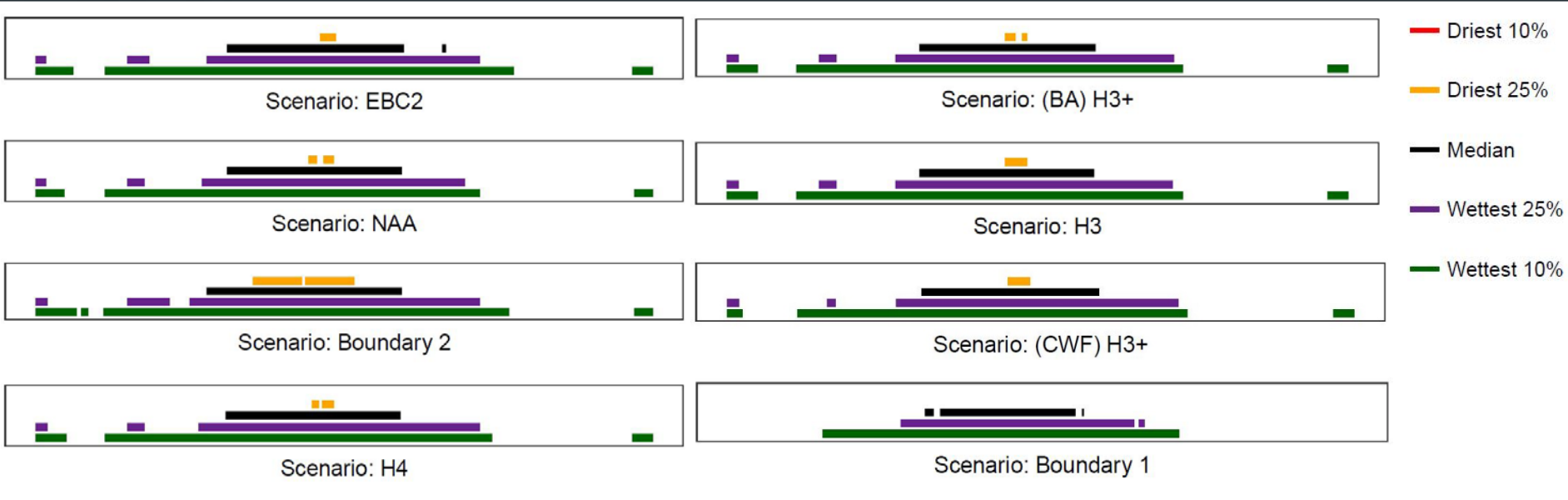
Opinion 5: CWF H3+ results in periods of higher salinity in the western Delta than other WaterFix scenarios; fewer days of useable water at Antioch's intake compared to scenarios H3, H4, BA H3+, and Boundary 2; and fewer days of compliance with the D-1641 chloride criterion of 250 mg/L at Contra Costa Canal than scenarios H3, H4, BA H3+, and Boundary 2.

CWF H3+ results in periods of higher salinity in the western Delta than other WaterFix scenarios.



DWR-1015 Figure CL1. Monthly average chloride concentration at Contra Costa Canal.

Figure 1. The presence of “useable water” at Antioch’s intake as determined using modeled salinity at two hours after higher high tide for the simulation period 1976-1991. Colored bars indicate simulated chloride concentrations below 250 mg/L under different hydrologic conditions as indicated in the plot.



CWF H3+ results in fewer days of useable water at Antioch’s intake compared to scenarios H3, H4, BA H3+, and Boundary 2.

Table 1. Number of days of useable water per year (chloride concentration below 250 mg/L at Antioch 2 hours after higher-high tide) for different hydrologic conditions (calculated from DSM2 model results for 1976-1991)

	EBC2 (days)	NAA (days)	B1 (days)	CWF H3+ (days)	H3 (days)	BA H3+ (days)	H4 (days)	B2 (days)
Driest 10 %	0	0	0	0	0	0	0	0
Driest 25 %	10	13	0	14	14	11	13	60
Median	108	104	87	104	103	104	104	116
Wettest 25 %	183	174	140	179	182	183	186	206
Wettest 10 %	278	252	207	250	259	259	261	282

CWF H3+ results in fewer days of useable water at Antioch’s intake compared to scenarios H3, H4, BA H3+, and Boundary 2.

Table 2. Number of “useable” water days per year as defined by the 1968 Agreement

WY Type	WY	EBC2	NAA	Boundary 1	CWF H3+	H3	BA H3+	H4	Boundary 2
Critical	1976	26	34	5	44	43	44	43	99
Critical	1977	0	0	0	0	0	0	0	0
Normal	1978	165	161	159	163	163	163	165	168
Normal	1979	145	145	104	146	146	146	146	149
Normal	1980	174	160	140	175	171	172	179	183
Dry	1981	97	85	74	85	76	81	79	100
Wet	1982	247	225	203	232	235	236	242	244
Wet	1983	365	320	300	300	319	318	312	331
Wet	1984	252	235	186	233	233	232	258	245
Dry	1985	85	95	39	113	112	124	109	178
Wet	1986	163	156	126	164	161	163	162	170
Dry	1987	68	79	54	90	87	87	88	119
Critical	1988	41	60	35	35	35	35	35	63
Dry	1989	77	74	66	71	69	71	69	79
Critical	1990	24	9	8	12	15	9	16	62
Critical	1991	39	40	39	40	39	39	39	40
	sum	1968	1878	1538	1903	1904	1920	1942	2230

CWF H3+ results in fewer days of compliance with the D-1641 chloride criterion of 250 mg/L at Contra Costa Canal than scenarios H3, H4, BA H3+, and Boundary 2.

Table 3. Number of days per water year that the D-1641 250 mg/L chloride water quality objective is *not* met (i.e., number of days it is exceeded) at Contra Costa Canal Pumping Plant No.1.

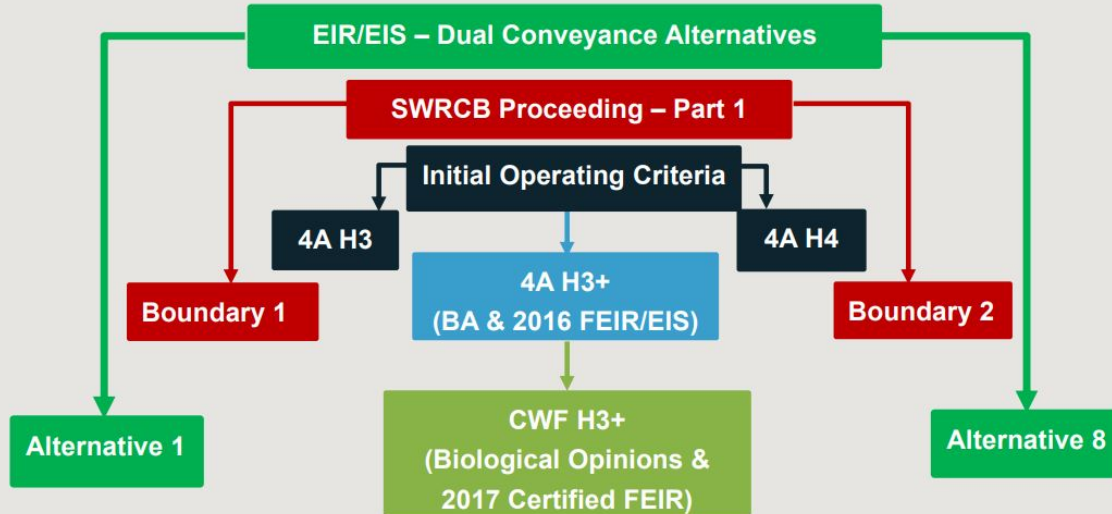
WY Type	WY	EBC2	NAA	Boundary 1	CWF H3+	H3	BA H3+	H4	Boundary 2
Critical	1976	26	0	0	0	0	0	0	0
Critical	1977	0	23	0	0	0	0	0	0
Normal	1978	6	78	85	84	56	84	73	0
Normal	1979	0	7	57	0	0	0	0	0
Normal	1980	45	24	18	0	0	0	0	0
Dry	1981	0	0	0	0	0	0	0	0
Wet	1982	2	2	8	0	6	0	0	0
Wet	1983	21	0	0	0	0	0	0	0
Wet	1984	0	0	0	0	0	0	0	0
Dry	1985	0	0	8	0	0	0	0	0
Wet	1986	15	21	0	0	0	0	0	0
Dry	1987	0	0	38	0	0	0	0	0
Critical	1988	0	0	0	0	0	0	0	0
Dry	1989	55	80	88	87	55	53	51	0
Critical	1990	23	18	0	0	0	0	0	0
Critical	1991	17	91	95	99	52	52	34	0
	sum	210	344	397	276	163	189	158	0



RANGE OF ALTERNATIVES IN PARTS 1 AND 2

Similar to Existing Delta Outflow Requirements

Higher Delta Outflow Requirements



Opinion 6. Total exports from the NDD and south Delta are greater during some months for CWF H3+ than all other scenarios, including the Boundary scenarios.

Table 4. Months when total exports (NDD and south Delta) are greater for CWF H3+ than for the Boundary scenarios and the NAA and EBC2 scenarios.

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Percent of Year
1976			X										8%
1977													0%
1978					X					X	X	XX	33%
1979					X				XX				17%
1980										X	X		17%
1981			X						XX				17%
1982										X	X	X	25%
1983	XX	X	X	X									33%
1984										X	X		17%
1985									XX				8%
1986						X				X	XX		25%
1987									XX				8%
1988													0%
1989									XX	X	X		25%
1990													0%
1991													0%

Notes: “X” indicates that the total export flow rate is greater for Scenario CWF H3+ than for the Boundary 1 and Boundary 2 scenarios by a margin of at least 5%.

“XX” indicates that the total export flow rate for Scenario CWF H3+ is greater than for all other scenarios, including the EBC2 and NAA scenarios, by a margin of at least 5%.

Opinion 7: Water quality at Antioch's intake and in the western Delta will be worse than modeled for Scenario CWF H3+ if, through adaptive management, the Project is operated to Boundary 1.

“Due to adaptive management, the CWF H3+ operations could be refined in the future” and “the modified operations would only be an outcome of the adaptive management process if the many agencies participating in that process determined that the changes would be protective of fish and wildlife; and any outcome is anticipated to be within the range of alternatives analyzed in the EIR/EIS and within Boundary 1 and Boundary 2, as presented in Part 1 of the State Water Board hearings.” (DWR-1010 p.9:12-17, emphasis added).