CALFED
BAY-DELTA
PROGRAM

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October 2, 1998

Mr. Alex Hildebrand
23443 South Hays Road
Manteca, CA 95336

Dear Alex:

At last month's BDAC meeting in Stockton and again in a recent letter to Senator Maurice Johannessen, you indicated dissatisfaction with CALFED's analysis of a through-Delta conveyance configuration you proposed several months ago. In short, your proposal consisted of reducing or eliminating the flow of water and fish through Georgiana Slough and diverting the flow of export water from the Sacramento River into the South Fork Mokelumne River. I would like to take this opportunity to explain CALFED's analysis of your proposal and to clarify our reasons for not pursuing further evaluations of these options at this time.

In preparing our March 1998 Draft Programmatic EIS/EIR, CALFED evaluated several through-Delta conveyance options, designated in that document as Alternatives 2A through 2E. As described in our Phase II Interim Report (a component of the March 1998 Draft Programmatic EIS/EIR), a refined through-Delta configuration was selected for comparative analysis with existing system conveyance and dual-conveyance alternatives. This through-Delta configuration was based on Alternative 2B. Its major structural features in the north Delta include: 1) a screened intake on the Sacramento River near Hood with a capacity on the order of 10,000 cfs, 2) a new isolated channel from Hood to McCormack Williamson Tract, and 3) widening of the North Fork Mokelumne River channel to improve water conveyance and flood control in the northern Delta.

CALFED's Phase II Interim Report also describes the tradeoffs in the choice of which Mokelumne River channel to widen and use as the primary water conduit. As described on page 95 of the Phase II Interim Report, "Proponents of the South Fork option suggest that this choice would improve water quality and the ability to repel salinity intrusion from the Bay and ocean. The current concept of using the North Fork is based on the belief that the South Fork has important habitat value that would be lost if the channel was enlarged. This region of the Delta supports Swainson's Hawk, wintering waterfowl, greater sandhill cranes, and migrating shorebirds, which all rely on the region's large open expanses of rich agricultural lands for resting and foraging. Also, the South Fork would provide important opportunities for habitat enhancement as an element of the Ecosystem

Restoration Program element. A final decision on this option will be made after further study during Phase III of the program, if Alternative 2 should become the preferred program alternative."

After our March 1998 Draft Programmatic EIS/EIR was released, you expressed concern that if a North Fork Mokelumne through-Delta conveyance option was used in CALFED's comparative evaluation of alternatives, Alternative 2 would not be competitive with a dual conveyance alternative. You stressed that the through-Delta alternative must be optimized for export water quality before a preferred alternative was selected. CALFED has maintained that any alternative must be balanced in its contribution to improving the four identified problem areas of ecosystem restoration, water supply reliability, water quality, and levee system integrity. In several meetings with you, CALFED staff have expressed our concern that any potential export water quality improvements of a South Fork Mokelumne through-Delta alternative would be outweighed by the degradation of the important habitat value of the South Fork channel. None-the-less, CALFED staff agreed that it would be useful to attempt to quantify the potential export water quality benefits of this option.

With this goal in mind, CALFED initiated studies of the South Fork Mokelumne though-Delta option in April 1998. CALFED staff mapped a South Fork Mokelumne conveyance alternative variation and sent it to you for your concurrence. At your request, CALFED staff agreed to also evaluate the potential for closing Georgiana Slough, although this proposal had been rejected earlier due to concerns regarding impacts to fisheries and recreation. As described in a May 12, 1998 letter to you that was distributed at the May 1998 BDAC meeting in Redding, this variation "...would be similar to the Alternative 2B evaluated in the Draft Programmatic EIS/EIR, with Common Programs, storage facilities, a screened diversion at Hood with capacity of 10,000 cfs, and south Delta conveyance improvements. The conveyance improvements contemplated for the North Fork Mokelumne River under Alternative 2B would be replaced by equivalent channel improvements on the South Fork Mokelumne River under this new variation. Consideration will also be given to a barrier at Georgiana Slough in this evaluation."

To complete this evaluation, CALFED directed Delta simulation modeling studies to be completed on two additional alternative variations. Complete descriptions of these alternatives and results of the modeling studies are documented in a July 1998 draft report, "Status Report on Technical Studies for the Storage and Conveyance Refinement Process – Delta Simulation Model Studies of Alternatives 2B, 2B_AH1, and 2B_AH2 (North and South Fork Mokelumne Improvements)." In summary, Alternative 2B is the same North Fork Mokelumne alternative variation evaluated previously in the March 1998 Draft Programmatic EIS/EIR. This alternative variation was included for comparative purposes. Alternative 2B_AH1 is similar to Alternative 2B, except that North Fork Mokelumne channel improvements were replaced with channel improvements to the South Fork Mokelumne from western New Hope Tract, east of Bouldin Island and Empire Tract, to the San Joaquin River. Alternative 2B_AH2 is similar to Alternative 2B_AH1, except

Georgiana Slough and the Delta Cross Channel are closed at all times. Because of these closures, more water could be diverted from the Sacramento River at Hood into the Mokelumne in the months of July, August, and September while maintaining minimum downstream flow requirements at Rio Vista.

CALFED staff sent the July 1998 draft report to you for your review on July 13, 1998. This report presents the resulting simulated flows, water levels, and salinities at key locations in the Delta for Alternatives 2B, 2B_AH1, and 2B_AH2. The simulated average monthly salinity of export water at Clifton Court Forebay, as included in the July 1998 report, is displayed graphically for Alternatives 2B, 2B_AH1, and 2B_AH2 in Figure 1 (attached). As described previously, the distinguishing feature between Alternatives 2B and 2B_AH1 is the conveyance of water diverted from Hood through the North Fork Mokelumne under 2B and through the South Fork Mokelumne under 2B_AH1. The simulated salinities show very little difference between these two alternatives, indicating that choice of North Fork Mokelumne or South Fork Mokelumne makes little difference in export water quality under the operating assumptions evaluated. As also described previously, water diverted from Hood is conveyed through the South Fork Mokelumne under both Alternatives 2B_AH1 and 2B_AH2. The distinguishing feature between these alternatives is that Georgiana Slough and the Delta Cross Channel are closed at all times under 2B_AH2, allowing slightly more water to be diverted through Hood. As shown in Figure 1, the simulated salinity at Clifton Court Forebay increases nominally under Alternative 2B_AH2. This degradation of water quality at Clifton Court can be attributed to a decrease in cross Delta flow through Georgiana Slough and North Fork Mokelumne in comparison to Alternatives 2B and 2B_AH1. This decreased cross channel flow results in lower QWEST flow, allowing further upstream intrusion of ocean salinity into the central Delta. These higher salinity waters mix with water diverted through the South Fork Mokelumne before reaching Clifton Court Forebay. These results indicate that maintaining sufficient cross Delta flow is imperative for export water quality in any through-Delta conveyance alternative.

After reviewing the draft report, you expressed your concern that CALFED had not evaluated the South Fork Mokelumne alternative as you requested. CALFED staff arranged a meeting with you on August 26, 1998 to discuss your concerns. At that meeting you indicated that, under your proposal, all exported water would be diverted from the Sacramento River into the South Fork Mokelumne River. CALFED staff explained that under the operation rules CALFED used in the modeling studies, all export water is diverted through Hood, except as constrained by 1) the assumed 10,000 cfs diversion capacity of the screened Hood diversion facility, 2) an assumed 5,000 cfs maximum diversion in the month of May to protect striped Bass eggs and larvea, and 3) downstream flow requirements for the Sacramento River at Rio Vista.

Monthly total Banks and Tracy Pumping Plant export rates, as simulated for the 16 years used in the simulation studies, are shown in Table 1. All three of the through-Delta

alternative variations modeled in these studies included these export rates. Monthly diversion rates from the Sacramento River at Hood into the Mokelumne River for Alternatives 2B and 2B_AH1 are shown in Table 2 and for Alternative 2B_AH2 in Table 3. The ratio of Hood diversions to total exports for Alternatives 2B and 2B_AH1 are shown in Table 4 and for Alternative 2B_AH2 in Table 5. As shown, for the 16 years of operation, an average of 82% of exported water is diverted at Hood for Alternatives 2B and 2B_AH1, while an average of 86% of exported water is diverted at Hood for Alternative 2B_AH2. This information is taken from the CALFED July 1998 report provided to you and is in contradiction to your comment to Senator Johannessen that "half" of export flows were forced through the western Delta.

It would be possible to divert a nominal amount of additional water from the Sacramento River at Hood into the Mokelumne by increasing the screened diversion capacity from 10,000 cfs to 15,000 cfs. As shown in Table 2, diversions are limited by physical capacity in Alternatives 2B and 2B_AH1 in 71 out of the 192 months simulated. However, the increase in diversions will result in additional screening and flow related fish mortality in the Sacramento River. Moreover, the results of the evaluation already completed indicate that additional diversions will not substantially improve export water quality. Increasing Sacramento River diversions at Hood would decrease flow in the lower Sacramento River and consequently decrease cross Delta flow through Georgiana Slough and the Delta Cross Channel. In many months, this decreased cross-Delta flow would result in increased intrusion of ocean salinity into the central Delta, degrading export water quality as observed in the simulation of Alternative 2B_AH2.

The CALFED Bay-Delta Program is under significant demand for evaluative work. Given the large scope of the problems under study and our limited resources, it is necessary to prioritize work efforts. At your request, significant effort was made to evaluate both the South Fork Mokelumne conveyance configuration and closure of Georgiana Slough and the Delta Cross Channel. Staff also made an effort to coordinate with you regarding design of the study and to relay the results of our findings. As described to you previously, staff maintains that these options have been suitably evaluated for the programmatic phase of evaluation CALFED is currently undertaking. This does not preclude additional evaluation of these or other options at a later date.

While I would like to apologize for any miscommunication on CALFED's part, I believe your letter to Senator Johannessen misrepresents the conclusions of this evaluation and does not accurately portray our responses to your concerns. I hope that the information provided here provides further clarification and I look forward to your continuing valuable contribution to the CALFED process.

Sincerely,

Lester A. Snow
Executive Director

Attachments

cc: Senator Maurice Johannessen
Sunne McPeak, Vice Chair, Bay-Delta Advisory Council
Assemblymember Mike Machado
John Herrick, Esq.

Figure 1. Clifton Court Forebay (Monthly Average EC)

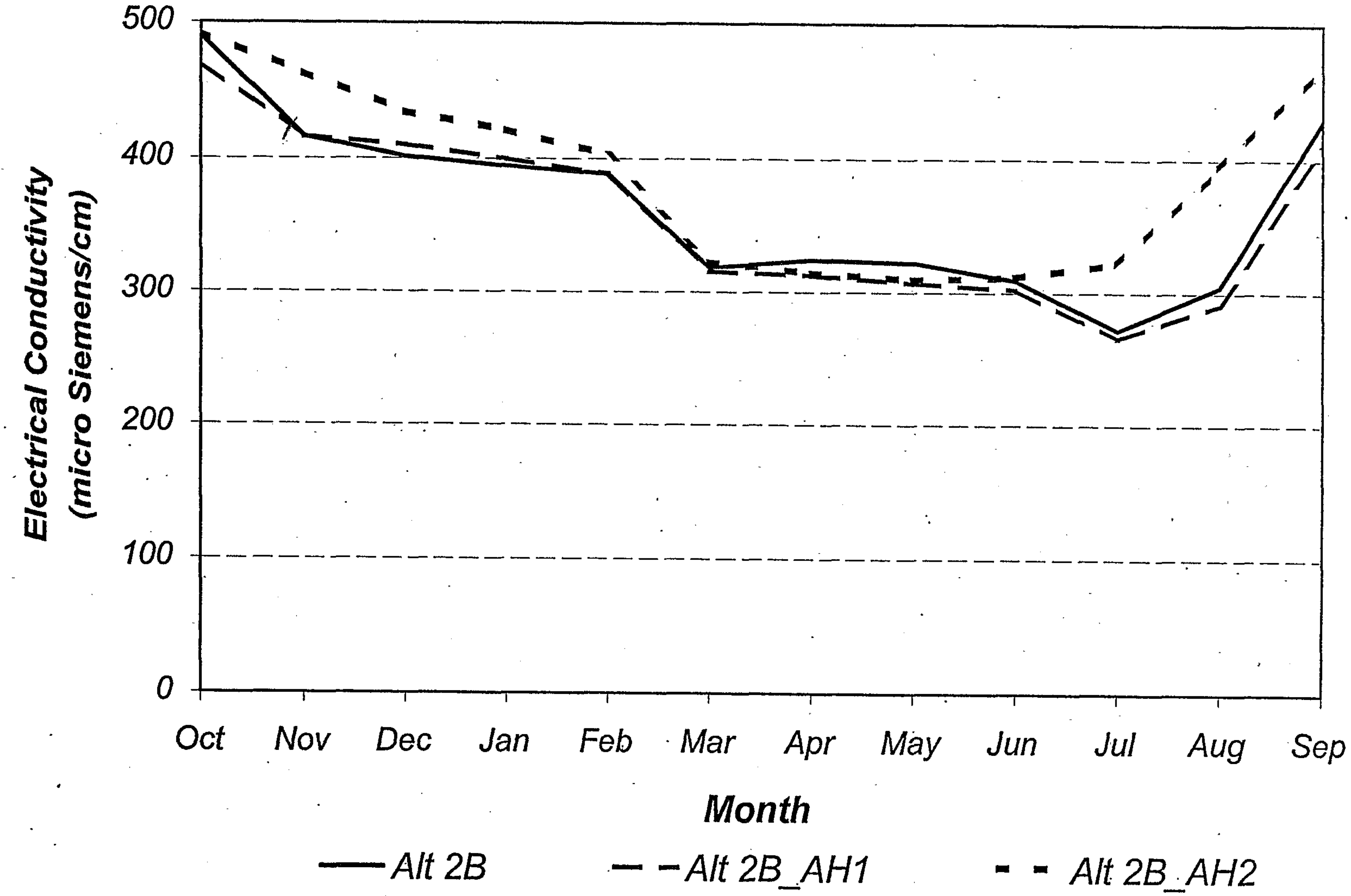

Table 1

Total Banks and Tracy Pumping
Alternatives 2B, 2B_AH1, and 2B_AH2
(in cfs)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Average
1976	14,323	11,168	9,335	6,727	7,907	7,729	2,830	2,991	6,149	11,181	8,767	7,198	8,039
1977	6,333	5,871	5,436	8,925	10,440	1,720	1,896	1,179	1,254	383	1,509	4,544	4,080
1978	2,260	2,883	10,259	14,364	14,509	12,778	8,679	6,456	8,614	11,253	14,720	9,509	9,676
1979	11,027	10,583	10,523	14,507	14,537	11,438	4,462	4,354	8,664	14,899	13,150	9,567	10,636
1980	9,755	11,329	14,507	14,441	14,309	12,340	5,370	5,222	8,702	13,845	11,952	9,527	10,938
1981	10,812	9,811	12,459	14,507	9,697	10,431	4,232	3,320	5,476	14,899	12,613	9,129	9,812
1982	9,115	14,576	14,507	14,483	13,033	10,227	9,916	9,462	12,076	8,631	10,030	14,813	11,716
1983	14,683	14,363	10,041	5,299	5,687	6,223	8,631	8,854	11,960	12,995	13,979	10,725	10,312
1984	6,624	6,268	7,072	5,631	6,916	8,962	4,450	3,938	7,870	14,102	11,645	9,689	7,778
1985	10,379	14,583	14,506	13,161	11,123	9,001	3,246	4,004	5,620	14,615	12,187	8,784	10,115
1986	7,146	6,938	12,101	14,432	14,428	11,246	6,376	5,303	8,174	8,546	11,777	9,333	9,632
1987	10,768	7,701	9,185	11,332	8,473	9,420	3,430	2,810	5,240	14,899	12,459	8,612	8,723
1988	8,135	6,240	12,688	14,507	6,430	4,954	2,780	2,856	5,950	14,200	11,292	4,492	7,922
1989	2,158	6,371	6,903	8,858	910	14,486	4,466	4,014	5,410	14,864	12,778	8,764	7,566
1990	8,033	5,160	10,508	14,472	7,108	5,396	3,268	2,480	2,407	1,045	1,336	4,820	5,507
1991	3,812	5,134	5,326	3,688	1,239	12,380	3,440	2,748	1,521	983	5,225	5,758	4,299
Monthly Average:	8,460	8,686	10,335	11,208	9,172	9,296	4,842	4,374	6,568	10,709	10,339	8,454	8,547

Table 2

Diversion from Sacramento River at Hood
Alternatives 2B and 2B_AH1
(in cfs)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Average
1976	10,000	10,000	9,335	6,727	7,907	7,729	2,830	2,991	6,149	10,000	5,295	3,088	6,843
1977	6,333	5,871	5,436	8,925	10,000	1,720	1,896	1,179	1,254	383	0	710	3,603
1978	2,260	2,833	10,000	10,000	10,000	10,000	8,679	5,000	8,614	10,000	10,000	4,418	7,648
1979	10,000	10,000	10,000	10,000	10,000	10,000	4,462	4,354	8,664	10,000	10,000	5,173	8,559
1980	9,755	10,000	10,000	10,000	10,000	10,000	5,370	5,000	8,702	10,000	9,232	3,854	8,497
1981	10,000	9,811	10,000	10,000	9,697	10,000	4,232	2,073	5,476	10,000	10,000	5,055	8,036
1982	9,115	10,000	10,000	10,000	10,000	10,000	9,916	5,000	10,000	8,631	6,532	10,000	9,082
1983	10,000	10,000	10,000	5,299	5,687	6,223	8,631	5,000	10,000	10,000	10,000	10,000	8,412
1984	8,520	6,268	7,072	5,631	6,916	8,962	4,450	3,938	7,870	10,000	10,000	4,821	7,051
1985	10,000	10,000	10,000	10,000	10,000	9,001	3,246	4,004	5,620	10,000	10,000	4,514	8,040
1986	7,146	6,938	10,000	10,000	10,000	10,000	6,376	5,000	8,174	8,546	10,000	4,396	8,049
1987	10,000	7,701	9,185	10,000	8,473	9,420	3,430	0	5,240	10,000	10,000	4,809	7,368
1988	8,135	6,240	10,000	10,000	6,430	4,954	2,780	2,856	5,950	10,000	9,261	912	6,487
1989	2,158	6,371	6,903	8,858	910	10,000	4,466	4,014	5,410	10,000	10,000	4,604	6,194
1990	8,033	5,160	10,000	10,000	7,108	5,396	3,269	2,480	2,407	1,045	0	1,022	4,658
1991	3,812	5,134	5,326	3,688	1,238	10,000	3,440	2,748	1,521	982	3,074	2,279	3,629
Monthly Average:	7,829	7,645	8,954	8,696	7,773	8,338	4,842	3,477	6,316	8,099	7,712	4,353	7,010

Table 3

Diversion from Sacramento River at Hood
Alternative 2B_AH2
(in cfs)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Average
1976	10,000	10,000	9,335	6,727	7,907	7,729	2,830	2,991	6,149	10,000	8,767	7,198	7,476
1977	6,333	5,871	5,436	8,925	10,000	1,720	1,896	1,179	1,254	383	1,509	4,544	4,047
1978	2,260	2,833	10,000	10,000	10,000	10,000	8,679	5,000	8,614	10,000	10,000	8,578	7,990
1979	10,000	10,000	10,000	10,000	10,000	10,000	4,462	4,354	8,664	10,000	10,000	9,333	8,901
1980	9,755	10,000	10,000	10,000	10,000	10,000	5,370	5,000	8,702	10,000	10,000	8,014	8,904
1981	10,000	9,811	10,000	10,000	9,697	10,000	4,232	2,073	5,476	10,000	10,000	9,129	8,370
1982	9,115	10,000	10,000	10,000	10,000	10,000	9,916	5,000	10,000	8,631	10,000	10,000	9,377
1983	10,000	10,000	10,000	5,299	5,687	6,223	8,631	5,000	10,000	10,000	10,000	10,000	8,412
1984	8,520	6,268	7,072	5,631	6,916	8,962	4,450	3,938	7,870	10,000	10,000	8,981	7,393
1985	10,000	10,000	10,000	10,000	10,000	9,001	3,246	4,004	5,620	10,000	10,000	8,674	8,382
1986	7,146	6,938	10,000	10,000	10,000	10,000	6,376	5,000	8,174	8,546	10,000	8,556	8,391
1987	10,000	7,701	9,185	10,000	8,473	9,420	3,430	0	5,240	10,000	10,000	8,612	7,681
1988	8,135	6,240	10,000	10,000	6,430	4,954	2,780	2,856	5,950	10,000	10,000	4,492	6,844
1989	2,158	6,371	6,903	8,858	910	10,000	4,466	4,014	5,410	10,000	10,000	8,764	6,536
1990	8,033	5,160	10,000	10,000	7,108	5,396	3,269	2,480	2,407	1,045	1,337	4,820	5,084
1991	3,812	5,134	5,326	3,688	1,238	10,000	3,440	2,748	1,521	982	5,225	5,757	4,097
Monthly Average:	7,829	7,645	8,954	8,696	7,773	8,338	4,842	3,477	6,316	8,099	8,552	7,841	7,368

Table 4

Ratio of Diversions from Sacramento River at Hood to Total Tracy and Banks Pumping
Alternatives 2B and 2B_AH1
(in percent)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Average
1976	70%	90%	100%	100%	100%	100%	100%	100%	100%	89%	60%	43%	85%
1977	100%	100%	100%	100%	96%	100%	100%	100%	100%	100%	0%	16%	88%
1978	100%	98%	97%	70%	69%	78%	100%	77%	100%	89%	68%	46%	79%
1979	91%	94%	95%	69%	69%	87%	100%	100%	100%	67%	76%	54%	80%
1980	100%	88%	69%	69%	70%	81%	100%	96%	100%	72%	77%	40%	78%
1981	92%	100%	80%	69%	100%	96%	100%	62%	100%	67%	79%	55%	82%
1982	100%	69%	69%	69%	77%	98%	100%	53%	83%	100%	65%	68%	78%
1983	68%	70%	100%	100%	100%	100%	100%	56%	84%	77%	72%	93%	82%
1984	129%	100%	100%	100%	100%	100%	100%	100%	100%	71%	86%	50%	91%
1985	96%	69%	69%	76%	90%	100%	100%	100%	100%	68%	82%	51%	79%
1986	100%	100%	83%	69%	69%	89%	100%	94%	100%	100%	85%	47%	84%
1987	93%	100%	100%	88%	100%	100%	100%	0%	100%	67%	80%	56%	84%
1988	100%	100%	79%	69%	100%	100%	100%	100%	100%	70%	82%	20%	82%
1989	100%	100%	100%	100%	100%	69%	100%	100%	100%	67%	78%	53%	82%
1990	100%	100%	95%	69%	100%	100%	100%	100%	100%	100%	0%	21%	85%
1991	100%	100%	100%	100%	100%	81%	100%	100%	100%	100%	59%	40%	84%
Monthly Average:	93%	88%	87%	78%	85%	90%	100%	79%	96%	76%	75%	51%	82%

Table 5

Ratio of Diversions from Sacramento River at Hood to Total Tracy and Banks Pumping
Alternatives 2B_AH2
(in percent)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual Average
1976	70%	90%	100%	100%	100%	100%	100%	100%	100%	89%	100%	100%	93%
1977	100%	100%	100%	100%	96%	100%	100%	100%	100%	100%	100%	100%	99%
1978	100%	98%	97%	70%	69%	78%	100%	77%	100%	89%	68%	90%	83%
1979	91%	94%	95%	69%	69%	87%	100%	100%	100%	67%	76%	98%	84%
1980	100%	88%	69%	69%	70%	81%	100%	96%	100%	72%	84%	84%	81%
1981	92%	100%	80%	69%	100%	96%	100%	62%	100%	67%	79%	100%	85%
1982	100%	69%	69%	69%	77%	98%	100%	53%	83%	100%	100%	68%	80%
1983	68%	70%	100%	100%	100%	100%	100%	56%	84%	77%	72%	93%	82%
1984	129%	100%	100%	100%	100%	100%	100%	100%	100%	71%	86%	93%	95%
1985	96%	69%	69%	76%	90%	100%	100%	100%	100%	68%	82%	99%	83%
1986	100%	100%	83%	69%	69%	89%	100%	94%	100%	100%	85%	92%	87%
1987	93%	100%	100%	88%	100%	100%	100%	0%	100%	67%	80%	100%	88%
1988	100%	100%	79%	69%	100%	100%	100%	100%	100%	70%	89%	100%	86%
1989	100%	100%	100%	100%	100%	69%	100%	100%	100%	67%	78%	100%	86%
1990	100%	100%	95%	69%	100%	100%	100%	100%	100%	100%	100%	100%	92%
1991	100%	100%	100%	100%	100%	81%	100%	100%	100%	100%	100%	100%	95%
Monthly Average:	93%	88%	87%	78%	85%	90%	100%	79%	96%	76%	83%	93%	86%