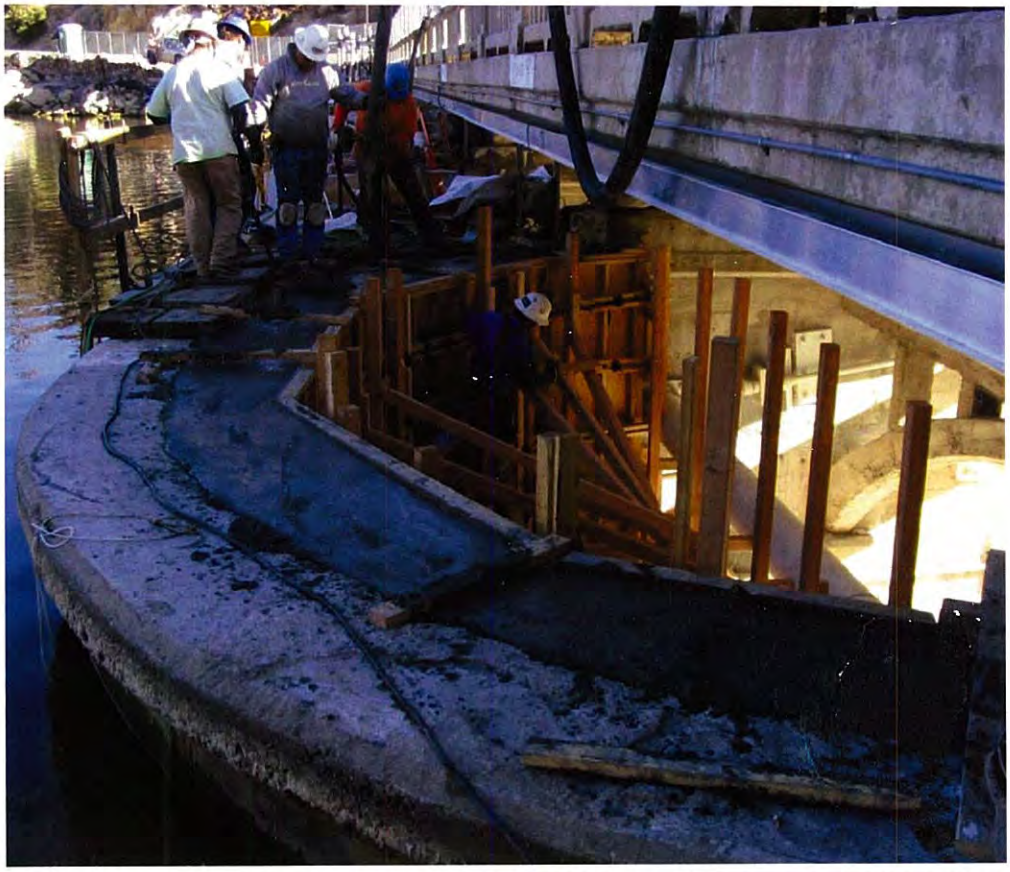
Big Bear Watermaster

Thirtieth Annual Report

For Calendar Year 2006



Structural Reinforcement of Arches in Bays 5, 6 and 8 of Bear Valley Dam Completed in 2006

Big Bear Municipal Water District vs. North Fork Water District, et al
Case No. 165493 - County of San Bernardino

Bear Valley Mutual Water Company

Watermaster Members:
Donald E. Evenson
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BIG BEAR WATERMASTER

FOR
BIG BEAR MUNICIPAL WATER DISTRICT VS. NORTH FORK WATER CO. ET AL
CASE NO. 165493--COUNTY OF SAN BERNARDINO

WATERMASTER MEMBERS:
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April 25, 2007

To: Clerk of the Superior Court of San Bernardino County and All Parties

Subject: Watermaster Report for Calendar Year 2006

Gentlemen:

We have the honor of submitting the Thirtieth Annual Report of the Big Bear Watermaster for Calendar Year 2006.

Paragraph Twenty (20) of the Judgment requires that the Watermaster Report be submitted to the Court and the Parties before April 1 of each year on all significant Watermaster activities and provide an accounting of water deliveries for the preceding calendar year as set forth in Section VI, Physical Solution, of the Judgment.

However, this year the Watermaster Committee requested an extension of time to June 1, 2007 to report to the Court and parties (see Appendix C). Accordingly, this report is submitted herewith under the date of April 25, 2007, and summarizes the findings of the Watermaster Committee as required by the Judgment.

We and each of us hereby certify that this is a true and correct report of the Watermaster work performed by us and under our supervision during 2006 pursuant to the requirements of the Judgment.

Respectfully submitted,

By: D E Evenson
Donald E. Evenson

By:
Lawrence Libeu

By: Michael L Huffstutler
Michael L. Huffstutler

THIRTIETH ANNUAL REPORT
BIG BEAR WATERMASTER
CALENDAR YEAR 2006

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I. INTRODUCTION

The Big Bear Watermaster presents the Thirtieth Annual Report of its activities for Calendar Year 2006. The Watermaster's activities ensure that the rights of all parties subject to the Judgment rendered in Case No. 165493 are protected. The Watermaster generally oversees watershed conditions that may affect the Judgment and attempts to improve the conditions to the benefit of all parties.

This report describes the 2006 activities of the Watermaster including the status of accounts and various tabulations as required by the Judgment.

In 2006, the Big Bear Watermaster Committee was composed of Donald E. Evenson, President, representing Big Bear Municipal Water District; Michael L. Huffstutler, representing Bear Valley Mutual Water Company; and Lawrence Libeu, Secretary, representing San Bernardino Valley Water Conservation District.

The Watermaster Committee met four times during 2006. These meetings were held on the following dates:

January 17, 2006
February 28, 2006
May 16, 2006
October 10, 2006

Appendix A contains the minutes of these meetings. Minutes of the meetings are also on file at the office of each of the representatives.

II. SUMMARY

2006 WATERMASTER ACCOUNTS

2006 was an average hydrologic year. Annual precipitation at the three gages in the Big Bear Lake watershed averaged 22.07 inches, which is 93 percent of the average annual rainfall since 1977. Precipitation at Bear Valley Dam was 37.96 inches, which is 106 percent of the 97-year (1910-2006) average of 35.68 inches. Consequently, inflow to Big Bear Lake in 2006 was also about average. The 2006 calculated lake inflow was 17,564 acre-feet, which is 104 percent of the average inflow since 1977. The average inflow for the 30 years since the Judgment was rendered is 16,950 acre-feet per year.

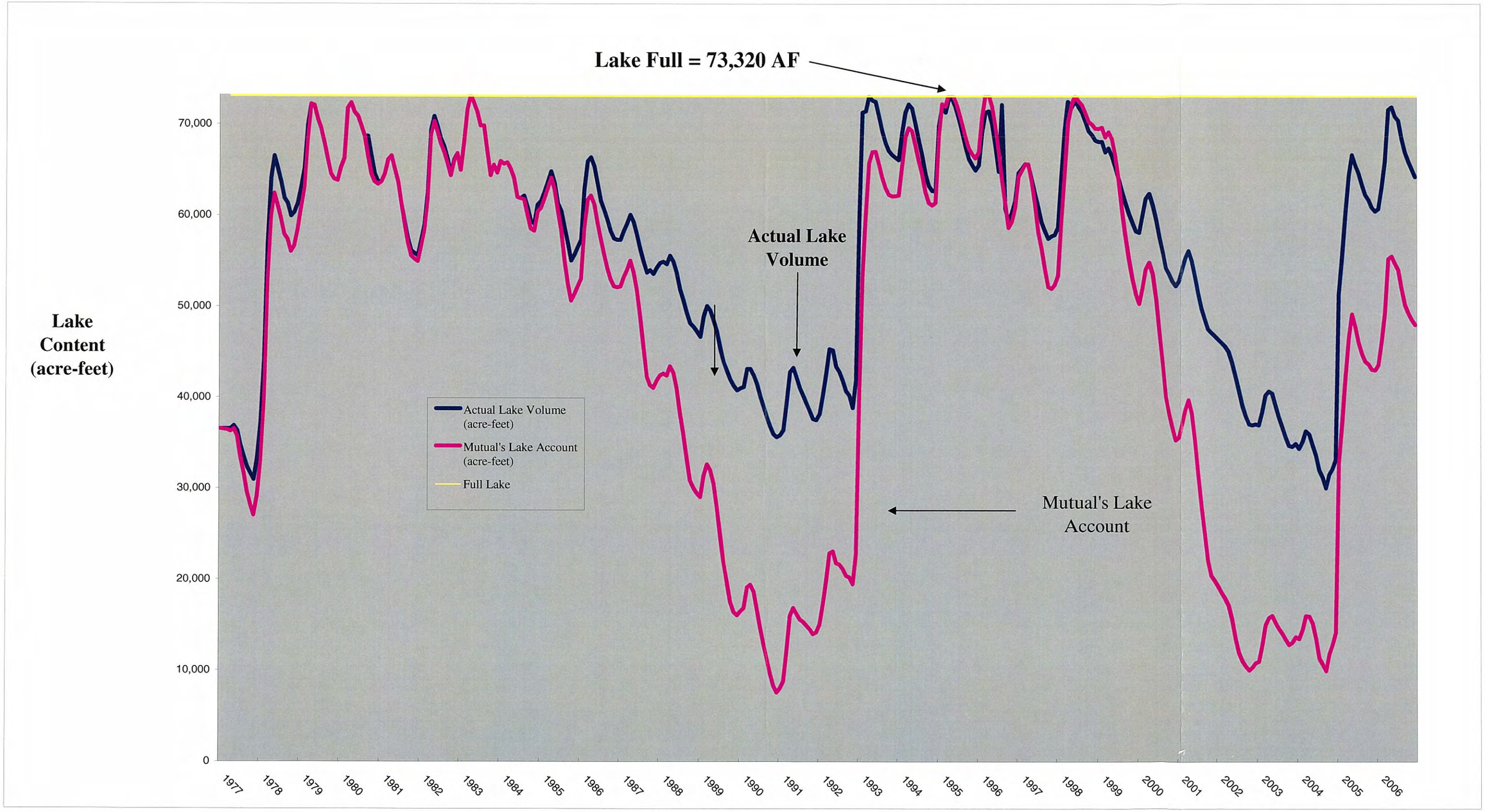
Actual lake levels rose 1.33 feet in 2006 and ended the year 3.15 feet below the top of the dam. Accordingly, lake contents increased by 3,771 acre-feet during the year. On December 31, 2006, the lake contained 64,274 acre-feet of water. The lake holds 73,320 acre-feet when it is full. **Figure 1** shows the history of the actual lake contents since the Judgment was rendered in 1977.

Mutual's lake account held 48,027 acre-feet at the end of 2006. Their lake account increased by 4,986 acre-feet during the year. Figure 1 also shows the history of Mutual's lake account since 1977. Under a "Mutual Operation", where lake releases would be made to meet Mutual's water demands and their lake account is credited with the net wastewater exported from the Big Bear Lake watershed, the lake level would have ended the year 9.23 feet below the top of the dam or 6.08 feet lower than the actual year-end lake level. If Mutual had not been credited with the net wastewater exports, their lake account would have been 42,067 acre-feet and the lake would have been 11.68 feet below the top of dam, or 8.53 feet lower than it actually was.

In 2006, Mutual needed 2,537 acre-feet of water from Big Bear MWD. Big Bear MWD has the option to provide in-lieu supplies or to release water from the lake. In 2006, Mutual received 2,070 acre-feet of in-lieu water. Also, Mutual was able to use 467 acre-feet of water from Big Bear Lake for fish protection purposes as required under SWRCB Order No. 95-4.

At the beginning of the year, Big Bear MWD had 17,462 acre-feet in their lake account. By the end of the year, their lake account had decreased by 1,215 acre-feet to 16,247 acre-feet. Big Bear MWD's lake account is the difference between the actual lake contents and Mutual's lake account as shown on Figure 1.

FIGURE 1
Actual Lake Contents and Mutual's Lake Account 1977 - 2006



The Basin Compensation Account balance increased by 55 acre-feet in 2006. The Basin Compensation Account began the year with a balance of 24,029 acre-feet and ended the year with a balance of 24,084 acre-feet. The increase resulted from higher basin additions from lake releases made to meet the requirements of SWRCB Order 95-4 under a Big Bear MWD lake operation as compared to a Mutual Operation.

OTHER WATERMASTER ACTIVITIES

The Watermaster has the responsibility to undertake studies and investigations, collect and maintain data and records, and monitor related activities necessary to implement the physical solution contained in the Judgment. In 2006, the Watermaster was involved in monitoring and discussing two issues. These issues are:

- Impacts of Seven Oaks Dam,
- Issues related to Wild and Scenic Rivers System.

These issues are discussed in Chapter V.

III. BASIC DATA

BIG BEAR LAKE

Summary

The Watermaster conducts a water balance of Big Bear Lake for each month. This water balance is based on measurements of lake levels, releases, leakages and air temperature, as well as calculated values of spills, evaporation and inflows. For 2006, the overall water balance for the lake was:

Initial Storage (1-01-06)	60,503 acre-feet
Inflows	17,564 acre-feet
Evaporation	12,421 acre-feet
Releases for Mutual	-0- acre-feet
Releases & Leakage for SWRCB Order 95-4	901 acre-feet
Spills & Flood Control Releases	10 acre-feet
Net Snowmaking Withdrawal	460 acre-feet
Ending Storage (12-31-06)	64,274 acre-feet
Change-in-Storage	3,771 acre-feet

In 2006, the volume of water in Big Bear Lake increased by 3,771 acre-feet. The following subsections of this chapter describe each of the components in this water balance.

Lake Levels and Storage

Water levels in Big Bear Lake are measured continuously based on a reference mark located on the upstream side of the dam. In July 1998, Big Bear MWD completed installation of a continuous lake level recorder. The lake level recorder is a Global Water Model WL300 and is enclosed in a stilling well, which is attached to the upstream face of the dam. Lake level data is continuously transmitted by a remote telemetry unit (RTU) in the control building at the dam. From there, data are transmitted via radio to a central computer in the administrative offices of Big Bear MWD. The automatically recorded values have been used since July 1998. The recorder can only record lake levels when the lake is within 15 feet of the top of the dam (i.e. above a gage height of 57.33 feet). In 2006, the lake was within the top 15 feet for the entire year.

The lake began the year at a gage height of 67.85 feet and ended the year at a gage height of 69.18 feet. Over the year, the lake level rose 1.33 feet. The lowest recorded lake level was 67.81 feet or 4.52 below the top of the dam, and it occurred on February 27, 2006. The highest recorded lake level was 71.99 feet, which occurred on May 15, 2006. The lake is full at a gage height reading of 72.33 feet (6,743.20 feet above msl) and is empty at a gage height of zero.

The Watermaster uses an established gage height-lake capacity table to estimate the volume of water in the lake from the measured gage heights. At the beginning of the year, the lake contained 60,503 acre-feet of water. At the end of the year, there was 64,274 acre-feet of water in the lake. The lake content increased by 3,771 acre-feet during 2006. When full, the lake contains 73,320 acre-feet of water.

Lake Evaporation

The Watermaster calculates evaporation from the lake surface using the Blaney Criddle formula to estimate monthly evaporation rates. The 1977 Annual Watermaster report describes the formula as follows:

> "The Blaney Criddle empirical formula, utilizing average temperatures and daylight hours, has been used. The constant K for each month was calculated based on float pan empirical data at Long Valley Reservoir in Mono County, California, which is at elevation 6,796 feet, compared to the elevation of Big Bear Lake which is 6,743 feet."

Monthly lake evaporation is calculated using the estimated evaporation rate and the average surface area of the lake during the month. If a negative value for lake inflow is calculated, the monthly evaporation rate is increased to achieve a zero lake inflow. Evaporation rates were adjusted for two months in 2006. These months were August and December. Total evaporation from the lake for 2006 was calculated to be 12,421 acre-feet. This amount is equivalent to an annual evaporation rate of 51.5 inches.

Precipitation

Precipitation in the Big Bear Lake watershed varies significantly from Bear Valley Dam to Big Bear City at the east end of the watershed. **Table III-1** shows the monthly precipitation at Bear Valley Dam, Big Bear Lake Fire Department, and the Big Bear City Community Services District for 2006. 2006 precipitation at the three stations was 37.96, 18.28, and 9.98 inches, respectively. May, August and November were the driest months with very little precipitation. March was the wettest month with approximately 27 percent of the annual rainfall.

Table III-1 also compares the 2006 precipitation at the three stations with their corresponding averages for the thirty years since the Judgment was rendered. At the Bear Valley Dam station, 2006 precipitation was 104 percent of its thirty-year average, while at the Big Bear Lake Fire Department station, precipitation was 90 percent of its thirty-year average. The Big Bear Community Services District station was 69 percent of its thirty-year average. For all three stations, 2006 precipitation averaged 93 percent of their thirty-year combined average. 2006 precipitation in the watershed was about average for the thirty years since the Judgment was rendered in 1977.

Table III-2 shows the annual precipitation for all three stations for the thirty years since the Judgment was rendered. As shown in Table III-2, 2006 was an average year for precipitation. For the Bear Valley Dam station, precipitation was 106 percent of the 97-year (1910–2006) average of 35.68 inches.

Lake Inflow

Inflows to Big Bear Lake are not measured. Consequently, inflows naturally tributary to Big Bear Lake above Bear Valley Dam are calculated for each month using a water balance on the actual operation of the lake. This calculation, which utilizes observed basic data along with the calculated evaporation losses described previously, creates a water balance for each month to determine the amount of natural flow into the lake. The formula used is:

Inflow = Evaporation + Releases + Spills + Leakage +
Net Withdrawals - Change in Storage

If the calculated monthly inflow is a negative value, it is reset to zero, and the monthly evaporation rate is recalculated to achieve a lake water balance. Negative lake inflows occurred twice in 2006, in August and December. Inflows in these months were set to zero.

TABLE III-1
MONTHLY PRECIPITATION FOR THREE STATIONS
IN BIG BEAR AREA
(inches)
Calendar Year 2006 - Big Bear Watermaster

Month	Bear Valley Dam	Big Bear Lake Fire Department	Big Bear Community Services District
January	6.02	2.63	0.72
February	8.78	2.88	2.65
March	10.82	5.09	2.08
April	7.67	2.91	1.82
May	0.07	0.00	0.07
June	0.00	0.51	0.73
July	1.81	2.51	1.17
August	0.00	0.00	0.23
September	0.10	0.62	0.03
October	0.09	0.01	0.03
November	0.16	0.08	0.02
December	2.44	1.04	0.43
2005 Totals	**37.96**	**18.28**	**9.98**
1977-2006 30-yr average	**36.46**	**20.23**	**14.45**
2006 % of 30-yr average	**104%**	**90%**	**69%**

Average of the 30-year average for all three stations = 23.71 inches
Average of the 2006 totals for all three stations = 22.07 inches
2006 average as a percentage of 30-year average = 93.09% %

TABLE III-2
THIRTY YEARS OF PRECIPITATION FOR THREE STATIONS IN THE BIG BEAR AREA
(inches)
Calendar Year 2006 – Big Bear Watermaster

Year	Bear Valley Dam	Big Bear Lake Fire Department*	Big Bear Community Services District
1977	31.95	18.46	13.35
1978	68.43	42.43	26.09
1979	34.87	21.00	15.84
1980	63.00	38.50	29.86
1981	16.67	8.60	8.42
1982	49.17	34.09	26.53
1983	56.97	31.20	24.29
1984	20.19	16.85	16.66
1985	22.40	13.78	14.11
1986	35.16	17.61	15.26
1987	27.49	19.79	12.52
1988	24.18	13.14	8.15
1989	17.32	7.76	6.85
1990	22.20	15.92	11.02
1991	38.47	29.31	19.81
1992	44.03	24.36	16.64
1993	73.81	29.62	19.45
1994	31.78	19.76	12.24
1995	49.00	27.65	15.89
1996	41.04	18.36	15.47
1997	27.00	15.30	12.92
1998	50.40	15.20	12.07
1999	13.22	4.53	6.06
2000	24.82	13.32	5.21
2001	30.62	12.26	9.10
2002	15.02	7.17	3.82
2003	32.44	18.43	12.70
2004	39.50	18.36	13.51
2005	54.74	35.76	19.56
2006	37.96	18.28	9.98
30-Year Average	**36.46**	**20.23**	**14.45**
97-Year Average	**35.68**	**N/A**	**N/A**

* Big Bear Lake Fire Department began keeping records in June 2001, information provided to National Weather Service. Prior to the Big Bear Lake Fire Department keeping records, the Bear Valley Community Hospital performed this function.

Total annual inflow for 2006 into the lake was calculated to be 17,564 acre-feet. The largest monthly inflow was 6,484 acre-feet, and it occurred in April. The long-term (1939-88) average annual inflow is 14,492 acre-feet. The average annual lake inflow for the 30 years since the Judgment was rendered (1977–2006) is 16,950 acre-feet. The median annual inflow for this same period is 10,792 acre-feet.

Table III-3 lists the annual lake inflows for the period 1977–2006. This table also ranks the inflows from the lowest (1,717 acre-feet in 2002) to the highest (48,613 acre-feet in 1993). Inflow to the lake for 2006 was just above the average inflow for the 30 years since the judgment was rendered in 1977.

SWRCB Order No. 95-4

On February 16, 1995, the State Water Resources Control Board (SWRCB) issued Order No. 95-4. This order directed the Big Bear MWD and Bear Valley Mutual Water Company to release enough water from the lake to maintain a minimum seven-day average flow of 1.2 cfs and a minimum average daily flow of 1.0 cfs in Bear Creek no more than 500 feet downstream of its confluence with West Cub Creek. This location is referred to as Station A. In 1998, Big Bear MWD completed construction of a continuous flow recording device at Station A to measure compliance with SWRCB Order No 95-4.

SWRCB Order No. 95-4 also required sufficient releases to maintain a minimum flow of 0.3 cfs at a location approximately 300 feet downstream from the toe of the dam. This location is referred to as Station B. In 1998, Big Bear MWD also completed construction of a continuous recording device at this location to measure compliance with SWRCB Order No. 95-4.

On December 29, 2004, data transmission from Station A ceased. In January of 2005, major storms hit the Bear Creek watershed with significant snowfall. Consequently, Big Bear MWD staff could not access Station A until May. On their first visit to the site, they found the data transmission facilities destroyed, the stilling basin filled with sediment and the weir plate damaged. The staff estimated the flow in Bear Creek at this time to be in the range of 10 to 15 cfs, well above the 1.20 cfs requirement.

TABLE III-3
BIG BEAR LAKE INFLOWS
1977–2006
(acre-feet/year)
Calendar Year 2006– Big Bear Watermaster

Year	Lake Inflows (AF/year)	Rank	Plotting Position	Year	Lake Inflow (AF/year)
1977	7,103	1	3.2%	2002	1,717
1978	40,743	2	6.5%	1999	3,774
1979	25,318	3	9.7%	1988	4,551
1980	42,336	4	12.9%	1990	4,856
1981	6,529	5	16.1%	1989	4,967
1982	25,310	6	19.4%	1981	6,529
1983	35,072	7	22.6%	2001	6,915
1984	10,569	8	25.8%	2000	6,930
1985	9,497	9	29.0%	1977	7,103
1986	13,812	10	32.3%	1987	8,005
1987	8,005	11	35.5%	2003	8,295
1988	4,551	12	38.7%	2004	8,404
1989	4,967	13	41.9%	1997	8,757
1990	4,856	14	45.2%	1985	9,497
1991	11,658	15	48.4%	1984	10,569
1992	15,543	16	51.6%	1994	11,015
1993	48,613	17	54.8%	1991	11,658
1994	11,015	18	58.1%	1996	13,119
1995	33,340	19	61.3%	1986	13,812
1996	13,119	20	64.5%	1992	15,543
1997	8,757	21	**67.7%**	**2006**	**17,564**
1998	34,600	22	71.0%	1982	25,310
1999	3,774	23	74.2%	1979	25,318
2000	6,930	24	77.4%	1995	33,340
2001	6,915	25	80.6%	1998	34,600
2002	1,717	26	83.9%	1983	35,072
2003	8,295	27	87.1%	2005	39,600
2004	8,404	28	90.3%	1978	40,743
2005	39,600	29	93.5%	1980	42,336
2006	17,564	30	96.8%	1993	48,613
1977-2006		**30**			
Maximum	**48,613**				
Average	**16,950**			**Median**	**10,792**
Minimum	**1,717**				

Beginning in June, the staff visited the site every two weeks and made velocity and water depth measurements. From these measurements, they used two methods to estimate the flow at Station A. Flow estimates ranged between 11.8 cfs and 2.3 cfs. Consequently, in 2005 Station A was well in compliance with the 1.20 cfs, seven-day flow requirement.

During the summer and fall of 2005, Big Bear MWD repaired the weir plate, cleaned out the stilling basin, and installed a battery operated, pressure transducer to record flow information during the winter and early spring months. In the spring of 2006, when weather conditions permitted, Big Bear MWD retrieved the information and calculated the 2005-06 winter flows at Station A. From May through September 2006, Big Bear MWD retrieved the data and calculated the flows monthly. Flows at Station A ranged from a low of 2.75 cfs to a high of 10 cfs, all well above the 1.2 cfs requirement.

To measure the flow at Station B, Big Bear MWD installed a permanent weir structure. The weir plate is a compound weir with a v-notch section and a rectangular section. It is attached to a reinforced concrete structure in the riverbed. The v-notch section has a flow range of 0 to 0.44 cfs and the rectangular section has a flow range of 0.44 to 5.22 cfs. A water level transmitter and a temperature sensor are located in a stilling well just upstream of the weir structure. The water level and temperature data are transmitted to a remote telemetry unit (RTU) located in the control building at the dam. From there, data are transmitted to a central computer at the administrative offices of Big Bear MWD where average daily flow rates at Station B are calculated based on the rating curve of the weir plate. In 2006, Station B was out of service or not functioning properly for two extended periods. The first period was from December 21, 2005 through January 13, 2006. The second period was from April 15 to September 20. On September 20, 2007, a new measurement probe was installed and calibrated, and flow measurements at Station B resumed.

During 2005, Big Bear MWD, working with State Water Resources Control Board (SWRCB) and the State Department of Fish and Game, developed a proposed plan to keep Station A in compliance with both the 1.0 cfs average daily flow requirement and the 1.2 cfs seven-day average flow requirement. This proposed plan involves increasing the Station B flow requirements to insure the Station A requirements are met. The new Station B requirements vary by month and hydrologic year type. The hydrologic year type is based on year-to-date precipitation at Bear Valley Dam. Water years (October 1 to September 30) are used to determine the hydrologic year type. The proposed plan is presented in the following table. The proposed plan has been submitted to the SWRCB for approval. Approval is expected in 2007.

Table to Determine Minimum Flows at Station B
Based Upon Year-to-Date Precipitation at Bear Valley Dam

Date	Enter Year-to-date Precipitation at Bear Valley Dam (inches)	Dry Year		Below Normal Year		Above Normal Year		Wet Year	
		If year-to-date precipitation is less than (inches)	Station B Minimum Flow is (cfs)	If year-to-date precipitation is between (inches)	Station B Minimum Flow is (cfs)	If year-to-date precipitation is between (inches)	Station B Minimum Flow is (cfs)	If year-to-date precipitation is more than (inches)	Station B Minimum Flow is (cfs)
October 1	0.00	n.a.	0.95	n.a.	0.95	n.a.	0.95	n.a.	0.95
November 1		0.03	0.90	0.03 and 0.56	0.90	0.57 and 1.93	0.70	1.93	0.70
December 1		1.59	0.85	1.59 and 3.04	0.85	3.05 and 5.60	0.80	5.60	0.60
January 1		3.73	0.90	3.73 and 8.14	0.75	8.15 and 12.84	0.75	12.84	0.30
February 1		8.94	1.00	8.94 and 13.84	0.85	13.85 and 20.79	0.50	20.79	0.30
March 1		14.42	0.80	14.42 and 20.05	0.40	20.06 and 31.47	0.40	31.47	0.30
April 1		19.29	0.75	19.29 and 25.84	0.50	25.85 and 40.30	0.40	40.30	0.30
May 1		21.61	0.95	21.61 and 28.65	0.70	28.66 and 41.16	0.55	41.16	0.30
June 1		22.18	1.15	22.18 and 30.01	0.80	30.02 and 41.86	0.75	41.86	0.30
July 1		22.42	1.20	22.42 and 30.01	0.95	30.02 and 41.86	0.95	41.86	0.30
August 1		22.93	1.25	22.93 and 30.69	1.05	30.70 and 42.48	0.95	42.48	0.30
September 1		23.30	1.00	23.30 and 30.86	0.95	30.87 and 43.69	0.95	43.69	0.30

Starting in December of 2005, Big Bear MWD has been following the proposed flow requirements for Station B. Based on the above table and the actual year-to-date precipitation at Bear Valley Dam, the proposed minimum flow requirements at Station B in 2006 were as follows.

Month 2006	Hydrologic Condition	Minimum Flow (cfs)
January	Dry	0.90
February	Dry	1.00
March	Below Normal	0.40
April	Above Normal	0.40
May	Above Normal	0.55
June	Above Normal	0.75
July	Above Normal	0.95
August	Above Normal	0.95
September	Above Normal	0.95
October	Above Normal	0.95
November	Below Normal	0.90
December	Dry	0.85

Flows at Station B normally consist of leakage from the dam and spillway gates, releases and leakage from the outlet works, spills from lake, and inflows and consumptive losses between the dam and Station B. The outlet works flows, dam leakage and the wet winter months kept both stations in compliance with the average daily flow requirements of SWRCB Order No. 95-4 in 2006.

To handle the SWRCB Order No 95-4 lake release and in-lieu delivery conditions, the Watermaster Committee, in 2002, clarified the accounting procedures. In 2003, the Watermaster made further improvements to these procedures. In 2005, they made a further change to better reflect actual lake management. This change was to include leakage with the flows from the outlet works in the accounting for flows to meet SWRCB Order 95-4. For the lake accounts, the accounting procedures are:

1. The outlet works flows and dam leakage will be deducted from both Mutual's and BBMWD's lake accounts in proportion to the amount of water in their respective lake accounts on days when Mutual is not fully utilizing all the flow in the Santa Ana River at the point of diversion to the forebay of SCE Power Plant No. 1.

2. The outlet works flows and dam leakage releases will be deducted entirely from Mutual's lake account on days when:
   a) Mutual is fully utilizing all the flow in the Santa Ana River,
   b) Mutual is requesting releases from the lake and BBMWD is releasing water from the lake or providing in-lieu supplies, and
   c) Mutual is purchasing SWP.

The term "fully utilized" is defined as days when the "net amount" of water the SBVWCD diverted from the forebay of SCE Power Plant No. 3 is less than the amount of the fish release. The "net amount" of water diverted from the forebay is defined as the actual amount diverted by SBVWCD for groundwater recharge less the amount of water delivered to the foreway by the Bear Valley Pick-up on the Santa Ana River below Seven Oaks Dam.

The input data and allocation of releases under SWRCB Order No. 95-4 in Table 2.C of Appendix B reflect the above procedures.

For the Basin Compensation Account, the accounting procedures are:

1. Under a Big Bear MWD operation, the actual fish releases used by Mutual under Item 2 above will be considered a "release actually made under District Operation (R_d)" and the actual releases under Item 1 above will be treated as "spills which actually occurred under District Operation (S_d)".

2. Under a Mutual operation, the fish releases used by Mutual under Item 2 above will be considered a "release which would have been made under a Mutual Operation (R_m)", and the releases allocated to Mutual under Item 1 above will be considered a "spill which would have occurred under a Mutual Operation (S_m)."

Tables 4.A and 4.B of Appendix B reflect these accounting procedures.

The Watermaster Committee will continue to work on these accounting procedures to make sure they will be accurate for all possible river flow and diversion conditions that could occur in future years.

Dam and Spillway Gate Leakage

Leakage occurs through the spillway gates, and through cracks in the upper arches in three of the bays (Nos. 5, 6 and 8). For 2006, the lake level was above the spillway crest (Elevation 6731.00 feet) for the entire year. In the fall of 2006, Big Bear MWD completed a structural reinforcement project of these three bays. This project eliminated the leakage through these bays. The estimated monthly leakages are shown in **Table III-4**. The total leakage for 2006 was estimated to be 256.2 acre-feet. **Table III-4** shows the reduction in leakage through Bays 5, 6 and 8 that resulted from the structural reinforcement project.

Outlet Works Releases and Leakage

Water is released from the lake through an outlet works. These releases can be for flood control purposes, for Mutual, or for fishery protection in accordance with SWRCB Order No. 95-4. Releases are made either through a 36-inch outlet works or a 4-inch bypass pipeline that is connected to the 36-inch outlet works. A 36-inch butterfly valve is the primary control mechanism on the outlet works. Flows in the outlet works are measured by an in-line 36-inch flow meter that was installed on the outlet piping downstream of the butterfly valve in December 1993 to replace an older meter. The new meter is an Electromatic Flow Meter Model 655 manufactured by Sparling Instruments, Inc. Downstream of the flow meter the outlet works split into a 24-inch pipeline and a 14-inch pipeline. Flow through these two pipelines is controlled by two motorized sluice gates. The two sluice gates are 24-inch by 24-inch and 14-inch by 14-inch. The 36-inch meter was calibrated with an accuracy of ± 0.5 percent between 7.07 and 212 cfs. When the sluice gates were fully opened and the lake was full, the meter measured a flow of 256 cfs, which is the maximum that can be discharged through the outlet works. The rate of flow and totalized flow are recorded at the flow meter and also at the control building. There is usually a small amount of leakage through the two sluice gates.

There is also a 2-inch relief line and valve on the 36-inch outlet pipeline. During the winter months this valve is usually opened to allow a small amount of flow to pass through the 36-inch pipeline and prevent the water in it from freezing. Because of the problems with the 4-inch bypass pipeline, the 2-inch relief line was used in 2006 to maintain flows at Station B. Unfortunately, flow through the 2-inch relief line is unmetered.

TABLE III-4
ESTIMATES OF
MONTHLY DAM LEAKAGE
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Month	Dam Leakage Estimates (AF)
January	8.6
February	7.8
March	17.4
April	34.1
May	44.3
June	41.4
July	39.6
August	36.5
September	22.9
October	1.2
November	1.2
December	1.2
Annual Total	**256.2**

Flow through the 4-inch bypass pipeline is metered. Big Bear MWD installed a flow meter on this bypass pipeline in 2002. Additional calibration of the meter was performed in 2004. The flow meter on the 4-inch bypass pipeline covered a flow range of 0.1 to 1.0 cfs. Unfortunately, the 4-inch valve that was used to control releases through the 4-inch bypass pipeline became inoperable in December 2005. It was stuck in a slightly open position with flows ranging from 61 to 100 gpm until it was replaced. It was replaced with a 6-inch bypass pipeline, control valve and meter on August 16, 2006. At this time, the 2-inch relief line was closed, and the new 6-inch bypass line was used to control flows at Station B. The 6-inch flow meter did not function in 2006, so releases through the 6-inch bypass line were not measured in 2006.

In 2006, Big Bear MWD did not release any water from the lake for flood control purposes or to meet Mutual's request for lake water. All releases were made to comply with SWRCB Order No. 95-4.

Table III-5 summarizes the monthly amounts of water discharged (both leakage and releases) from the outlet works (the 4-inch and 6-inch bypass pipeline, the 2-inch relief line, and the two sluice gates) in 2006. The total from the outlet works in 2006 was estimated to be 645.2 acre feet.

Spills

Spills are flows that leave the lake over the spillway of the dam. They are calculated from lake gage height readings and spillway gate settings at the dam during the time of the spill. In 2006, vandals partially opened some of the spillway gates and released 10.3 acre-feet of water through the spillway gates. This release occurred on the evening of October 8. Big Bear MWD closed the gates early the next morning.

Station B Flows

Leakage estimates and outlet works flows were confirmed by comparing the sum of leakage plus the amount released from the lake through the outlet works plus the spillway flows during the vandalized spillway gate opening with the flow measured at Station B, which is 300 feet downstream of the dam. The differences can be either gains or losses. Although small, these differences illustrate the impacts of rainfall/snowfall and plant evapotranspiration between the dam and Station B. **Table III-6** shows this comparison.

TABLE III-5
MONTHLY DISCHARGES FROM
THE OUTLET WORKS OF BEAR VALLEY DAM
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Month	Flood Control Releases (AF)	Mutual Releases (AF)	SWRCB Discharges (AF)	Total Discharges (AF)
January	-0-	-0-	47.0*	47.0
February	-0-	-0-	44.0*	44.0
March	-0-	-0-	12.2*	23.2
April	-0-	-0-	12.8*	12.8
May	-0-	-0-	16.2*	16.2
June	-0-	-0-	60.1*	60.1
July	-0-	-0-	94.7*	94.7
August	-0-	-0-	84.2*	84.2
September	-0-	-0-	71.4*	71.4
October	-0-	-0-	80.5*	80.5
November	-0-	-0-	63.5*	63.5
December	-0-	-0-	58.4*	58.4
Total	**-0-**	**-0-**	**645.2**	**645.2**

* These releases were also used to partially or wholly meet Mutual's needs for lake water.

TABLE III-6
COMPARISON OF FLOWS AT STATION B
WITH ESTIMATED LEAKAGE,
FLOWS FROM OUTLET WORKS AND SPILLWAY FLOWS
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Month	Dam Leakage Estimates (AF)	Outlet Works Estimated Discharges (AF)	Spillway Gate Releases (AF)	Total (AF)	Station B Estimates (AF)	Gain or (Loss) (AF)
January	8.6	47.0	-	55.6	92.1	36.5
February	7.8	44.0	-	51.8	92.7	40.9
March	17.4	12.2	-	29.6	65.7	36.1
April	34.1	12.8	-	46.9	119.0	72.1
May	44.3	16.2	-	60.4	157.1	96.7
June	41.4	60.1	-	101.5	161.3	59.8
July	39.6	94.7	-	134.3	169.2	34.8
August	36.5	84.2	-	120.7	140.6	19.9
September	22.9	71.4	-	94.3	71.5	(22.8)
October	1.2	80.5	10.3	92.1	89.1	(3.3)
November	1.2	63.5	-	64.7	67.0	2.3
December	1.2	58.4	-	59.6	65.8	6.2
Annual Total	**256.2**	**645.2**	**10.3**	**911.7**	**1,291.2**	**379.5**

Table III-6 should be considered very approximate. As previously mentioned, there were two extended periods when the flow monitoring equipment at Station B was either inoperable or out of calibration. In addition, the releases from the outlet works were not measured. Flow changes were estimated by opening or closing the 2-inch or 6-inch valves and observing the change in water depth flowing over the weir at Station B. The water depths were then converted to flows using the rating curve of the weir plate at Station B to estimate changes in releases. Consequently, all flows leaving the dam in 2006 are considered very approximate.

Lake Withdrawals for Snowmaking

Big Bear MWD sells water from Big Bear Lake for use in snowmaking and fire protection for ski areas within the watershed. In 2006, 910 acre-feet of water was withdrawn from the lake for these purposes. The withdrawals for snowmaking occurred in four winter months (January, February, March, and December). The withdrawals for fire protection occurred in two summer months (June and July). The Watermaster estimates that half of the monthly amount pumped from the lake for snowmaking in the winter months returns to the lake in the form of snowmelt during the same month. In the summer months, the water is stored in ponds for emergency fire purposes. These ponds have a storage capacity of 61.4 acre-feet. Fortunately, the water stored was not needed for this purpose. The Watermaster estimated evaporation loses from the ponds using the lake evaporation rates and assumed the balance in the ponds at the end of November was used for snowmaking in December and returned to the lake in December. In 2006, the withdrawal from the lake for snowmaking was 910 acre-feet and 450 acre-feet returned to the lake. The "net withdrawal" was 460 acre-feet.

Net Wastewater Exports

The Watermaster Committee calculates "net" wastewater exports as the difference between the wastewater that leaves the Big Bear Lake watershed and the water supply that is imported into the Big Bear Lake watershed from the Baldwin Lake watershed. The methodology used to make these calculations is documented in a report entitled "Development of a Methodology for Estimating Gross Sewage Export from Upper Bear Creek Watershed", prepared by James M. Montgomery, Consulting Engineers, Inc., in September 1989 for Big Bear Municipal Water District.

Wastewater is exported from the Big Bear Lake watershed to the Baldwin Lake watershed from the following three areas:

- City of Big Bear Lake

- San Bernardino County Service Area 53B
- Airport area served by Big Bear City CSD

Wastewater flows from the first two areas are measured by the Big Bear Area Regional Wastewater Authority (BBARWA). Wastewater flows from the airport area within the Big Bear Lake watershed are estimated based upon the number of connections in the area.

Water is imported into the Big Bear Lake watershed from the Baldwin Lake watershed by the following three activities:

- City of Big Bear Lake imports groundwater from the Baldwin Lake watershed.
- Big Bear City CSD provides water to the airport area from the Baldwin Lake watershed
- Big Bear City CSD occasionally provides emergency water to the City of Big Bear Lake

The City of Big Bear Lake imported supplies and emergency supplies are both metered, while the airport area supplies are estimated based on the number of service connections.

In 2006, the "net" wastewater exported from the Big Bear Lake watershed was 1,462 acre-feet. **Table III-7** contains the 2006 monthly net exports. 2006 net exports were a little less than the 2005 net exports. The estimated inflow and infiltration (I&I) into the sewer system in 2006 was 468 acre-feet, which reflects the higher lake levels and average runoff in 2006.

SANTA ANA RIVER

Bear Valley Mutual Water Company Water Needs

Mutual meets the water needs of its shareholders primarily by diverting water from the Santa Ana River. When river flow is inadequate to meet their needs, Mutual can call upon water stored in Big Bear Lake, pump ground water from the San Bernardino ground water basin, buy State Water Project (SWP) water from San Bernardino Valley MWD, or reduce the delivery rate to its shareholders.

In the January 17, 2006 Watermaster meeting, Mutual reported they would need a maximum of 3,500 acre-feet of water from Big Bear MWD, and they also had prepurchased some SWP water from San Bernardino Valley MWD. They met their 2006 needs by in-lieu supplies from Big Bear MWD, diversions from the Santa Ana River, and local groundwater. Mutual also got some water from dam leakage and lake releases made for fish protection in Bear Creek.

TABLE III-7

NET WASTEWATER EXPORTS

(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Month	Net Wastewater Exports (acre-feet)
January	101.8
February	102.8
March	187.9
April	253.3
May	142.8
June	104.8
July	108.7
August	101.2
September	81.6
October	79.9
November	85.1
December	111.9
Total	**1,461.8**

Summary of Flows and Diversions at Mouth of the Santa Ana River Canyon

Exhibit D, Section 1(f) of the Judgment calls for data to be included in each Watermaster annual report summarizing the river flows at the mouth of the Santa Ana River Canyon and diversions at the mouth of the Santa Ana River Canyon. Specifically, it requests quantities of water diverted into the following facilities:

1. Bear Valley High Line
2. Redlands Canal
3. North Fork Canal
4. Edwards Canal
5. San Bernardino Valley Water Conservation District Spreading Grounds

Exhibit D also requires the annual report to estimate the amount of Santa Ana River flow not diverted for beneficial use. **Table III-8** contains this information for 2006.

Flow of Santa Ana River at Mouth of Canyon

The United States Geological Survey (USGS) reports flow in the Santa Ana River at the mouth of the Santa Ana Canyon under Station No. 11051501. This station is the combination of flow records from three gages (USGS Station No. 11049500, 11051499, and 11051502). Flow in the flume between the afterbay of SCE Power House No. 1 (SCE Power House No. 2 was removed due to the construction of Seven Oaks Dam) and the forebay of SCE Power House No. 3 is estimated by USGS using the Daily Flow Report provided by the San Bernardino Valley Water Conservation District and verified by a new meter installed by SCE and reported as Station No.11049500. Note that this derived estimate does include the overflow from the old SCE Powerhouse No.3 forebay as reported on the Daily Flow Report. In addition, the USGS maintains two gauging stations near the mouth of the Santa Ana River Canyon below Seven Oaks Dam. Station No. 11051499 measures the flow in the main river channel while Station No. 11051502 measures river flow diverted into the afterbay of SCE Power House No. 3 through the Bear Valley River Pick-up. The records from these three sources are summarized and reported as the total flow in the Santa Ana River, USGS Station No. 11051501.

During 2006, the total river flow reported by the USGS, currently provisional, was 51,560 acre-feet. However, measurements at Station No. 11049500 include the amount of groundwater pumped by Mutual and discharged into the flume above the gage. Thus, to get the actual Santa Ana River Flow, the canyon well production must be deducted from the reported flows. In 2006, there was no canyon well production. The resulting river flow below Seven Oaks Dam was 51,560 acre-feet in 2006. This figure reflects storage change in the reservoir behind Seven Oaks

TABLE III-8

SUMMARY OF DIVERTED FLOW AT MOUTH OF SANTA ANA RIVER CANYON (ACRE-FEET)

Calendar Year 2006
Big Bear Watermaster

Flow Component	Amount (AF)
FLOW OF SANTA ANA RIVER AT MOUTH OF CANYON	
Flow Reported for U.S.G.S. Gage 11051501-provisional	51,560
BVMWC Canyon Well No. 1 Production	-0-
Santa Ana River Flow Below Seven Oaks Dam	51,560
Annual Storage Change in Seven Oaks Dam	328
Santa Ana River Flow at Mouth of Canyon	**51,888**
DIVERSIONS BY BEAR VALLEY MUTUAL WATER COMPANY	
Diversions: Greenspot Metering Station	-0-
Edwards Line	51
North Fork Canal	4,380
Bear Valley Highline	2,937
Redlands Aqueduct (includes Redlands Tunnel)	10,903
SBVMWD Morton Canyon Connector Deliveries	-0-
Redlands Sandbox Spreading (Observed)	443
	18,713
Adjustments: Water pumped from BVMWC Canyon Well No. 1	-0-
Redlands Tunnel Diversion	-1,014
Total MUTUAL Diversions	**17,699**
DIVERSIONS BY SBVWCD	
Diversion by San Bernardino Valley Water Conservation District	12,427
SBVMWD Morton Canyon Connector Deliveries to SBVWCD	-0-
Total SBVWCD Diversions	**12,427**
TOTAL DIVERSIONS FROM THE SANTA ANA RIVER	
Total Diversions by Mutual and SBVWCD	**30,116**
AMOUNT NOT DIVERTED	
Santa Ana River Flow at Mouth of Canyon	**51,888**
Mutual and SBVWCD Diversions	**- 30,116**
Amount Diverted to Storage Behind Seven Oaks Dam	**-0-**
Estimated Not Diverted	**21,772**
Estimated Flow Downstream of Diversion*	**16,358**
Estimated Losses and Measurement Errors **	**5,414**

* This value equals the amount observed at the Greenspot Road Bridge.

** See written text for explanation

Dam. In 2006, no water was stored behind the dam. Thus, the estimated flow of the Santa Ana River at the mouth of the canyon was 51,560 acre-feet in 2006.

Diversions by Bear Valley Mutual Water Company

Amounts diverted by Mutual and associated prior right companies are reported to the State Water Resources Control Board under Recordation Numbers 36-00021, 36-00022 and 36-00028. In 2006, Mutual's measured diversions were 18,733 acre-feet. The vast majority, 17,689 acre-feet, was water diverted from the Santa Ana River. No groundwater was pumped from their well located in the Santa Ana Canyon above the major points of diversion. 1,044 acre-feet of water was produced from the Redlands Tunnel. This diversion was used for agricultural and domestic purposes. In 2006, domestic deliveries made to the City of Redlands for their Horace P. Hinckley Water Treatment Plant and to East Valley Water District's water treatment plant were limited because of the poor quality of the water stored behind Seven Oaks Dam.

Diversions by San Bernardino Valley Water Conservation District

Water diverted by the San Bernardino Valley Water Conservation District for groundwater recharge is by virtue of licenses and pre-1914 rights; all diversions are reported to the State Water Resources Control Board. In 2006, they diverted 12,427 acre-feet of water for ground water recharge.

Amount Not Diverted

In years prior to 1996, the sum of the diversions mentioned above was subtracted from the total river flow, as reported by USGS Gage 11051501, to determine the "Amount Not Diverted". Since 1977, this difference has been reported as the "Amount Not Diverted", which is supposed to be the amount of water that flowed past the mouth of the Santa Ana River Canyon without being diverted for beneficial use.

Losses and Measurement Errors

During preparation of the 1996 report, the Watermaster Committee discovered significant discrepancies between the value for "Amount Not Diverted", as calculated by the method contained in previous Watermaster Reports, and observed flows in the Santa Ana River just downstream from the last diversion point. Since 1994, San Bernardino Valley Water Conservation District staff have been estimating the amount of water flowing past the Greenspot Road Bridge at the Cuttle Weir, which is just downstream from the mouth of the Santa Ana

River Canyon, on a daily basis. In past years the difference between the estimated flows at the Greenspot Road Bridge and the "Amount Not Diverted" were significantly different. The Watermaster has conducted extensive research with regards to the discrepancy and provided the following five explanations:

1. Leakage Losses between Inflows and Outflows. The first explanation was unmeasured losses between the points where inflows and outflows are measured. These include:

    1. Leakage in the tailrace from SCE Power House No. 3 afterbay,
    2. Leakage in the Redlands Aqueduct between SCE Power House No. 3 afterbay and the Redlands Sandbox, and
    3. Leakage around the Redlands Sandbox weir.

2. Unmeasured Diversions. The second explanation was that Mutual can divert water for spreading at the Redlands Sandbox without it being measured. San Bernardino Valley Water Conservation District staff now observes and reports this diversion on a daily basis. These estimates are based on known flows delivered to the Redlands Sandbox and are fairly accurate. This possible source of error has been corrected and the amount diverted for spreading is included in Table III-8.

3. USGS Gage Accuracy. The third possible explanation for the disparity is the accuracy of the USGS flow records. The USGS reports that this combined flow measurement of three gage stations is considered to have an accuracy rating of "fair". A "fair" rating means that 95 percent of the daily discharge measurements are within 15 percent of the true value. According to Jeffrey Agajanian of the USGS, this means the error band for the entire year should be within approximately 15 percent of the total measured flow. This value is a conservative estimate of the possible measurement errors and the flow is likely to be well within this error band, especially during the summer months when flows are generally constant and lower.

4. Water Delivery Flow Measuring Device Accuracy. A fourth reason for the difference could be inaccuracies in the diversion measuring devices, which should be less than +/- 10 percent at any given time. Most of these measurements are obtained through the use of stable, long-term weirs and parshall flumes, but small, though not insignificant, errors are possible. Some of the measurement devices provide daily readings and are equipped with totalizer equipment providing monthly data. The San Bernardino Valley Water Conservation District (SBVWCD) will continue to update totalizer equipment on any of the measurement devices that are not equipped with totalizer equipment. The SBVWCD is developing a program to maintain

and verify the accuracy of the existing measuring devices. These activities will help minimize errors in diversion measurements.

5. Observed Flow at the Cuttle Weir. A fifth possible explanation was the accuracy of the flow estimates at the Cuttle Weir. These estimates are based on daily flow observations. Total flow quantities are difficult to determine because of the high degree of short-term variability in the river flows during storm events.

The construction of the Seven Oaks Dam required the reconstruction of the SCE flume between the old Power House No. 2 and No. 3. This eliminated any losses in the flume from the old Power House No. 2 and No. 3 and required the USGS to move Station No. 11049500 to the old forebay of Power House No. 3. Flow at this station is estimated by using the Daily Flow Report provided by the San Bernardino Valley Water Conservation District and is reported as Station No. 11049500. As of August 2001, SCE has installed a new meter in the forebay of Power House No. 3. In addition, improved efforts were taken to monitor diverted water at the Redlands Sand Box for ground water recharge and observed flows at the Cuttle Weir. The Watermaster has concluded that these efforts have reduced the losses and measurement inaccuracies such that the large errors that occurred in the past should no longer occur.

6. Storage Behind Seven Oaks Dam. There is, however, an additional factor that must be considered when the Watermaster Committee estimates the "amount not diverted". This factor is the amount of water that has been stored behind Seven Oaks Dam (SOD) and not released by year-end. This stored water is Santa Ana River flow that has not yet been measured by the two USGS stream gages below the dam. In addition, water stored behind the dam from inflow in the previous year and released in the current year must also be taken into account. The amount stored behind SOD at the end of 2006 was 463 acre-feet (water surface elevation of 2,153.76 feet). The amount stored behind SOD at the end of 2005 was 135 acre-feet (water surface elevation of 2,135.5 feet). The water stored behind the dam from inflow in the current year and not released in the current year was 328 acre-feet. This amount has not been accounted for in the USGS provisional value of 51,560 acre-feet.

2006 Estimate of Amount Not Diverted

In 2006, San Bernardino Valley Water Conservation District observed 16,358 acre-feet of river flow at the Cuttle Weir. Therefore, their estimate of the amount not diverted was 16,358 acre-feet. The total river flow reported by USGS less the canyon well production plus Santa Ana River flow stored in Seven Oaks Dam was 51,888 acre-feet. The total diversion measured by Mutual and San Bernardino Valley Water Conservation District was 30,116 acre-feet. The

difference between these two values is 21,772 acre-feet. Subtracting this difference from the amount not diverted, results in leakage losses and measurement errors of 5,414 acre-feet. These losses and errors exceed the probable error range of the flow at the Cuttle Weir. Thus, there are some significant, unknown errors or losses in the values reported in Table III-8. The most probable sources of error are the flow measurements of the Santa Ana River.

Lake Releases/In-Lieu Water Deliveries

Santa Ana River flows are often insufficient to meet Mutual's water needs; as a result, they frequently request lake releases from Big Bear MWD to meet their needs. Big Bear MWD has the choice of releasing water from the lake or providing an in-lieu supply. At their meeting on May 1, 1987, the Board of Directors of the Big Bear Municipal Water District voted unanimously to approve the following policy for providing in-lieu supplies.

"1. Adopt the following 1987 in-lieu policy:

A. When the lake is in the top 4 feet, the irrigation demands from the lake will be met by releasing water from Big Bear Lake.

B. When the lake is between 4 feet and 6 feet down, the District intends to purchase in-lieu water between the months of May 1st and October 31st from either wells or the State Water Project; between November 1st and April 30, water required would be released from Big Bear Lake.

C. When the lake is between 6 and 7 feet down, the Board shall determine whether to release from the lake.

D. In the unlikely event that the lake is more than 7 feet down, the District intends to buy in-lieu water throughout the year.

E. The General Manager shall inform the Board each time water is released.

On November 16, 2006, the Board of Directors of BBMWD modified their Lake Release Policy to eliminate items C, D and E and to use in-lieu water whenever the lake is more than 6 feet below full. The revised Lake Release Policy is:

1. When the Lake is within the top 4 feet, the water demands from Bear Valley Mutual will be met with Lake releases;

2. *When the Lake is between 4 and 6 feet below full, the District intends to obtain in-lieu water between the months of May 1 and October 31. Between November 1 and April 30, water required would be released from Big Bear Lake;*

3. *When the Lake is more than 6 feet below full, the District intends to obtain in-lieu water throughout the year.*

In 2006, the lake level was between 4 feet and 6 feet down until the first week of March. The lake level stayed less than 4 feet down through the end of the year. The lake level ended the year 3.15 feet down. Mutual received 2,537 acre-feet of water from Big Bear MWD in 2006.

In accordance with its lake release policy, Big Bear MWD normally would have met this need by providing Mutual with lake releases. However, this year Mutual's request was met by in-lieu deliveries and water discharged from the lake for fishery protection under SWRCB Order No. 95-4. **Table III-9** shows Big Bear MWD monthly water deliveries to Mutual during 2006. In total, Big

TABLE III-9
WATER DELIVERIES TO MUTUAL BY
BIG BEAR MUNICIPAL WATER DISTRICT
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Month	Releases from Big Bear Lake to Mutual	"In Lieu" State Water Project	Total Deliveries to Mutual
January	18.5*	11.8	30.3
February	1.8*	-0-	1.8
March	6.8*	-0-	6.8
April	8.6*	63.2	71.8
May	44.8*	285.5	330.3
June	13.2*	66.2	79.4
July	21.6*	575.4	597.0
August	120.7*	376.8	497.5
September	94.3*	512.3	606.6
October	81.8*	96.5	178.3
November	47.4*	43.8	91.2
December	7.7*	38.8	46.5
Total	**467.2**	**2,070.3**	**2,537.5**

* Also required to comply with SWRCB Order No. 95-4

Bear MWD provided 2,537 acre-feet of water to Mutual. This amount consists of 2,070 acre-feet of in-lieu supplies and 467 acre-feet of water they were able to use from the fish releases.

The amount of water Big Bear MWD is obligated to deliver to Mutual is limited by the Judgement. According to the Physical Solution Agreement, Article III.A.1.(b), Mutual has the right to:

> *"divert water, or cause water to be diverted, at such rate as may be reasonably necessary to meet the requirements of Mutual's stockholders, not exceeding 65,000 acre-feet in any ten (10) year period, as determined by the Board of Directors of Mutual in its sole discretion."*

Table III-10 summarizes the deliveries to Mutual since the agreement went into effect. For the ten-year period ending with calendar year 2006, the amount of water delivered to Mutual by Big Bear MWD was 60,050 acre-feet. This table shows that Mutual could request up to 12,094 acre-feet of water from Big Bear MWD in 2007. 7,144 acre-feet is from the deliveries made in 1997 and 4,950 acre-feet that they are below the 65,000 limitation at the end of 2006.

Mutual's Equivalent Water Diversions

Table III-11 shows the amount of water that Mutual would have diverted from the Santa Ana River if the Judgment had not been rendered. This figure is determined by adding the in- lieu water deliveries as reported in Table III-8 to the river diversions by Mutual and Mutual's groundwater production from their Canyon Wells No. 1 and 2, as shown in Table III-6. The value for river diversions includes the supply from the Redlands Tunnel. This equivalent diversion is the amount of water Mutual would have diverted if all their demands for water from Big Bear MWD had been met by lake releases. In 2006, Mutual's equivalent diversions were 20,803 acre-feet, which is about what it was when the Judgment was rendered in 1977.

TABLE III-10
SUMMARY OF WATER DELIVERIES TO MUTUAL
1977–2006
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Calendar Year	Releases From Big Bear Lake	SWRCB Releases to Mutual	"In Lieu" from Wells	"In Lieu SWP Purchases & Exchanges	"In Lieu" EVWD Exchange Water	"In Lieu" Delivery on BBMWD Owned Stock*	Total Deliveries to Mutual	Ten Year Totals
1977	868		4,412	0	0	0	5,280	N/A
1978	0		0	0	0	0	0	N/A
1979	0		0	0	0	0	0	N/A
1980	0		0	0	0	0	0	N/A
1981	2,250		0	672	0	0	2,922	N/A
1982	657		0	56	0	0	713	N/A
1983	0		0	0	0	0	0	N/A
1984	1,700		0	993	0	0	2,693	N/A
1985	2,466		842	2,994	0	0	6,302	N/A
1986	1,358		1,139	190	0	0	2,687	20,597
1987	0		3,301	4,762	0	84	8,147	23,464
1988	0		1,864	5,432	0	63	7,359	30,823
1989	0		1,593	8,555	0	0	10,148	40,971
1990	0		561	7,722	0	0	8,283	49,254
1991	79		0	0	151	0	230	46,562
1992	0		0	0	0	0	0	45,849
1993	0		0	0	0	0	0	45,849
1994	1,141		0	0	0	0	1,141	44,297
1995	88		0	0	0	0	88	38,083
1996	3,461		0	4,027	0	0	7,488	42,884
1997	364		0	6,780	0	0	7,144	41,881
1998	0		0	0	0	0	0	34,522
1999	124	147	0	10,436	0	0	10,706	35,080
2000	-0-	510	0	12,878	0	0	13,388	40,185
2001	46	493	48	14,212	0	0	14,799	54,754
2002	0	614	0	5,000	0	0	5,614	60,368
2003	0	484	0	0	0	0	484	60,853
2004	0	512	0	2,500	0	0	3,012	62,724
2005	0	146	0	2,218	0	0	2,364	65,000
2006	0	467	0	2,070	0	0	2,537	60,050

N/A = Not Applicable
* Not Authorized After 1988

TABLE III-11
EQUIVALENT WATER DIVERSIONS BY MUTUAL
1977–2006
(acre-feet)
Calendar Year 2006
Big Bear Watermaster

Calendar Year	Net Santa Ana River Diversion by BVMWC*	Groundwater Production From Wells No. 1 & 2	Big Bear MWD In-Lieu Deliveries	Equivalent Total Water Diversions
1977	14,420	1,546	4,412	20,378
1978	16,809	282	-	17,373
1979	19,470	114	-	19,584
1980	20,479	188	-	20,667
1981	20,449	1,130	672	22,251
1982	18,565	246	56	18,867
1983	19,209	53	-	19,262
1984	23,392	739	993	25,124
1985	19,837	872	3,836	24,545
1986	23,160	894	1,329	25,383
1987	16,373	947	8,147	25,467
1988	14,170	612	7,359	21,141
1989	11,449	672	10,148	22,269
1990	11,242	1,576	8,283	21,101
1991	13,715	368	151	14,234
1992	16,840	97	-	16,937
1993	26,591	-	-	26,591
1994	23,819	594	-	24,413
1995	30,794	60	-	30,853
1996	19,529	1,131	4,027	24,687
1997	19,490	1,559	6,780	27,829
1998	26,625	105	-	26,730
1999	21,336	484	10,436	32,256
2000	17,171	322	12,878	30,371
2001	12,355	140	14,260	26,755
2002	8,007	58	5,000	13,065
2003	13,301	114	-	13,415
2004	11,815	67	2,500	14,382
2005	13,615	-	2,218	15,833
2006	18,733	-	2,070	20,803

* Includes Redlands Tunnel Diversions

IV. DETERMINATIONS AND ACCOUNTS

ACCOUNTING REQUIREMENTS

In accordance with Article 29 of the Judgment, "Watermaster shall maintain three basic accounts, in accordance with Watermaster Operating Criteria, as follows:

(a) District's Lake Water Operation. A detailed account to reflect actual operation of the Lake by District shall be maintained.

(b) Mutual's Lake Water Operations. In addition, a corollary account shall be maintained to simulate the effect of Mutual's operations with regard to Lake water under the In-Lieu Water operations.

(c) Basin Compensation Account. An account of District's annual and cumulative obligation for Basin Make-up Water shall also be maintained."

In 1986, the Watermaster Committee developed a computer program for keeping these accounts. This program was designed to operate on an IBM (or IBM compatible) personal computer using Lotus 1-2-3. To standardize all years of operations under the Judgment, all past accounts were re-calculated using the program and were included in the 1986 Annual Report.

In 1990, the Watermaster Committee decided how to account for wastewater exports from the Big Bear Lake watershed and delivery of water on Mutual stock owned by Big Bear MWD. Only the Basin Compensation Account was affected by these decisions. Consequently, the 1990 Watermaster Report contained revised tables for the Basin Compensation Accounts for calendar years 1986, 1987, 1988 and 1989, as well as the status of all the 1990 accounts.

For the 1994 report, the Watermaster Committee updated the accounting procedures to reflect 1994 Watermaster decisions and to clarify the reports.

In 1995, the Watermaster made several additional revisions to the accounting procedures. However, in preparing the 1996 accounts, the Watermaster Committee discovered some errors in the changes made in 1995. These errors were corrected and, as a result, the 1995 accounts were recomputed and were included in the 1996 Annual Watermaster Report.

2006 ACCOUNT BALANCES

Appendix B contains the 2006 accounts. The first four pages of the appendix present the input data used to calculate the various accounts. The fifth page summarizes the status of the various accounts. The remaining pages of Appendix B are the detailed monthly tables of the accounts.

Actual Lake Account

Figure 2 illustrates the water balance for the actual operation of Big Bear Lake in 2006. **Table 1** of Appendix B provides additional detail. This information shows that:

1) the lake level rose 1.33 feet, from a gage height of 67.85 feet to 69.18 feet; 72.33 feet is full;

2) lake storage increased by 3,771 acre-feet, it began the year with 60,503 acre-feet and ended the year with 64,274 acre-feet; when the lake is full, it contains 73,320 acre-feet of water;

3) evaporation was 12,421 acre-feet;

4) lake inflow was 17,564 acre-feet, which is above the median inflow of 10,792 acre-feet since the Judgment was rendered in 1977;

5) the total of spills, releases, leakage and net lake withdrawals was 1,371 acre-feet.

Tables 1A through 1D provide additional details to support Table 1.

Mutual's Lake Account

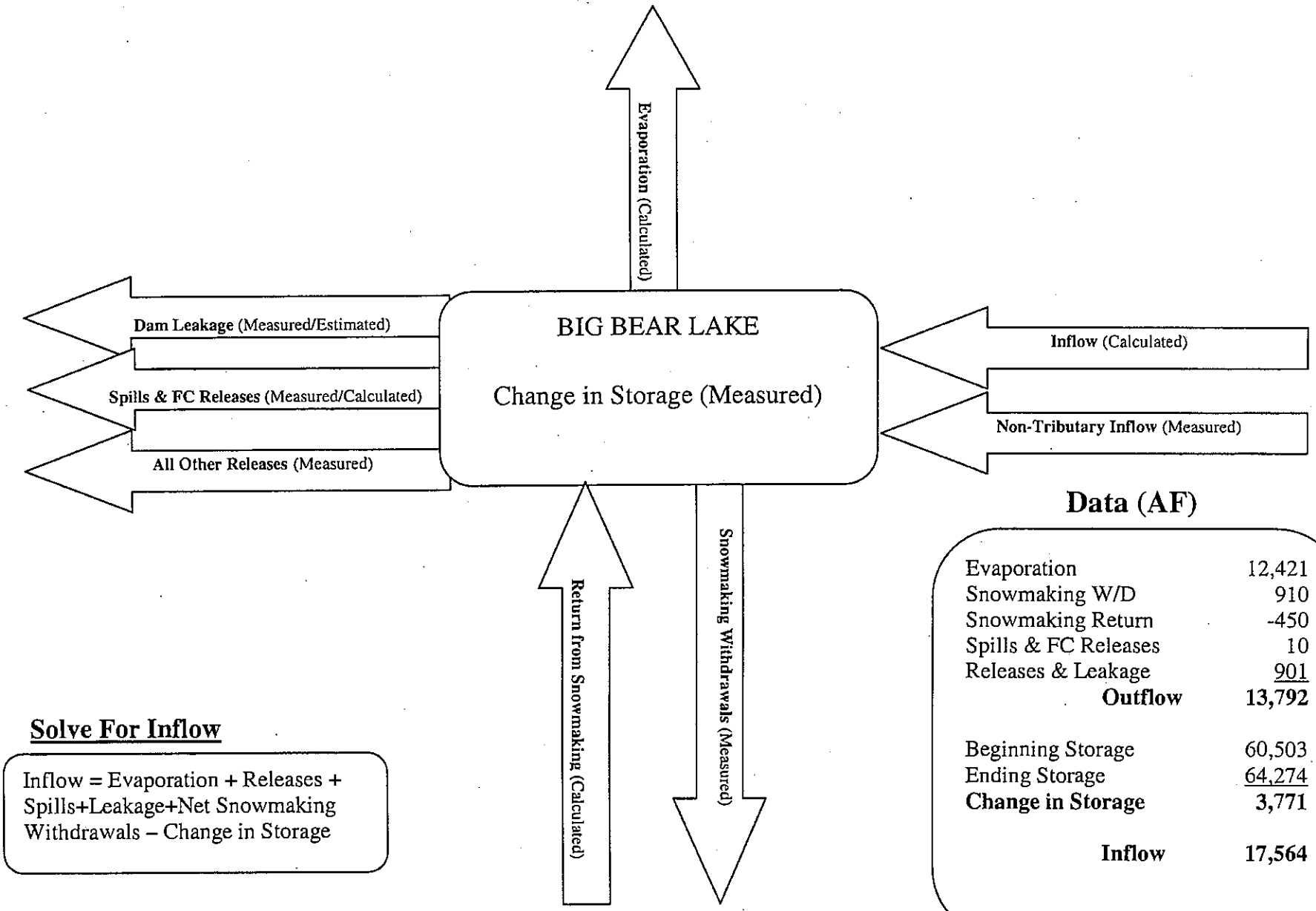
Figure 3 illustrates the water balance for Mutual's synthesized operation of Big Bear Lake in 2006. Mutual's operation shows what would have happened if:

1) Mutual had owned the lake,

2) the in-lieu program was not in place, and

3) the net wastewater exported from Big Bear Lake watershed entered the lake as supplemental inflow.

Figure 2
Water Balance for 2006 Actual Lake Operations



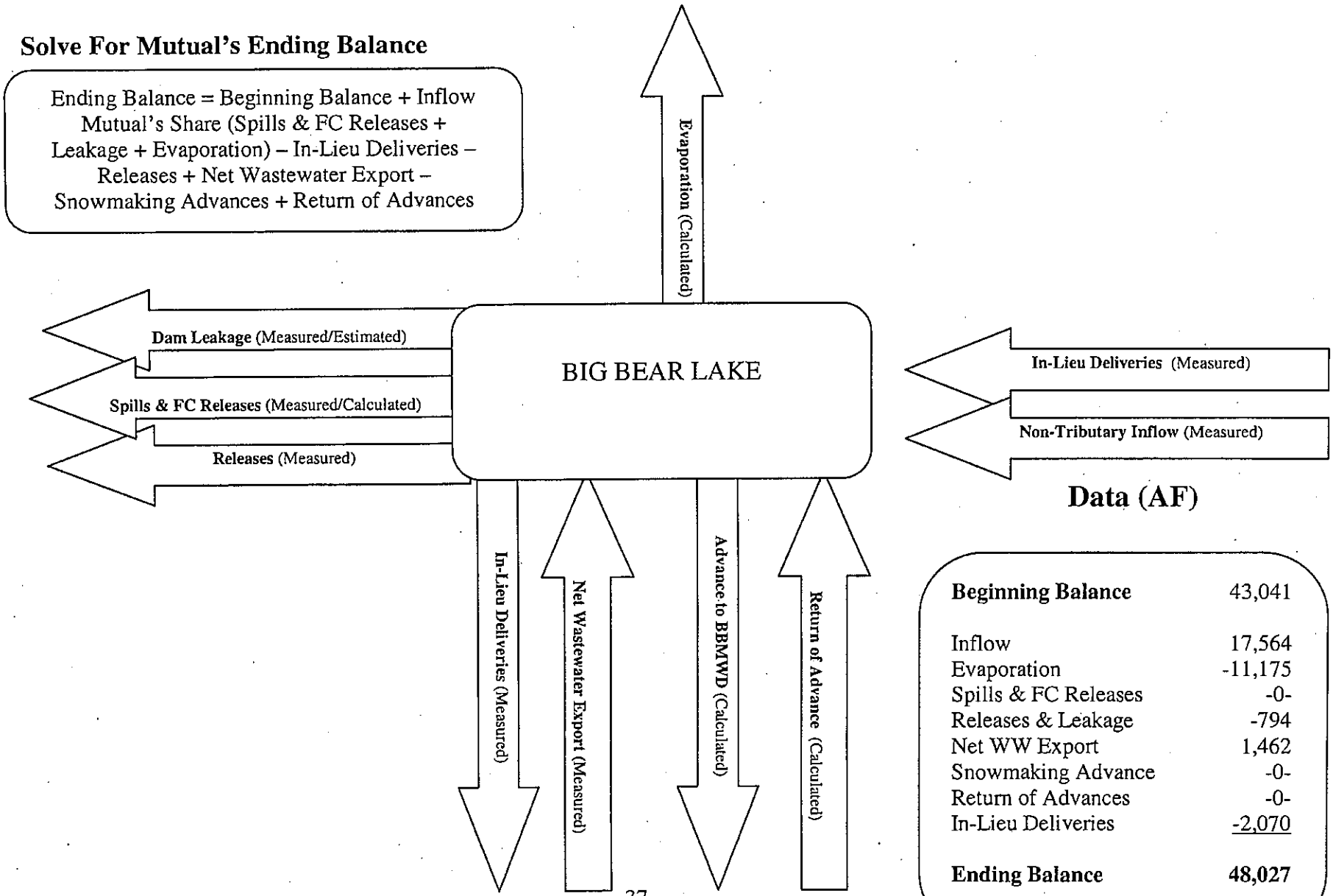
Solve For Inflow

Inflow = Evaporation + Releases + Spills+Leakage+Net Snowmaking Withdrawals – Change in Storage

Data (AF)

Evaporation	12,421
Snowmaking W/D	910
Snowmaking Return	-450
Spills & FC Releases	10
Releases & Leakage	901
Outflow	**13,792**
Beginning Storage	60,503
Ending Storage	64,274
Change in Storage	**3,771**
Inflow	**17,564**

Figure 3
Water Balance for 2006 Mutual's Lake Operation
(Synthesized Conditions)



Data (AF)

Beginning Balance	43,041
Inflow	17,564
Evaporation	-11,175
Spills & FC Releases	-0-
Releases & Leakage	-794
Net WW Export	1,462
Snowmaking Advance	-0-
Return of Advances	-0-
In-Lieu Deliveries	-2,070
Ending Balance	**48,027**

In this synthesized case, Mutual's demands for lake water would have been met entirely from lake releases.

Figure 3 and Table 2 of Appendix B show that Mutual had 48,027 acre-feet in its lake account at the end of 2006. This account balance is 4,986 acre-feet more than was in their lake account at the end of 2005. Table 2 also shows that in 2006 Mutual's lake account was credited with all the lake inflow (17,564 acre-feet), and the total of their releases, spills, leakage and in-lieu deliveries would have been 2,864 acre-feet. Supplemental inflow added to Mutual's Lake Account for net wastewater exported from the basin was 1,462 acre-feet. In 2006, there were no advances to Big Bear MWD for snowmaking within the watershed. Evaporation that would have taken place under a Mutual operation was 11,175 acre-feet. The cumulative effect of changes in lake releases and supplemental inflows that would have taken place since 1977 under a "Mutual Operation" would be a lake level that would have been 63.10 feet at the end of 2006 or 9.23 feet below the top of the dam. This synthesized lake level is 6.08 feet lower than it actually was. This lower lake level reflects the impact of what Mutual's lake withdrawals would have been without the in-lieu program and with the credits they receive from the net wastewater exports. Tables 2A through 2C provide additional details to support Table 2.

Article 4.(b) of the Watermaster Operating Criteria (Exhibit "D" of the Judgment discusses how to handle the export of wastewater from and the import of water to the Upper Bear Creek Watershed. Specifically, it says:

> *In the event gross export from Upper Bear Creek Watershed to any area not tributary to the Santa Ana River Watershed within Upper Bear Creek Watershed, calculated inflow to the Lake shall be increased each year, beginning with the calendar year 1986 by the amount by which such gross export exceeds imports. If gross import exceeds gross export, said excess shall be credited against District's Basin Make-up Water obligation.*

In 1986, the Watermaster Committee decided to handle the net wastewater exports (gross exports-gross imports) entirely in the District's Basin Make-up water obligations. This decision was contingent upon implementation of a wastewater reclamation project in the Upper Bear Creek Watershed by December 31, 1994. A reclamation project was not implemented by that date so the Watermaster Committee, in 1994, decided to add the net wastewater credits to the calculated lake inflows effective January 1990. This decision adds the net wastewater credits to Mutuals lake account. Essentially, it transfers the amount of the credit from Big Bear MWD's lake account to Mutual's lake account.

Table IV-1 shows the impacts of crediting Mutual's lake account (and debiting Big Bear MWD's lake account) with the net wastewater exports. Since 1990, Mutual has been credited with 23,708 acre-feet of net wastewater exports. After 18 years of getting these credits, Mutual's lake account has 5,967 acre-feet more water than it would have had if it hadn't received the credits. This additional increase raised their simulated lake level by 2.46 feet. In other words, without the credits, Mutual's lake level would have ended the year 8.64 feet below the actual lake level. This value is 2.46 feet lower than reported in the lake account tables.

There are two primary reasons why the increase in their lake account (5,967 acre-feet) is less than the cumulative credits they have received (23,708 acre-feet). The first reason is spills. When the lake fills, Big Bear MWD's water spills first, and then Mutual's water spills. The credits they receive will spill during very wet years, like 1998. The second reason is evaporation. Mutual's lake level increases with the credits. With higher lake levels, their share of the evaporation losses increases. The end result is that at the end of 2006 Mutual's lake account had 5,967 acre-feet more and Big Bear MWD's lake account had 5,967 acre-feet less as a consequence of the net wastewater export credits.

Big Bear MWD's Lake Account

Section 3(b), District's Water in Storage, of the Watermaster Operating Criteria of the Judgment describes the procedure to determine Big Bear MWD's storage account as follows:

> *"Any water actually in storage in excess of Mutual's water in Storage, as calculated above, shall be for the account of District. So long as District has water in storage, all spills from the Lake shall be deemed District Water."*

Figure 4 illustrates the water balance for Big Bear MWD's lake account in 2006. Table 3 of Appendix B summarizes the results. This information shows the water actually in storage (from Table 1 of Appendix B), Mutual's water in storage (from Table 2 of Appendix B), and the difference between the two, which is the amount in Big Bear MWD's account. In 2006, Big Bear MWD's account balance began with 17,462 acre-feet and ended the year with 16,247 acre-feet. The decrease in their account was 1,215 acre-feet. This decrease is a result of the evaporation losses, net snowmaking withdrawals and net wastewater exports in excess of the in-lieu deliveries made to Mutual during the year.

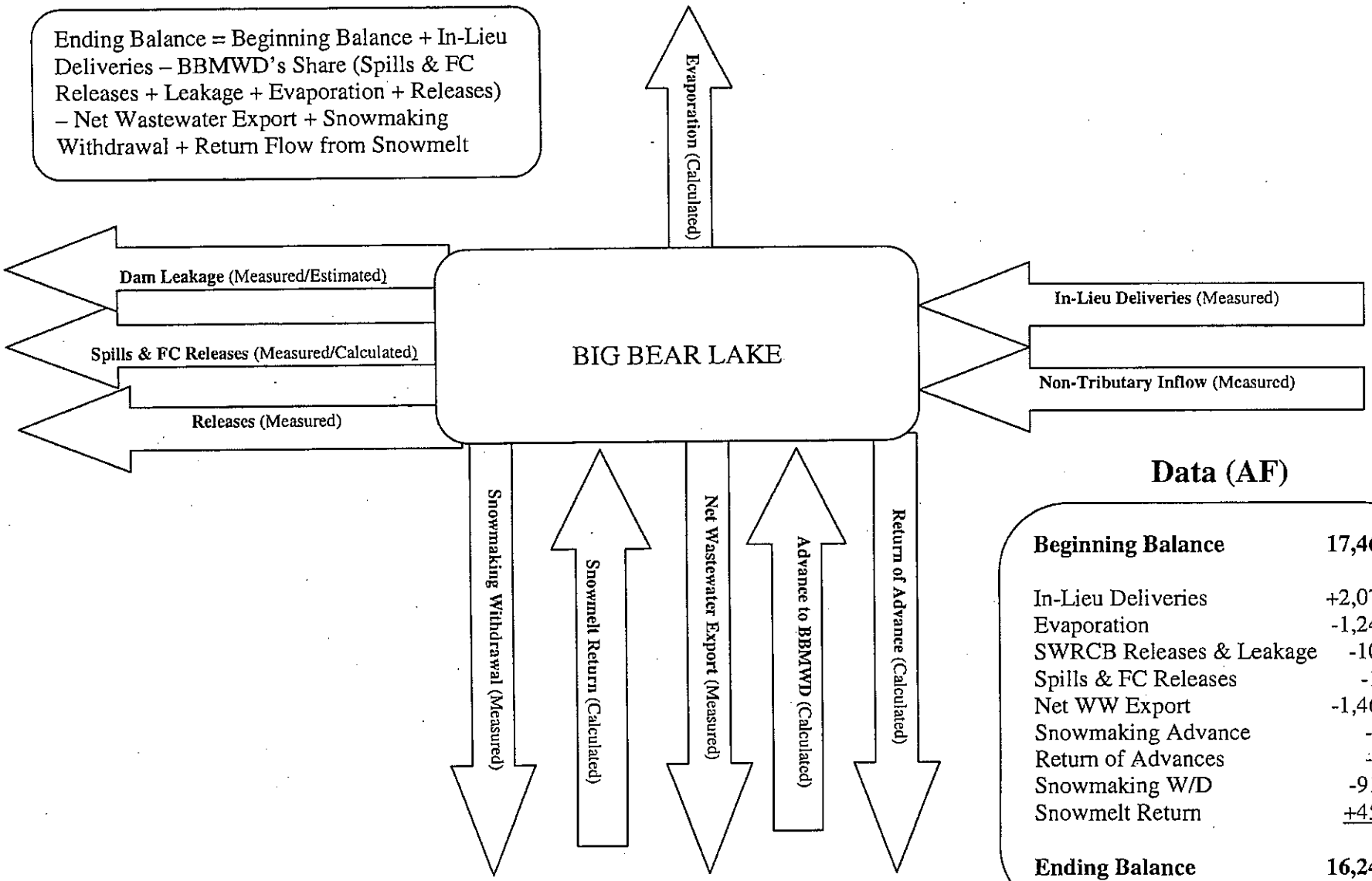
TABLE IV-1
EFFECT OF WASTEWATER EXPORT CREDITS ON MUTUAL'S LAKE ACCOUNT
Calendar Year 2006
Big Bear Watermaster

End Of Calendar Year	Net Wastewater Export Credit (AF)	w/Wastewater Credits		w/o Wastewater Credits		Differences	
		Storage Account (AF)	Lake Level (Feet)	Storage Account (AF)	Lake Level (Feet)	Storage Account (AF)	Lake Level (Feet)
1989	-	16,905	47.00	16,905	47.00	-	-
1990	857	7,627	40.30	6,864	39.50	763	
1991	940	14,226	45.75	12,772	44.65	1,454	1.10
1992	723	22,787	51.15	20,886	50.05	1,901	1.10
1993	2,223	62,165	68.40	58,271	67.00	3,894	1.40
1994	1,397	61,407	68.15	56,451	66.35	4,956	1.80
1995	2,012	66,308	69.90	65,019	69.45	1,289	0.45
1996	1,540	60,875	67.95	58,229	67.00	2,646	0.95
1997	1,427	52,407	64.80	48,663	63.35	3,744	1.45
1998	2,427	69,566	71.00	68,282	70.60	1,284	0.40
1999	1,339	51,390	64.40	48,922	63.45	2,468	0.95
2000	1,337	35,335	57.65	31,900	56.00	3,435	1.65
2001	1,317	19,898	49.45	15,732	46.75	4,166	2.70
2002	889	10,856	43.15	6,897	39.55	3,959	3.60
2003	1,044	13,718	45.35	9,695	42.20	4,023	3.15
2004	1,024	14,200	45.70	10,233	42.65	3,967	3.05
2005	1,750	43,041	61.05	37,900	58.85	5,141	2.20
2006	1,462	48,034	63.10	42,067	60.65	5,967	2.46
Total	**23,708**						

Figure 4
Water Balance for 2006 BBMWD's Lake Operation
(Synthesized Conditions)

Solve For BBMWD's Ending Balance

Ending Balance = Beginning Balance + In-Lieu Deliveries – BBMWD's Share (Spills & FC Releases + Leakage + Evaporation + Releases) – Net Wastewater Export + Snowmaking Withdrawal + Return Flow from Snowmelt



Data (AF)

Beginning Balance	**17,462**
In-Lieu Deliveries	+2,070
Evaporation	-1,246
SWRCB Releases & Leakage	-108
Spills & FC Releases	-10
Net WW Export	-1,462
Snowmaking Advance	-0-
Return of Advances	-0-
Snowmaking W/D	-910
Snowmelt Return	+450
Ending Balance	**16,247**

Table 3 of Appendix B also shows the status of Big Bear MWD's "Advance Account". This account represents the net amount of water Big Bear MWD has "borrowed" from Mutual for snowmaking in the Big Bear Lake watershed. In 2006, Big Bear MWD's advance account was zero throughout the year.

Tables 3.A and 3.B of Appendix B provide supporting information to Table 3.

Basin Compensation Account

Exhibit D of the Judgment contains a formula to be used for determination of the amount of Basin Make-up Water, if any, that is needed to offset deficiencies in the recharge supply to the San Bernardino Groundwater Basin. Tables 4, 4A, 4B and 4C in Appendix B follow the formula presented in the Judgment for calculating the credit or deficiency in the Basin Compensation Account. The formula contained in the Judgment is:

Deficiency or Credit =

$$[(.50)\,(R_d) + (.51)\,(S_d) + (.50)\,(P_d)] - [(.50)\,(R_m) + (.51)\,(S_m)]$$

wherein:

R_d = Releases actually made under District Operation.

S_d = Spills which actually occurred under District Operation.

P_d = In lieu water purchased by District from San Bernardino Valley MWD or the Management Committee of the Mill Creek Exchange and delivered under District Operation to Mutual for service area requirements.

R_m = Releases which would have been made under a Mutual Operation.

S_m = Spills which would have occurred under a Mutual Operation.

The first three terms in the equation represent the recharge that occurs under Big Bear MWD's lake operation. These are referred to as the "Big Bear's Basin Additions" in Table 4. Table 4.A shows the details of the calculations for these three terms.

The last two terms in the equation represent the recharge that would have occurred if Mutual had owned and operated the lake and met its supplemental water needs from lake releases. Collectively these terms are referred to as "Mutual's Basin Additions" in Table 4. Table 4.B shows the detailed calculations for these two terms.

The fish releases that Mutual used in 2006 (467 acre-feet) were included in both the releases made under District Operation (R_d) and the releases made under a Mutual Operation (R_m). The amount of fish releases that Mutual was not able to use (434 acre-feet) was treated as a spill under a District Operation (S_d) and 221 acre-feet was credited as a Big Bear Basin Addition. The portion that was allocated to Mutual (326 acre-feet) was treated as a spill under a Mutual Operation (S_m) and 167 acre-feet was credited as a Mutual Addition. The differences in these basin additions resulted in an increase in the Basin Compensation Account of 55 acre-feet.

The monthly net credit or deficiency in recharge to the San Bernardino Basin is shown in Column 5 of Table 4. These calculations are in accordance with the formula in the Judgment.

The Judgment also requires Big Bear MWD to make-up for deficiencies in recharge that would occur as a result of their lake operations. Column 7 of Table 4 shows the amount of water recharged by Big Bear MWD in the San Bernardino Basin to correct (or prevent) deficiencies in recharge. Table 4.C presents details of the sources of water used to replenish the Basin Compensation Account.

Table 4 of Appendix B presents the status of the Basin Compensation Account for 2006. The account balance began the year with a balance of 24,029 acre-feet and ended the year with 24,084 acre-feet. There was a 55 acre-feet increase in the Basin Compensation Account in 2006.

V. OTHER WATERMASTER ACTIVITIES

IMPACTS OF SEVEN OAKS DAM

Previous Activities

Construction of Seven Oaks Dam by the U.S. Army Corps of Engineers (Corps) has been underway since 1990. The construction contract for the 550-foot high dam embankment was issued in 1994 and was completed in December 1998. Various clean up and other miscellaneous contracts were completed in late 1999.

The plunge pool by-pass pipeline, which routes low flows through the dam, around the plunge pool and back to the river channel was completed in 2001. The low flows will be diverted for beneficial use by either Mutual through its "River Pick-up" or by SBVWCD at its main river diversion.

Subsequent to authorizing the project and beginning construction, the U.S. Fish and Wildlife Service (Service) listed the Slender Horned Spine Flower and the San Bernardino Merriam's kangaroo rat as endangered species. This action generated new official biological mitigation consultations with the Service, as required by Section 7 of the Federal Endangered Species Act. A biological assessment by the Corps was expected to be presented to the Service in April 2000 and a biological opinion by the Service was to be returned by the end of the year 2000.

There are two features of Seven Oaks Dam that could affect future Watermaster activities. The first is that Seven Oaks Dam will prevent natural, subsurface flow of groundwater from leaving the Santa Ana River Canyon and will cause all groundwater coming from upstream of the dam to rise to the surface. This subsurface flow will then pass through the dam outlet structure. The plunge pool by-pass line will help to overcome the loss of these subsurface flows.

The second feature is related to impounding storm flows behind the dam. The San Bernardino Valley MWD and Western Municipal Water District of Riverside County provided funding to the Corps for a water conservation study, which began in November 1993, and, if approved, will authorize Seven Oaks Dam to be a dual use structure for flood control and water conservation (see discussion below). The Corps issued a Draft Environmental Impact Statement (DEIS) and responded to comments; however, the Corps has yet to publish a Final EIS and Record of Decision. The Corps and Service will not initiate Section 7 consultations on mitigation

requirements for the water conservation aspect of Seven Oaks Dam until after the biological mitigation issues related to operating the dam as a flood control project are resolved. Then, the Corps will publish the Final EIS and Record of Decision.

In 1995, the San Bernardino Valley MWD and Western Municipal Water District of Riverside County filed a petition to revise the Declaration that the Santa Ana River Stream System is Fully Appropriated and an application to Appropriate Water By Permit with the State Water Resources Control Board. The petition and application, if approved, would give the two local agencies the right to impound water behind Seven Oaks Dam, subject to the operational directions of the dam for flood control.

The possible impoundment of waters of the Santa Ana River for other than flood control raises a number of water rights issues that are yet to be resolved. Several diversion points for SBVWCD, North Fork Water Company, Mutual, and Redlands Water Company ("Below the Dam Diverters") are downstream of Seven Oaks Dam, and the operation of these historical diversion points will be altered by the dam. During 1998 and 1999, discussions between the water rights holders and the San Bernardino Valley MWD began with an attempt to understand what and how much water would be impounded at various times of the year, along with the manner in which releases of storm flows from Seven Oaks Dam would be made.

It was the intent of the "below the dam diverters" to have releases from Seven Oaks Dam approximate average annual natural flows, recognizing that flood control release flows are expected to have less silt than previous flows and may be more evenly distributed. Their request is to have the amount of water to be impounded behind Seven Oaks Dam for other than flood control determined after the combined needs have been met for (1) the water supply agencies to provide direct delivery water and (2) the integrity of the groundwater basin is stabilized by assuring groundwater levels are maintained within an appropriate operating range. These are the primary elements of discussion between the agencies. These discussions did not result in any agreement prior to the State Water Resources Control Board public hearing on the petition on December 7 and 8, 1999.

A Biological Assessment (BA) by the Corps was submitted to the Service in June 2000; however, in a November 2000 letter, the Service rejected the BA, and requested additional information, with particular emphasis on the Corps' position related to the future water conservation element that had not been addressed by the Service. It is the apparent position of the Service that the biological mitigation requirements for operating the dam as a flood control facility must be negotiated before any attempt to address the biological impacts of the water conservation element of Seven Oaks Dam.

On September 21, 2000, the State Water Resources Control Board (SWRCB) adopted Order WR2000-12 to allow for processing the application filed by the San Bernardino Valley MWD and Western Municipal Water District of Riverside County. SWRCB Order WR2000-12 also allowed for processing a water right application filed by Orange County Water District. The Chino Basin Water Conservation District filed a petition requesting the SWRCB to reconsider its decision, but in November 2000 the State Board denied the petition and upheld its September order. This decision meant that the applications for appropriation of the right to use water that will be impounded behind Seven Oaks Dam could be processed.

2001 Activities

The U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service continued meeting during 2001, but most of their discussions were focused on flood control issues at Prado Dam. Neither the flood control nor biological issues related to Seven Oaks Dam had been resolved.

On March 21, 2001, the water rights application (AO31165) filed by San Bernardino Valley MWD and Western Municipal Water District of Riverside County was accepted for processing by the State Water Resources Control Board. On April 20, 2001, the water rights application (31174) filed by Orange County Water District was accepted.

In May and June 2001, respectively, the San Bernardino Valley MWD filed a second application, and the San Bernardino Valley Water Conservation District (SBVWCD) filed an application for the right to use Santa Ana River water that would initially be impounded behind Seven Oaks Dam, then released for downstream use. As with the prior applications, accompanying each of the new applications was a petition requesting the fully appropriated steam designation for the Santa Ana River be overturned. Combined with the petition and application received in September 2000 from the Chino Basin Watermaster, there were three additional petitions pending. The State Board indicated a preference to hold hearings on all of the water rights applications together.

2002 Activities

On January 11, 2002, the SWRCB noticed the water rights applications filed by San Bernardino Valley MWD - Western Municipal Water District of Riverside County and Orange County Water District (Applications 31165 and 31174, respectively), which triggered a 60-day protest period. However, on March 4 the SWRCB extended the protest period until a hearing was conducted on additional filings for water rights and accompanying petitions to revise the fully appropriated stream designation for the Santa Ana River.

On March 19, 2002, a Pre-Hearing Conference and Public Hearing was noticed for the water rights applications filed by the Chino Basin Watermaster, San Bernardino Valley MWD - Western Municipal Water District of Riverside County (second application), San Bernardino Valley Water Conservation District, and the City of Riverside. During the Pre-Hearing Conference on April 16, 2002, all parties agreed to accept the evidence, which resulted in Order WR 2000-12 revising the fully appropriated stream designation for the Santa Ana River, as evidence that they would have presented again in their petitions. Consequently, the SWRCB adopted WR 2002-6 during its Public Hearing on July 2, 2002. Following the hearing on July 2, the protest period for Applications 31165 and 31174 was closed on July 17. Several protests were submitted and responses provided, but no further action occurred.

Also on July 2, 2002, the SWRCB staff notified all parties (all 6 applications) by letter that it was the SWRCB's intent to process all the applications in a similar time frame and requested each party to provide a schedule for completing its environmental documents for its respective application. A hearing on all the applications will be scheduled when the environmental analyses are completed.

The Corps and Service continued meeting during 2002. On December 19, 2002, a Biological Opinion outlining the mitigation requirements for Seven Oaks Dam was finalized and accepted. Various agencies in the San Bernardino Valley were given an opportunity to review the final draft and submit comments before it was finalized. With the Biological Opinion finalized, the Corps could complete any required environmental analyses for operating Seven Oaks Dam as a flood control facility. When that work is completed, the issue of a conservation pool of water

detained behind Seven Oaks Dam can be reviewed, and any needed biological consultations can be initiated. The impacts that a conservation pool may have on water rights remain unknown.

2003 Activities

In 2003 the Corps and the Local Sponsors, (San Bernardino and Orange County Flood Control Districts) continued to operate the dam under the Interim Water Control Plan. When a storm event occurred, the gates were closed until the water behind the dam stabilized, at which time large volumes of water were released until the water level behind the dam reached the dead pool elevation. There were four events when large amounts of water were accumulated and released from the dam, one in February, two in March and one in April. All but 616 acre-feet of Santa Ana River water was diverted for beneficial use by Bear Valley Mutual Water Company and SBVWCD in 2003. The Corp and the Local Sponsors continued to operate the dam under the Interim Water Control Plan until December 30th, at which time they adopted the final plan and began to develop a debris pool. The dam will be operated in 2004 under the Water Control Manual for the Seven Oaks Dam & Reservoir.

The dam has been in operation for several years, and the Watermaster has identified an issue with regards to the river flow data collection. All of the USGS gages are located downstream of the dam. The dam prevents the gages from recording the actual stream flow during a storm event. The Watermaster Committee has found it important enough to investigate the location of a stream flow gage upstream of the dam. This location will allow the Watermaster to correlate precipitation data with stream flow data and to estimate inflow to the reservoir. The gages downstream of the dam will provide the amount of water released from the dam. Watermaster Committee members have conducted a field trip to locate a gage upstream of the inundation pool and have initiated discussion with the USGS and the Corps for assistance.

The review of the water rights applications proceeded in 2003. As of the end of 2003, a hearing date had not been set and no environmental documents had been distributed for review. Parties continue to negotiate to find common ground and interest.

2004 Activities

2004 started with the Army Corp of Engineers (ACOE) and the Local Sponsors releasing a base flow of approximately 3 cfs. The Water Control Manual required that during the storm season (October to May) a debris pool (water surface elevation of 2,200 feet) be formed for the purposes of protecting the intake tower from sediment intrusion. As of the beginning of May, the debris pool elevation had reached 2,180 feet and contained approximately 1,700 acre-feet of water. At this time, the ACOE began releasing water from the debris pool so they could begin their maintenance activities. As raw water was released, two water treatment plants, one owned by East Valley Water District (EVWD) and the other owned by the City of Redlands (COR), began to receive water from the debris pool. It was quickly noted that the raw water discharged from Seven Oaks Dam (SOD) was of poor quality and adversely impacted the ability of EVWD and the COR to successfully treat this water at their respective plants. This poor quality water is related to releases of water from the debris pool. If the upstream flow is diverted around the debris pool, such as when the Edison Facility is operational, there are no adverse impacts at their respective plants.

Because of this difficulty to treat water from SOD, EVWD hired a consultant, Camp Dresser & McKee, to perform a study on the treatability of the SOD discharges at their Plant 134. The report looked at two periods when water was released from SOD, May and November of 2004. The report concluded that local source water quality in November of 2004 showed significant degradation when it passed through the debris pool as compared to historical water quality. The results showed turbidity increasing from 2 NTU to between 5 to 80 NTU. Similar affects were noted with an increase in color units, iron, manganese, and TOC. All of these are indicative of poorer quality water than historical Santa Ana River water quality conditions. Limited source water quality sampling by the COR confirmed some of these adverse water quality trends during a period in May 2004 when discharges were also made from the debris pool. The water agencies impacted by the degradation of the water quality of the debris pool are meeting and working closely with the ACOE and the Local Sponsors to find a solution to the problem.

At the end of November 2004, the ACOE and the Local Sponsors completed their maintenance activities and began building the debris pool for the upcoming storm season. By the end of

December 2004, the debris pool was at a water surface elevation of 2,165 and contained approximately 900 acre-feet.

2005 Activities

The 2005 year began with abnormal rainfall. Late rains in 2004 had begun to fill the debris pool behind the dam. By the first of the year, the debris pool had reached elevation 2,165. Heavy rains in January and February more than filled the debris pool and by the end of March there was approximately 40,000 acre-feet of water stored behind the dam. The flood pool was at an elevation of approximately 2,390. In accord with operational guidelines, the Corps and local sponsors began to make releases at a rate of approximately 500 cfs. As happened in 2004, the water quality was unsuitable for surface diversion to the two local water treatment facilities. The NTU's were in excess of 400 and the water had the look of liquid milk chocolate. The Edison facilities were off line due to the storms. Surface water diverters were again faced with unusable water for domestic treatment purposes. The Conservation District initially diverted some of the degraded water for groundwater percolation but ultimately had to greatly reduce diversions due to the excessive turbidity and poor water quality.

A group was formed by the Upper Santa Ana River Water Resources Association to take another look at the water quality situation. East Valley Water District engaged the services of Camp Dresser & McKee (CDM) to prepare a detailed report addressing the problem as well as identifying potential solutions. Representatives from the Basin met with Congressman Jerry Lewis to describe the situation and seek Federal assistance to solve the problem. Congress has appropriated $1,000,000 to study the issue. By the end of 2005, CDM and the working committee from the Upper Santa Ana River Basin had completed their study. The study has been distributed to the Corps, Local Sponsors and to Congressman Lewis' office.

Because of the large body of water contained behind the SOD, the Corps decided to test the operating valves for flood releases in mid-spring. During the test period when high velocity releases were taking place, a portion of the outlet tunnel failed and the tests were terminated. For the balance of the spring, summer and fall seasons the releases from the SOD were minimal and averaged between 3 and 80 cfs, until the debris pool was emptied. The repairs to the tunnel were completed in November and it was anticipated that in early 2006, testing would again be

resumed. However, mother nature has not been very cooperative and, since March of 2005, there has been no measurable rainfall in the watershed above the SOD.

Water quality remains a priority concern. While 2005 was one of the wettest years on record, local diverters, who normally rely on the flows from the Santa Ana River for their source of treatable water for domestic purposes, had to purchase State Water Project water. The saving grace for the local water users is that Edison was able to repair all their upstream facilities by early fall. Their diversions by-pass SOD and they were able to deliver good quality water to the two local water treatment facilities. However, by the end of 2004 the debris pool was non-existent and slowly beginning to rise. Water quality again became poor.

2006 Activities

At their January 17, 2006 meeting, the Watermaster Committee received a copy of the "Seven Oaks Dam Water Impact Study" report prepared by Camp, Dresser & McKee, Inc. (CDM). This report identified the water quality and water supply impacts of Seven Oaks Dam on downstream water users, and recommended comprehensive alternatives to mitigate these impacts. Water quality impacts included longer durations and elevated levels of turbidity, total organic carbon, color, iron, manganese, algae, and taste and odor causing compounds. Water supply impacts included less supply in dry hydrologic years, reduced supplies in Fall through Winter as the Debris Pool behind the Dam is filled, and extended periods of time the SCE facilities are out of service after flood events. During these extended periods, the SCE facilities cannot be used to divert high quality Santa Ana River (and Bear Creek) water around Seven Oaks Dam.

The CDM report recommended long-term comprehensive alternatives and an interim solution. The long-term comprehensive alternatives included pretreatment of the water delivered from Seven Oaks Dam to achieve the water quality levels that existed before the Dam was constructed, and hardening of the SCE facilities so they would be more reliable and remain in-service for longer periods of time. The recommended interim solution is to purchase imported SWP water from San Bernardino Valley MWD to replace the water that could not be used because of water quality problems or that was not available due to dam operations and unavailability of SCE facilities.

At the May 16, 2006 meeting, the Watermaster Committee was advised that the ACOE was going to undertake a two-year $3.5 million study of these issues. At the October 10, 2006 meeting, the Watermaster Committee was further notified that the ACOE staff had initiated their study, and they were in the data gathering phase.

The Watermaster Committee is concerned that the current operations of Seven Oaks Dam could restrict the operations of Big Bear Dam and the in-lieu program as described in the 1977 Judgment. These restrictions could include, at a minimum, reduced releases and increased in-lieu requirements when:

- SCE facilities are out of service and the quality of water behind Seven Oaks Dam is unacceptable to Mutual.
- SCE facilities are operating at capacity and the quality of water behind Seven Oaks Dam is unacceptable to Mutual.
- SCE facilities are out of service or operating at capacity in the fall and winter months when the Debris Pool is being filled and there are no releases from Seven Oaks Dam.

In addition, any reduction in releases from the Lake would increase lake evaporation and decrease the long-term average deliveries to Mutual. These restrictions could also constrain Big Bear MWD's opportunities to beneficially use the flood control releases they would make from Big Bear Lake in the late fall and winter months.

The Watermaster Committee will continue their efforts in monitoring this important issue.

WILD AND SCENIC RIVERS ISSUE

2004 Activities

In mid-2004, the Watermaster Committee became aware of the U.S. Forest Service's Draft Land Management Plan for Southern California National Forests ("Forest Plan"). The Forest Plan proposes to designate Bear Creek from below Bear Valley Dam to its confluence with the Santa Ana River and three stretches of the Santa Ana River as "eligible" for addition to the Wild & Scenic Rivers System. Comments on the Forest Plan were due on August 11, 2004.

The Watermaster responded on August 9, 2004. The response outlined the responsibilities of the Watermaster Committee and requested a 180-day extension of the comment period to obtain, review and comment on the "Forest Plan." The Forest Plan is a large, complex document and the additional time was needed to determine what impacts the proposed action would have on the administration of the Rights and Physical Solution stipulated in the Judgment of the Superior Court.

By the end of 2004, the U.S. Forest Service had not responded to the Watermaster Committee's request.

2005 Activities

On September 20, 2005, the U.S. Forest Service issued the Revised Land and Resource Management Plans (Forest Plans) and accompanying Final Environmental Impact Statement (FEIS) and Records of Decision for the Angeles, Cleveland, Los Padres, and San Bernardino National Forests. The U.S. Forest Service selected Alternative 4a for implementation. This alternative recommends for designation a few wild and scenic rivers but none are in the San Bernardino National Forest.

The FEIS includes Appendix E, Wild and Scenic Rivers, that describes the efforts completed related to suitability for a river to be designated as a "wild and scenic river (WSR)." These efforts require determinations to be made regarding a river's eligibility, classification and suitability.

In the Santa Ana River watershed, two rivers were found "eligible" to be classified as a WSR. They are 1) 8.9 miles of Bear Creek below Bear Valley Dam, and 2) 19.8 miles of the Santa Ana River above the confluence with Bear Creek. According to Appendix E "*Eligibility is an evaluation of whether a river is free-flowing and possesses one or more outstandingly remarkable values (ORVs) including scenery, recreation, geology, fish and wildlife, history, cultural (prehistoric), or similar values.*"

If a river is found "eligible," it is to be placed into one or more of three classes: wild, scenic or recreational. In the case of the rivers in the Santa Ana Watershed, the classifications are as follows.

River	Length (miles)	Description	Classification
Bear Creek	8.9	Big Bear Dam to private land near Santa Santa Ana River	Wild
Santa Ana River	2.4	South Fork Meadows to Wilderness Boundary	Wild
	13.9	Big Meadows to Filaree Flat	Recreational
	3.5	Filaree Flat to Confluence w/Bear Creek	Scenic
	19.8		

The final step is to determine if the "eligible" rivers are "suitable" to be recommended to be part of the National Wild and Scenic River System. This determination is made through completion of "suitability studies." The FEIS stated that the suitability study phase for the eligible rivers will be initiated at a later date.

In summary, the U.S. Forest Service has found major portions of both Bear Creek and the Santa Ana River "eligible" to become designated as a "wild and scenic river" and a suitability study will be initiated at a future time.

2006 Activities

The Watermaster Committee has not received any additional information from the U.S. Forest Service related to this issue.

APPENDIX A

MINUTES OF WATERMASTER MEETINGS

Dates

January 17, 2006
February 28, 2006
May 16, 2006
October 10, 2006

BIG BEAR WATERMASTER
MINUTES OF THE MEETING OF JANUARY 17, 2006

PLACE: San Bernardino Valley Water Conservation District
1630 W. Redlands Blvd., Ste. A
Redlands, CA 92373

PRESENT:	Watermaster Committee	Representing
	Donald E. Evenson	Big Bear MWD, Chair
	Michael L. Huffstutler	Bear Valley Mutual Water
	Lawrence M. Libeu	SBV Water Conservation District
	Others	
	Sheila Hamilton	Big Bear MWD, Chair
	Bob Ludecke	Big Bear MWD
	Skip Suday	Big Bear MWD
	Tom Crowley	SBV Water Conservation District
	Walter Christensen	SBV Water Conservation District

1. WELCOME AND CALL TO ORDER

The Big Bear Watermaster (BBWM) meeting was called to order by Donald Evenson at 1:30 p.m.

2. APPROVAL OF MINUTES

The minutes from the June 7, 2005 and October 25, 2005 meeting were reviewed and corrections were noted. Minutes were approved with recommended changes.

3. LAKE AND BEAR CREEK STATUS

Sheila Hamilton reported that the Lake is 4' 2 1/2" below full. She also reported that the proposed Bear Creek Monitoring Plan was in draft form, the final for the dam repairs identified in the engineering condition assessment report is underway and the East End Dredge Project is finished. The Department of Fish and Game were set to sign off on a proposal to be submitted to the State.

Ms. Hamilton stated that the flow at Station B must be maintained at 9 cfs in January to comply with the Station A requirement of 1.2 cfs. A discussion ensued about the State Board requesting an improved method of controlling and measuring the flow in Bear Creek.

4. SANTA ANA RIVER STATUS

Tom Crowley distributed and discussed the Santa Ana River flow report. He stated that the Seven Oaks Dam (SOD) is releasing 3 cfs and is building the debris pool. Mr. Crowley stated that there have been no significant changes to the operation of the SOD. Southern California Edison had taken 4.2 cfs due to maintenance of their system. The District is diverting 24 cfs of water from Mill Creek. A discussion followed about the Seven Oaks Dam Water Impact Study being conducted by CDM.

5. MUTUAL'S PROJECT OF NEEDS

Mike Huffstutler said that he anticipated a maximum need of 3,500 acre-feet of in-lieu water, but noted that he may not use it in its entirety. He stated that Mutual has pre-purchased 250,000 of water from San Bernardino Valley Municipal Water District (Muni) if needed.

6. REVIEW ASSIGNMENTS OF 2005 ANNUAL REPORT

Mr. Evenson provided a proposed schedule for completion of the annual report: Accounts completed by 2/10/06; Draft of Report to Watermaster Committee Members by 2/24/06; Comments back to Don by 3/10/06; Complete by 3/24/06. Larry Libeu stated that he would not be in attendance at the 2/28/06 meeting. Mr. Crowley said that he would make himself available for the meeting.

7. OTHER TOPICS

a. Water Rights Application(s) Status

Larry Libeu indicated there was nothing new to report on the water rights application at this time.

b. Seven Oaks Dam Operations

This topic was previously covered.

c. Seven Oaks Dam Water Quality

A stream gauge should be placed at the confluence of Alder Creek and the Santa Ana River to gage the stream flow and water quality.

d. Status of SAR Stream Gauge

The gauge can be a part of the solution of water quality impacts and could be responsible for all flow used after big storm events up to 4,000 cfs.

e. Conservation District's MSR with LAFCO

Larry Libeu stated that the Local Agency Formation Commission LAFCO was continuing the hearing process and that the next hearing was scheduled February 15, 2006 to determine whether or not to change the Conservation District's sphere of influence as recommended by committee stakeholders.

8. DATE FOR NEXT MEETING

The next meeting was scheduled for February 28, 2006, at 1:30 p.m., at the San Bernardino Valley Water Conservation District.

9. ADJOURN

There being no further business, the meeting was adjourned at 2:20 p.m.

Donald E. Evenson Michael L. Huffstutler Lawrence M. Libeu

BIG BEAR WATERMASTER
MINUTES OF THE MEETING OF FEBRUARY 28, 2006

PLACE: San Bernardino Valley Water Conservation District
1630 W. Redlands Blvd., Ste. A
Redlands, CA 92373

PRESENT:	Watermaster Committee	Representing
	Donald E. Evenson	Big Bear MWD, Chair
	Michael L. Huffstutler	Bear Valley MWD
	Others	
	Sheila Hamilton (via conf call)	Big Bear MWD, Chair
	Tom Crowley	West Valley Water District
	Sam Fuller	SBV Municipal Water District
	Walter Christensen	SBV Water Conservation District
	Shanae Smith	SBV Water Conservation District

1. WELCOME AND CALL TO ORDER

The Big Bear Watermaster (BBWM) meeting was called to order by Donald Evenson at 1:30 p.m.

2. APPROVAL OF MINUTES

Mr. Evenson suggested reviewing the minutes from the January 17, 2006 meeting and submitting comments at a later date.

3. LAKE AND BEAR CREEK STATUS

Sheila Hamilton reported that the Lake is 3' 9" below full as a result of 9" gained overnight. Station B in Bear Creek is at approximately 5 cfs. instead of 3 cfs. There is a new policy that states that if the lake is 1ft. below full during the flood season, a minimum amount of releases will be made to maintain it at 1ft. below full. Sam Fuller inquired about the new policy and whether Big Bear Municipal Water District Board adopted the new policy. Ms. Hamilton reminded Mr. Fuller that San Bernardino Valley Municipal Water District (Muni) was being paid to implement the new policy which was already up and running.

4. SANTA ANA RIVER STATUS

Tom Crowley distributed and discussed the Santa Ana River flow report. He stated that the Seven Oaks Dam (SOD) is releasing 10 cfs and Southern

California Edison was turned out due to the storm events Santa Ana River inflow to Seven Oaks reservoir is building the debris pool. Mr. Crowley said that water being released is being diverted by the Conservation District for recharge. In Mill Creek, due to the storm, they were also turned out and approximately 200 cfs is flowing down Mill Creek. State Project water was being delivered due to the Edison system being out in Mill Creek and Santa Ana. 13cfs was delivered to the Redlands Aqueduct and 25 cfs was recharged by the Conservation District property at the Santa Ana. Seven Oaks Dam reservoir elevations is at 2182 feet and still has not reached the full debris pool elevation. Mr. Evenson inquired as to whether Mutual was taking any deliveries from Seven Oaks reservoir. Mr. Huffstutler stated that Mutual was not and that the 13.1 cfs of state water was for the Hinckley Plant. Ms. Hamilton raised the question of testing. A discussion ensued regarding the abandonment of the tests being implemented this year.

5. MUTUAL'S PROJECT OF NEEDS

Mike Huffstutler stated that there was no change in the status of his project needs, and that he planned to use in-lieu deliveries to meet up to one half of his available resources.

6. 2005 ANNUAL WATERMASTER REPORT

Don Evenson stated that the main issues of the meeting were to review the accounting issues derived from comments that were submitted regarding the annual report and modifications that were made. A summary of all lake accounts and discussion items were distributed and discussed. Mr. Evenson led a discussion on lake releases, fish releases and leakage estimates. He also stated that all feedback regarding the report should be submitted within a two week period in order to complete the report by 4/1/06.

8. DATE FOR NEXT MEETING

The next meeting was scheduled for May 16, 2006, at 1:30 p.m., at the Big Bear Municipal Water District. Lunch would be provided at 12:30 p.m.

9. ADJOURN

There being no further business, the meeting was adjourned at 2:40 p.m.

Donald E. Evenson Michael L. Huffstutler Lawrence M. Libeu

BIG BEAR WATERMASTER
MINUTES OF THE MEETING OF MAY 16, 2006

PLACE: Big Bear Municipal Water District
40524 Lakeview Drive
Big Bear Lake, CA 92315

PRESENT:	Watermaster Committee	Representing
	Donald E. Evenson	Big Bear MWD, Chair
	Michael L. Huffstutler	Bear Valley Mutual Water Co.
	Lawrence M. Libeu	SBV Water Conservation Dist.
	Others	
	Sheila Hamilton	Big Bear MWD
	Bob Ludecke	Big Bear MWD
	Vince Smith	Big Bear MWD

1. WELCOME AND CALL TO ORDER

The Big Bear Watermaster (BBWM) meeting was called to order by Donald Evenson at 1:20 p.m.

2. APPROVAL OF MINUTES

The minutes from the January 17, 2006 and February 28, 2006 were distributed. Don Evenson agreed to review and submit any corrections to the Conservation District. They will be presented for approval at the next Watermaster meeting.

3. LAKE AND BEAR CREEK STATUS

Sheila Hamilton reported that the Lake is 4" below full. The Bear Creek flow requirement at Station B is 0.55 cfs, and the District is currently releasing 0.3cfs from the Lake. The Bear Creek petition to modify Order No. 95-4 has still not been submitted as the Department of Fish and Game has not yet given their approval. Mrs. Hamilton also reported that the MWD is completing the engineering for repairs to bays 5, 6 and 8 of the Bear Valley Dam. These bays have been determined to be a seismic risk as the top fourteen feet were not infilled with concrete during the 1988 rehabilitation project. There is considerable leakage in the bays and the work is scheduled to begin in September 2006. It was originally planned to install spillway gates in these bays following the removal of the bridge and the construction of a new highway bridge by Caltrans. However, that project is not scheduled to begin until 2008 and the MWD no longer intends to install the gates. Instead, the MWD has requested that the road remain on the dam for maintenance access.

4. SANTA ANA RIVER STATUS

Mr. Libeu reported that the release from Seven Oaks Dam is currently at 68 cfs which is about 20 more cfs than is coming in, and this is resulting in a 2' drop in level each week. On July 1st the construction will begin to complete the remaining 1400' of tunnel repairs. Mr. Libeu stated that the water quality is now decent for use. He said the Conservation District is not currently spreading as target levels have been met.

5. MUTUAL'S PROJECTION OF NEEDS

Mike Huffstutler said that he still anticipates needing up to 3,500 acre-feet of in-lieu water. However, based on current river flows, it is unlikely it will be required before August or September.

7. OTHER TOPICS

a. Water Rights Application(s) Status

Larry Libeu indicated there was nothing new to report on the water rights application at this time. All paperwork has been filed and the Conservation District is still preparing comments on the EIR.

b. Seven Oaks Dam Operations

This topic was previously covered.

c. Seven Oaks Dam Water Quality

Larry Libeu stated the ACOE study is underway, with an anticipated cost of about $4 million. Of this amount, the Corps will contribute approximately $3 million and the local share will be about $1 million. The study purpose is to determine whether a problem exists and to offer potential solutions.

d. Status of SAR Stream Gauge

Mike Huffstutler stated this gauge should be included in the ACOE study project as they need to identify water quality and quantity as part of their effort.

e. Conservation District's MSR with LAFCO

Larry Libeu explained that LAFCO adopted a zero zone of influence for the Conservation District. This means that the District still has its existing boundary, but cannot annex or tax beyond that boundary.

8. DATE FOR NEXT MEETING

The next meeting was scheduled for October 10, 2006 at 1:30 p.m., at the offices of Bear Valley Mutual Water Company.

9. ADJOURN

There being no further business, the meeting was adjourned at 2:00 p.m.

Donald E. Evenson Michael L. Huffstutler Lawrence M. Libeu

BIG BEAR WATERMASTER
MINUTES OF THE MEETING OF OCTOBER 10, 2006

PLACE: Redlands Country Club
1749 Garden Street
Redlands, CA 92373

PRESENT:	Watermaster Committee	Representing
	Donald E. Evenson	Big Bear MWD, Chair
	Michael L. Huffstutler	Bear Valley Mutual Water Co.
	Lawrence M. Libeu	SBV Water Conservation Dist.
	Others	
	Sheila Hamilton	Big Bear MWD
	Bob Ludecke	Big Bear MWD
	Skip Suhay	Big Bear MWD
	Bob Hinze	Bear Valley Mutual Water Co.

1. WELCOME AND CALL TO ORDER

The Big Bear Watermaster (BBWM) meeting was called to order by Donald Evenson at 1:30 p.m.

2. APPROVAL OF MINUTES

The minutes from the January 17, 2006, February 28, 2006 and May 16, 2006 meeting were reviewed. It was moved by Michael Huffstutler and seconded by Larry Libeu to accept the minutes as presented.

3. LAKE AND BEAR CREEK STATUS

Sheila Hamilton reported that the Lake is 2'3" below full. The year to date total precipitation from 01/01/06 was 34.04", an above normal year. Bear Creek is flowing at 3 cfs and has been all summer.

Ms. Hamilton reported on the agreement with San Bernardino Valley Municipal Water District (Muni). She further stated that more than likely there will be some flood control releases this fall and winter, which will be coordinated with downstream diverters.

4. SANTA ANA RIVER STATUS

Mr. Libeu reported that the inflow above the dam was approximately 8' – 10' cfs. The outflow at Cuttle Weir was 3 cfs. Mr. Libeu stated that the water quality is good. He also stated that the Army Corp of Engineers had decided not to attempt to create a test pool this year, for their recent tunnel repairs.

5. MUTUAL'S PROJECTION OF NEEDS

6. OTHER TOPICS

a. Water Rights Application(s) Status

Larry Libeu indicated that the water rights application proceedings were still in progress and there was nothing new to report on at this time.

b. Seven Oaks Dam Operations

This topic was previously covered.

c. Seven Oaks Dam Water Quality

d. Status of SAR Stream Gauge

e. Conservation District's MSR with LAFCO

Larry Libeu explained that the LAFCO proceeding was still in progress.

7. DATE FOR NEXT MEETING

The next meeting was scheduled for January 16, 2007, at 1:30 p.m., at the San Bernardino Valley Water Conservation District.

8. ADJOURN

There being no further business, the meeting was adjourned at 2:11 p.m.

Donald E. Evenson Michael L. Huffstutler Lawrence M. Libeu

APPENDIX B

TABLE OF
ACCOUNTS OF OPERATION OF BIG BEAR LAKE

ACCOUNTS FOR
CALENDAR YEAR 2006

INPUT DATA
BIG BEAR WATERMASTER REPORT
CALENDAR YEAR
2006

Calandar Year		2006	
Mutual's Lake Account Balance on Jan.1	=	43,041	acre-feet
Basin Compensation Account Balance on Jan. 1	=	24,029	acre-feet
Account Balance for Mutual's Advances to BBMWD	=	-	acre-feet
Repayment Premium for Mutual's Advances to BBMWD	=	0%	
Recharge Factor for Lake Deliveries to Mutual	=	0.500	
Recharge Factor for Imported Water Deliveries to Mutual	=	0.500	
Recharge Factor for Lake Spills	=	0.510	
Snowmelt Return Factor	=	0.500	Jan,Feb, Mar,Apr,Nov,Dec
Snowmelt Return Factor	=	0.000	May, June,July,Aug,Sept,Oct

Monthly Evaporation Rate Calculation Factors	C1	C2	C3
January	7.09	0.42	1,200
February	6.90	0.50	1,200
March	8.36	0.74	1,200
April	8.82	0.87	1,200
May	9.73	1.02	1,200
June	9.72	1.10	1,200
July	9.90	1.13	1,200
August	9.34	1.22	1,200
September	8.36	1.25	1,200
October	7.89	1.22	1,200
November	7.01	1.07	1,200
December	6.91	0.50	1,200

Evaporation rate (feet/month) = Average air temperature x C1 x C2 / C3

INPUT DATA
BIG BEAR WATERMASTER REPORT
CALENDAR YEAR
2006
(continued)

Month	Gage* Height 1st of Month (feet)	Actual Mutual Shareholder Releases (acre-feet)	Mutual Other Releases (acre-feet)	Actual Flood Control Releases (acre-feet)	Actual Flood Spills (acre-feet)	Big Bear's Spreading Releases (acre-feet)	**Big Bear's Other Releases (acre-feet)**	Leakage (Not used, included in Fish Releases) (acre-feet)
January	67.85	-	-	-	-	-	-	-
February	67.97	-	-	-	-	-	-	-
March	68.80	-	-	-	-	-	-	-
April	69.79	-	-	-	-	-	-	-
May	71.73	-	-	-	-	-	-	-
June	71.87	-	-	-	-	-	-	-
July	71.52	-	-	-	-	-	-	-
August	71.34	-	-	-	-	-	-	-
September	70.66	-	-	-	-	-	-	-
October	70.16	-	-	-	-	-	-	-
November	69.78	-	-	-	-	-	10.31	-
December	69.49	-	-	-	-	-	-	-
	69.18							

* Gage at Bear Valley Dam

INPUT DATA
BIG BEAR WATERMASTER REPORT
CALENDAR YEAR
2006
(continued)

Month	Big Bear's Withdrawals for Snowmaking (acre-feet)	Summer Withdrawals Used for Snowmaking (acre-feet)	Big Bear's Withdrawals for Recharge (acre-feet)	Mutual Spills of Wastewater Exports (acre-feet)	In-Lieu Imported Supplies (SBVMWD) (acre-feet)	In Lieu Supplies from SBVMWD's Wells (acre-feet)	In Lieu Supplies from Mutual's Wells (acre-feet)	Other In Lieu Supplies (acre-feet)
January	299.97	-	-	-	11.80	-	-	-
February	244.06	-	-	-	-	-	-	-
March	46.73	-	-	-	-	-	-	-
April	-	-	-	-	63.20	-	-	-
May	-	-	-	-	285.50	-	-	-
June	19.21	-	-	-	66.18	-	-	-
July	11.23	-	-	-	575.38	-	-	-
August	-	-	-	-	376.82	-	-	-
September	-	-	-	-	512.31	-	-	-
October	-	-	-	-	96.50	-	-	-
November	-	-	-	-	43.83	-	-	-
December	288.62	20.60	-	-	38.80	-	-	-

INPUT DATA
BIG BEAR WATERMASTER REPORT
CALENDAR YEAR
2006
(continued)

Month	SWRCB Order 95-4 Releases & Leakage (acre-feet)	Mutual's Direct Use of Order 95-4 Releases (acre-feet)	Basin Replenishment from SBVMWD (acre-feet)	Basin Replenishment from Others (acre-feet)	2006 Net Wastewater Exports (acre-feet)	Average Air Temperature (degrees F)
January	55.63	18.51	-	-	101.79	31.21
February	51.81	1.76	-	-	102.76	36.89
March	29.62	6.76	-	-	187.85	31.60
April	46.90	8.64	-	-	253.27	42.63
May	60.44	44.79	-	-	142.77	54.47
June	101.53	13.22	-	-	104.85	60.87
July	134.32	21.64	-	-	108.73	67.35
August	120.69	120.69	-	-	101.23	63.39
September	94.30	94.30	-	-	81.63	57.83
October	81.78	81.78	-	-	79.91	48.11
November	64.71	47.39	-	-	85.06	43.77
December	59.63	7.69	-	-	111.91	35.06

SUMMARY RESULTS
CALENDAR YEAR
2006

LAKE ACCOUNTS (acre-feet)	Big Bear	Mutual	Actual
Initial Storage	17,462	43,041	60,503
Lake Inflows	0	17,564	17,564
In-Lieu Supplies to Mutual	2,070	(2,070)	0
Lake Releases (Mutual & BBMWD)	(10)	0	(10)
Releases & Leakage (SWRCB 95-4)	(108)	(794)	(901)
Net Snowmaking Withdrawals from Lake	(460)	0	(460)
Lake Spills & Flood Control Releases	0	0	0
Leakage from Dam	0	0	0
Evaporation from Lake	(1,246)	(11,175)	(12,421)
Net Wastewater Exports	(1,462)	1,462	0
Advances & Repayment of Advances	0	0	0
Ending Storage	16,247	48,027	64,274
BASIN MAKE UP ACCOUNT (acre-feet)			
Beginning Balance	n.a.	n.a.	24,029
Recharge From Deliveries of Lake Water	234	1,269	(1,035)
Recharge From Deliveries of Imported Water	1,035	n.a.	1,035
Recharge from Spills & Releases	221	167	55
Account Credit (Debit)	1,490	1,435	55
Amount Replenished	0	n.a.	0
Ending Balance			24,084

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 1
ACTUAL OPERATION OF BIG BEAR LAKE

Month	1 Gage Height 1st of Month (Input Data) (feet)	2 Volume in Storage (ac-ft)	3 Change in Storage (ac-ft)	4 Lake Surface Area (acres)	5 Spills Releases Leakage Withdrawals (see Table 1.A) (feet)	6 Estimated Lake Evaporation (see Table 1.D) (ac-ft)	7 Calc. Total Inflow (ac-ft)	8 Adjusted Lake Inflow * (ac-ft)	9 Adjusted Lake Evap * (ac-ft)	10 Adjusted Evap Rate * (feet/month)
	67.85	60,503		2,763						
January			275		206	214	695	695	214	0.077
	67.97	60,778		2,768						
February			2,371		174	296	2,840	2,840	296	0.106
	68.80	63,149		2,805						
March			2,828		53	461	3,342	3,342	461	0.163
	69.79	65,977		2,850						
April			5,648		47	789	6,484	6,484	789	0.273
	71.73	71,625		2,942						
May			293		60	1,326	1,680	1,680	1,326	0.450
	71.87	71,918		2,947						
June			(1,026)		121	1,594	689	689	1,594	0.542
	71.52	70,892		2,931						
July			(439)		146	1,838	1,545	1,545	1,838	0.628
	71.34	70,453		2,924						
August			(2,035)		121	1,750	(164)	0	1,914	0.659
	70.66	68,418		2,890						
September			(1,441)		94	1,449	103	103	1,449	0.504
	70.16	66,977		2,866						
October			(1,000)		82	1,103	185	185	1,103	0.386
	69.78	65,977		2,850						
November			(851)		75	778	2	2	778	0.274
	69.49	65,126		2,837						
December			(852)		194	286	(373)	0	658	0.233
	69.18	64,274		2,824						
TOTALS			**3,771**		**1,371**	**11,884**	**17,027**	**17,564**	**12,421**	**4.294**

* NOTE: Evaporation adjusted to eliminate negative inflow

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 1.A
ACTUAL OPERATION OF BIG BEAR LAKE
Summary Details

Month	1	2 Actual Lake Spills (Input Data) (ac-ft)	3 Actual Flood Control Releases (Input Data) (ac-ft)	4 Actual Lake Releases (see Table 1.B) (ac-ft)	5 Actual Estimated Leakage (Input Data) (ac-ft)	6 Estimated Net Lake Withdrawal (see Table 1.C) (ac-ft)	7	8	9 Total Spills Releases Leakage Withdrawals (ac-ft)
January		-	-	55.6	-	150.0			205.6
February		-	-	51.8	-	122.0			173.8
March		-	-	29.6	-	23.4			53.0
April		-	-	46.9	-	-			46.9
May		-	-	60.4	-	-			60.4
June		-	-	101.5	-	19.2			120.7
July		-	-	134.3	-	11.2			145.6
August		-	-	120.7	-	-			120.7
September		-	-	94.3	-	-			94.3
October		-	-	81.8	-	-			81.8
November		-	-	75.0	-	-			75.0
December		-	-	59.6	-	134.0			193.6
TOTALS		**-**	**-**	**911.7**	**-**	**459.8**			**1,371.5**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 1.B
ACTUAL OPERATION OF BIG BEAR LAKE
Release Details

Month	1 Mutual's Shareholder Releases (Input Data) (ac-ft)	2 Mutual's Other Releases (Input Data) (ac-ft)	3 Mutual's Total Releases (Col.1 + Col.2) (ac-ft)	4	5 Big Bear's Spreading Releases (Input Data) (ac-ft)	6 Big Bear's Other Releases (Input Data) (ac-ft)	7 Big Bear's Total Releases (Col.5 + Col.6) (ac-ft)	8 SWRCB Order NO. 95-4 Releases (Input Data) (ac-ft)	9 Total Actual Releases (Cols.5+ 7+ 8) (ac-ft)
January	-	-	-		-	-	-	55.6	55.6
February	-	-	-		-	-	-	51.8	51.8
March	-	-	-		-	-	-	29.6	29.6
April	-	-	-		-	-	-	46.9	46.9
May	-	-	-		-	-	-	60.4	60.4
June	-	-	-		-	-	-	101.5	101.5
July	-	-	-		-	-	-	134.3	134.3
August	-	-	-		-	-	-	120.7	120.7
September	-	-	-		-	-	-	94.3	94.3
October	-	-	-		-	-	-	81.8	81.8
November	-	-	-		-	10.3	10.3	64.7	75.0
December	-	-	-		-	-	-	59.6	59.6
TOTALS	**-**	**-**	**-**		**-**	**10.3**	**10.3**	**901.4**	**911.7**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 1.C
ACTUAL OPERATION OF BIG BEAR LAKE
Lake Withdrawal Details

Month	1	2 Snowmaking Withdrawals (Input Data) (ac-ft)	3 Recharge Withdrawals (Input Data) (ac-ft)	4	5 Total Lake Withdrawals (ac-ft)	6	7 Return from Snow melt @ 50.0% (ac-ft)	8	9 Estimated Net Lake Withdrawals (ac-ft)
January		300.0	-		300.0		150.0		150.0
February		244.1	-		244.1		122.0		122.0
March		46.7	-		46.7		23.4		23.4
April		-	-		-		-		-
May		-	-		-		-		-
June		19.2	-		19.2		-		19.2
July		11.2	-		11.2		-		11.2
August		-	-		-		-		-
September		-	-		-		-		-
October		-	-		-		-		-
November		-	-		-		-		-
December		288.6	-		288.6		154.6		134.0
TOTALS		**909.8**	**-**		**909.8**		**450.0**		**459.8**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 1.D
ACTUAL OPERATION OF BIG BEAR LAKE
Evaporation Details

Month	1	2	3 Lake Surface Area (acres)	4 Average Lake Area (acres)	5 Average Air Temperature (Input Data) (deg F)	6 Calculated Evaporation Rate (feet/month)	7	8	9 Estimated Lake Evaporation (ac-ft)
January			2,763	2,766	31.21	0.077			214.2
February			2,768	2,787	36.89	0.106			295.5
March			2,805	2,828	31.60	0.163			460.6
April			2,850	2,896	42.63	0.273			789.4
May			2,942	2,945	54.47	0.450			1,326.5
June			2,947	2,939	60.87	0.542			1,594.0
July			2,931	2,928	67.35	0.628			1,838.1
August			2,924	2,907	63.39	0.602			1,749.8
September			2,890	2,878	57.83	0.504			1,449.4
October			2,866	2,858	48.11	0.386			1,102.9
November			2,850	2,844	43.77	0.274			777.9
December			2,837	2,831	35.06	0.101			285.7
			2,824						
TOTALS						4.106			11,884.1

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 2
SYNTHESIZED MUTUAL OPERATION OF BIG BEAR LAKE

Month	1 Gauge Height 1st of Month (feet)	2 Mutual's Lake Account (ac-ft)	3 Change in Storage (*) (ac-ft)	4 Lake Surface Area (acres)	5 Mutual's Lake Inflow (see Table 1) (feet)	6 Mutual's Net Wastewater Export Credit (see Table 2.A) (ac-ft)	7 Mutual's Lake Evap. (see Table 2.B) (ac-ft)	8 Mutual's Snowmaking Advances to Big Bear (see Table 3) (ac-ft)	9 Mutual's Credit for Return of Advances (see Table 3) (ac-ft)	10 Mutual's Releases Leakage Spills & In-lieu Del. (see Table 2.A) (ac-ft)
	61.05	43,041		2,372						
January			556		694.8	101.8	184.2	-	-	56.7
	61.30	43,597		2,386						
February			2,649		2,840.4	102.8	256.8	-	-	37.7
	62.40	46,245		2,456						
March			3,098		3,341.6	187.9	407.7	-	-	23.5
	63.65	49,344		2,549						
April			5,926		6,484.3	253.3	711.2	-	-	100.5
	65.90	55,270		2,669						
May			277		1,679.9	142.8	1,203.5	-	-	342.4
	66.00	55,546		2,674						
June			(801)		688.7	104.9	1,446.5	-	-	147.6
	65.70	54,748		2,660						
July			(697)		1,544.6	108.7	1,666.1	-	-	684.0
	65.45	54,049		2,647						
August			(2,126)		-	101.2	1,729.3	-	-	497.5
	64.65	51,923		2,607						
September			(1,726)		102.7	81.6	1,303.8	-	-	606.6
	63.95	50,197		2,571						
October			(901)		184.7	79.9	987.2	-	-	178.3
	63.60	49,297		2,545						
November			(711)		2.0	85.1	693.7	-	-	104.2
	63.35	48,586		2,526						
December			(559)		-	111.9	585.3	-	-	85.2
	63.10	48,027		2,507						
TOTALS			**4,986**		**17,563.7**	**1,461.8**	**11,175.3**	**-**	**-**	**2,864.1**

(*) Col. 3 = Col. 5 + Col. 6 - Col. 7 - Col. 8 + Col. 9 - Col. 10

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 2.A
SYNTHESIZED MUTUAL OPERATION OF BIG BEAR LAKE
Lake Outflow Details

Month	1 Mutual's Spills & FC Releases from Table 2.C (ac-ft)	2 Mutual's Lake Releases from Table 1.B (ac-ft)	3 Mutual's Leakage from Table 2.C (ac-ft)	4 Mutual's Order No. 95-4 Releases from Table 2.C (ac-ft)	5 Big Bear's In-lieu Supply Delveries (see Table 3.B) (ac-ft)	6 Mutual's Releases Leakage Spills & In-lieu Del. (to Table 2) (ac-ft)	7	8 Net Credit for Wastewater Exports (Input Data)	9 Spilled from Mutual's Lake Acct. (Input Data) (ac-ft)	10 Net Wastewater Export Credit (to Table 2) (ac-ft)
January	-	-	-	44.9	11.8	56.7		101.8	-	101.8
February	-	-	-	37.7	-	37.7		102.8	-	102.8
March	-	-	-	23.5	-	23.5		187.9	-	187.9
April	-	-	-	37.3	63.2	100.5		253.3	-	253.3
May	-	-	-	56.9	285.5	342.4		142.8	-	142.8
June	-	-	-	81.4	66.2	147.6		104.9	-	104.9
July	-	-	-	108.7	575.4	684.0		108.7	-	108.7
August	-	-	-	120.7	376.8	497.5		101.2	-	101.2
September	-	-	-	94.3	512.3	606.6		81.6	-	81.6
October	-	-	-	81.8	96.5	178.3		79.9	-	79.9
November	-	-	-	60.3	43.8	104.2		85.1	-	85.1
December	-	-	-	46.4	38.8	85.2		111.9	-	111.9
TOTALS	**-**	**-**	**-**	**793.8**	**2,070.32**	**2,864.1**		**1,461.8**	**-**	**1,461.8**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 2.B
SYNTHESIZED MUTUAL OPERATION OF BIG BEAR LAKE
Synthesized Evaporation Calculation

Month	1 Starting Volume (ac-ft)	2 Starting Area (acres)	3 Assumed Evap (ac-ft)	4 Estimated Ending Volume (ac-ft)	5 Estimated Ending Area (acres)	6 Average Area (acres)	7 Mutuals Lake Evap. (to Table 2) (ac-ft)	8 Big Bear's Lake Evap. (to Table 3.A) (ac-ft)	9 Revised Ending Volume Estimate (ac-ft)	10
January	43,041.0	2,372.0	183.7	43,597.2	2,386.0	2,379.0	184.2	30.0	43,596.7	
February	43,596.7	2,386.0	253.1	46,249.1	2,456.0	2,421.0	256.8	38.7	46,245.3	
March	46,245.3	2,456.0	400.1	49,351.2	2,549.0	2,502.5	407.7	52.9	49,343.6	
April	49,343.6	2,549.0	694.9	55,285.9	2,669.0	2,609.0	711.2	78.2	55,269.5	
May	55,269.5	2,669.0	1,202.4	55,547.5	2,674.0	2,671.5	1,203.5	123.0	55,546.4	
June	55,546.4	2,674.0	1,450.2	54,742.1	2,660.0	2,667.0	1,446.5	147.5	54,745.8	
July	54,745.8	2,660.0	1,670.1	54,045.0	2,647.0	2,653.5	1,666.1	172.0	54,049.1	
August	54,049.1	2,647.0	1,743.1	51,909.7	2,605.0	2,626.0	1,729.3	185.0	51,923.5	
September	51,923.5	2,607.0	1,312.9	50,188.3	2,571.0	2,589.0	1,303.8	145.6	50,197.4	
October	50,197.4	2,571.0	992.2	49,291.5	2,545.0	2,558.0	987.2	115.7	49,296.5	
November	49,296.5	2,545.0	696.3	48,583.1	2,526.0	2,535.5	693.7	84.2	48,585.7	
December	48,585.7	2,526.0	587.5	48,024.8	2,507.0	2,516.5	585.3	73.1	48,027.1	
TOTALS							**11,175.3**	**1,246.0**		

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 2.C
SYNTHESIZED MUTUAL OPERATION OF BIG BEAR LAKE
Mutual's Leakage, Spills & FC Releases, and SWRCB Releases

Month	1 Total Leakage from Input Data (ac-ft)	2 Mutual's Leakage to Table 2.A (ac-ft)	3 Big Bear's Leakage to Table 3.B (ac-ft)	4 Actual Spills & FC Releases from Input Data (ac-ft)	5 Big Bear's Spills & FC Releases to Table 3.B (ac-ft)	6 Mutual's Spills & FC Releases to Table 2.A (ac-ft)	7 SWRCB Order 95-4 Releases from Input Data (ac-ft)	8 Mutual's Order 95-4 Releases from Input Data (ac-ft)	9 Mutual's Order 95-4 Releases to Table 2.A (ac-ft)	10 Big Bear's Order 95-4 Releases to Table 3.B (ac-ft)
January	-	-	-	-	-	-	55.6	18.51	44.9	10.7
February	-	-	-	-	-	-	51.8	1.76	37.7	14.1
March	-	-	-	-	-	-	29.6	6.76	23.5	6.1
April	-	-	-	-	-	-	46.9	8.64	37.3	9.6
May	-	-	-	-	-	-	60.4	44.79	56.9	3.6
June	-	-	-	-	-	-	101.5	13.22	81.4	20.1
July	-	-	-	-	-	-	134.3	21.64	108.7	25.7
August	-	-	-	-	-	-	120.7	120.69	120.7	-
September	-	-	-	-	-	-	94.3	94.30	94.3	-
October	-	-	-	-	-	-	81.8	81.78	81.8	-
November	-	-	-	-	-	-	64.7	47.39	60.3	4.4
December	-	-	-	-	-	-	59.6	7.69	46.4	13.2
TOTALS	**-**	**-**	**-**	**-**	**-**	**-**	**901.36**	**467.17**	**793.8**	**107.5**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 3
DETERMINATION OF BIG BEAR'S LAKE ACCOUNT STATUS
Lake Account and Advance Account

Month	1 Actual Lake Account (see Table 1) (ac-ft)	2 Mutual's Lake Account (see Table 2) (ac-ft)	3 Big Bear's Lake Account (calc.) (ac-ft)	4 Change in Big Bear's Lake Account (calc.) (ac-ft)	5	6 Big Bear's Advances From Mutual (calc.) (ac-ft)	7 Big Bear's Payments Against Advances (calc.) (ac-ft)	8 Big Bear's Advance Account Balance (calc.) (ac-ft)	9 Big Bear's 0% Repayment Premium (calc.) (ac-ft)	10 Mutual's Credit for Return of Advances (to Table 2) (ac-ft)
	60,503	43,041	17,462					-		
January				(280.7)		-	-		-	-
	60,778	43,597	17,181					-		
February				(277.7)		-	-		-	-
	63,149	46,245	16,904					-		
March				(270.3)		-	-		-	-
	65,977	49,344	16,633					-		
April				(278.0)		-	-		-	-
	71,625	55,270	16,355					-		
May				16.2		-	-		-	-
	71,918	55,546	16,372					-		
June				(225.5)		-	-		-	-
	70,892	54,746	16,146					-		
July				257.8		-	-		-	-
	70,453	54,049	16,404					-		
August				90.6		-	-		-	-
	68,418	51,923	16,495					-		
September				285.1		-	-		-	-
	66,977	50,197	16,780					-		
October				(99.2)		-	-		-	-
	65,977	49,297	16,680					-		
November				(140.2)		-	-		-	-
	65,126	48,586	16,540					-		
December				(293.4)		-	-		-	-
	64,274	48,027	16,247	———		———	———	-	———	———
TOTALS				(1,215.1)		-	-		-	-

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 3.A
DETERMINATION OF BIG BEAR'S LAKE ACCOUNT STATUS
Lake Inflow Details

Month	1 In-lieu Water from SBVMWD (Input Data) (ac-ft)	2 In-lieu Water from Other's Wells (Input Data) (ac-ft)	3 In-lieu Supplies from Mutual's Wells (Input Data) (ac-ft)	4	5 Other Sources of In-lieu Supplies (Input Data) (ac-ft)	6 Big Bear's In-lieu Deliveries to Mutual (calc.) (ac-ft)	7	8 Big Bear's Advances From Mutual (from Table 3) (ac-ft)	9	10 Big Bear's Total Lake Inflows (calc.) (ac-ft)
January	11.8	-	-		-	11.8		-		11.8
February	-	-	-		-	-		-		-
March	-	-	-		-	-		-		-
April	63.2	-	-		-	63.2		-		63.2
May	285.5	-	-		-	285.5		-		285.5
June	66.2	-	-		-	66.2		-		66.2
July	575.4	-	-		-	575.4		-		575.4
August	376.8	-	-		-	376.8		-		376.8
September	512.3	-	-		-	512.3		-		512.3
October	96.5	-	-		-	96.5		-		96.5
November	43.8	-	-		-	43.8		-		43.8
December	38.8	-	-		-	38.8		-		38.8
TOTALS	2,070.3	-	-		-	2,070.3		-		2,070.3

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 3.B
DETERMINATION OF BIG BEAR'S LAKE ACCOUNT STATUS
Lake Outflow Details

Month	1 Big Bear's Snowmaking Withdrawals (Input Data) (ac-ft)	2 Big Bear's Recharge Withdrawals (Input Data) (ac-ft)	3 Return Flow from Snowmelt 50.0% (Table 1.C) (ac-ft)	4 Big Bear's Net Lake Withdrawal (calc.) (ac-ft)	5 Big Bear's Payments Against Advances (see Table 3) (ac-ft)	6 Big Bear's Spills & FC Releases from Table 2.C (ac-ft)	7 Big Bear's Leakage + SWRCB Rel. from Table 2.C (ac-ft)	8 Big Bear's Lake Evaporation from Table 2.B (ac-ft)	9 Net Wastewater Export Credit (from Table 2.A) (ac-ft)	10 Big Bear's Total Lake Outflows (calc.) (ac-ft)
January	300.0	-	150.0	150.0	-	-	10.7	30.0	101.8	**292.5**
February	244.1	-	122.0	122.0	-	-	14.1	38.7	102.8	**277.7**
March	46.7	-	23.4	23.4	-	-	6.1	52.9	187.9	**270.3**
April	-	-	-	-	-	-	9.6	78.2	253.3	**341.2**
May	-	-	-	-	-	-	3.6	123.0	142.8	**269.3**
June	19.2	-	-	19.2	-	-	20.1	147.5	104.9	**291.6**
July	11.2	-	-	11.2	-	-	25.7	172.0	108.7	**317.6**
August	-	-	-	-	-	-	-	185.0	101.2	**286.2**
September	-	-	-	-	-	-	-	145.6	81.6	**227.2**
October	-	-	-	-	-	-	-	115.7	79.9	**195.7**
November	-	-	-	-	-	-	4.4	84.2	85.1	**173.7**
December	288.6	-	154.6	134.0	-	-	13.2	73.1	111.9	**332.2**
TOTALS	**909.8**	**-**	**450.0**	**459.8**	**-**	**-**	**107.5**	**1,246.0**	**1,461.8**	**3,275.1**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 4
BASIN COMPENSATION ACCOUNT

Month	1 Big Bear's Basin Additions (see Table 4.A) (ac-ft)	2	3 Mutual's Basin Additions (see Table 4.B) (ac-ft)	4	5 Net Credit (Debit) (ac-ft)	6	7 Total Basin Replenishment (see Table 4.C) (ac-ft)	8	9 Basin Comp. Account Balance (ac-ft)
									24,029
January	34.1		28.6		5.5		-		24,034
February	26.4		19.2		7.2		-		24,042
March	15.0		11.9		3.1		-		24,045
April	55.4		50.5		4.9		-		24,050
May	173.1		171.3		1.8		-		24,052
June	84.7		74.5		10.3		-		24,062
July	356.0		342.9		13.1		-		24,075
August	248.8		248.8		-		-		24,075
September	303.3		303.3		-		-		24,075
October	89.1		89.1		-		-		24,075
November	54.4		52.2		2.2		-		24,077
December	49.7		43.0		6.7		-		24,084
TOTALS	**1,490.2**		**1,435.3**		**54.8**		**0.0**		

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 4.A
BIG BEAR'S BASIN ADDITIONS

	SPILLS			LAKE RELEASES		IN LIEU SUPPLIES			
Month	1 Actual Spills & FC Releases (ac-ft)	2 Actual SWRCB 95-4 Releases (ac-ft)	3 Basin Addition @ 51.0% (ac-ft)	4 Lake Release for Mutual (ac-ft)	5 SWRCB 95-4 Releases for Mutual (ac-ft)	6 Basin Addition @ 50.0% (ac-ft)	7 Imported In Lieu Deliveries (ac-ft)	8 Basin Addition @ 50.0% (ac-ft)	9 Big Bear's Basin Additions (ac-ft)
January	-	37.1	18.9	-	18.5	9.3	11.8	5.9	34.1
February	-	50.1	25.5	-	1.8	0.9	-	-	26.4
March	-	22.9	11.7	-	6.8	3.4	-	-	15.0
April	-	38.3	19.5	-	8.6	4.3	63.2	31.6	55.4
May	-	15.7	8.0	-	44.8	22.4	285.5	142.8	173.1
June	-	88.3	45.0	-	13.2	6.6	66.2	33.1	84.7
July	-	112.7	57.5	-	21.6	10.8	575.4	287.7	356.0
August	-	-	-	-	120.7	60.3	376.8	188.4	248.8
September	-	-	-	-	94.3	47.2	512.3	256.2	303.3
October	-	-	-	-	81.8	40.9	96.5	48.3	89.1
November	-	17.3	8.8	-	47.4	23.7	43.8	21.9	54.4
December	-	51.9	26.5	-	7.7	3.8	38.8	19.4	49.7
TOTALS	**0.0**	**434.2**	**221.4**	**0.0**	**467.2**	**233.6**	**2,070.3**	**1,035.2**	**1,490.2**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 4.B
MUTUAL'S BASIN ADDITIONS

Month	SPILLS & FISH RELEASES 1 Mutual's Spills (ac-ft)	2 Mutual's SWRCB 95-4 Releases (ac-ft)	3 Basin Addition @ 51.0% (ac-ft)	LAKE RELEASES 4 Mutual's Lake Demands (ac-ft)	5 SWRCB 95-4 Releases for Mutual (ac-ft)	6 Basin Addition @ 50.0% (ac-ft)	7 Total Basin Additions (ac-ft)
January	-	26.4	13.5	11.8	18.5	15.2	28.6
February	-	35.9	18.3	-	1.8	0.9	19.2
March	-	16.7	8.5	-	6.8	3.4	11.9
April	-	28.6	14.6	63.2	8.6	35.9	50.5
May	-	12.1	6.2	285.5	44.8	165.1	171.3
June	-	68.2	34.8	66.2	13.2	39.7	74.5
July	-	87.0	44.4	575.4	21.6	298.5	342.9
August	-	-	-	376.8	120.7	248.8	248.8
September	-	-	-	512.3	94.3	303.3	303.3
October	-	-	-	96.5	81.8	89.1	89.1
November	-	12.9	6.6	43.8	47.4	45.6	52.2
December	-	38.7	19.8	38.8	7.7	23.2	43.0
TOTALS	**0.0**	**326.7**	**166.6**	**2,070.3**	**467.2**	**1,268.7**	**1,435.3**

CALENDAR YEAR
2006
BIG BEAR WATERMASTER

TABLE 4.C
BASIN REPLENISHMENTS

Month	1	2 Amount Replenished From SBVMWD (ac-ft)	3	4	5 Amount Replenished From Releases (ac-ft)	6 Amount Replenished From Others (ac-ft)	7	8 Total Amount Replenished (ac-ft)	9
January		-			-	-		-	
February		-			-	-		-	
March		-			-	-		-	
April		-			-	-		-	
May		-			-	-		-	
June		-			-	-		-	
July		-			-	-		-	
August		-			-	-		-	
September		-			-	-		-	
October		-			-	-		-	
November		-			-	-		-	
December		-			-	-		-	
		0.0			0.0	0.0		0.0	

APPENDIX C

REQUEST TO EXTEND TIME TO FILE WATERMASTER REPORT FOR WATER YEAR 2006; ORDER

WAYNE K. LEMIEUX (SBN 43501)
LEMIEUX & O'NEILL
2393 Townsgate Road, Suite 201
Westlake Village, California 91361
Telephone: 805/ 495-4770
Facsimile: 805/ 495-2787

Attorneys for Plaintiff
BIG BEAR MUNICIPAL WATER DISTRICT

SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF SAN BERNARDINO

BIG BEAR MUNICIPAL WATER DISTRICT, Plaintiff, vs. NORTH FORK WATER COMPANY, et al. Defendants.	**CASE NO.: SCV 165493** **REQUEST TO EXTEND TIME TO FILE WATERMASTER REPORT FOR WATER YEAR 2006; ORDER**

A Watermaster was established in this case pursuant to Judgment filed herein on February 7, 1977. Among other things, the Watermaster must serve on all parties and file with the Court an annual report on or before April 1st of each year. The report includes accounting for water under the physical solution and a report of all significant activity during the preceding calendar year.

The Watermaster members have not yet agreed on the contents of the report and this court has just recently issued a ruling concerning how certain water is to be accounted for in the annual report. As a result, preparation of a report by April 1, 2007, for the preceding year is not presently feasible and delay until June 1, 2007, is requested as reasonable. The interest of the parties will not be adversely affected by such a delay.

///

PROOF OF SERVICE

STATE OF CALIFORNIA,)
) ss.
COUNTY OF VENTURA)

I am employed in the County of Ventura, State of California. I am over the age of 18 and not a party to the within action. My business address is 2393 Townsgate Road, Suite 201, Westlake Village, California 91361.

On **March 28, 2007**, I served the foregoing document described as **REQUEST TO EXTEND TIME TO FILE WATERMASTER REPORT FOR WATER YEAR 2006; ORDER** on interested parties in this action be placing a true copy thereof enclosed in a sealed envelope addressed as follows:

Please see attached list.

[X] **(BY MAIL) I am "readily familiar" with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with U.S. postal service on that same day with postage thereon fully prepaid at Westlake Village, California in the ordinary course of business.**

[ ] (BY FACSIMILE) from (805) 495-2787 to (661) 327-4755

I declare under penalty of perjury under the laws of the State of California the above is true and correct.

Executed on March 28, 2007, in Westlake Village, California.

LINDA M. STIEGLER

SERVICE MAILING LIST

Bear Valley Mutual Water Company
ATTN: John Shone, Watermaster Member
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Redlands, CA 92373

Big Bear Municipal Water District
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Big Bear Lake, CA 92315

City of Redlands
ATTN: Dan McHugh, City Attorney
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