## 3. OWENS VALLEY CONDITIONS

# 3. CONDITIONS IN THE OWENS VALLEY

A summary of Owens Valley Conditions is provided in Figure 13. The winter of 2006-07 was a below-normal season for both the snowfall on the Eastern Sierra Nevada Mountains and the rainfall on the Owens valley floor. In fact, snowfall on the Eastern Sierra was one of the lowest on record. As a result, the forecasted runoff for the 2007-08 runoff year is 241,300 acre-feet or approximately 58% of normal. Similarly, precipitation on the valley floor throughout the valley was well below normal with a runoff year average of 2.5 inches compared to the long-term average of 5.9 inches (Table 13). Overall, vegetation cover in the Owens Valley is comparable to the mid-1980's baseline conditions (see Section 3.5).

### 3.1 Well ON/OFF Status

The Water Agreement has provisions linking wells to specific vegetation monitoring sites. If the available soil moisture is insufficient to meet the needs of vegetation within a monitoring site the wells linked to that site are turned off. LADWP may turn on the wells linked to a monitoring site once the available soil water at the monitoring site has recovered to the level where it can meet the estimated water requirements of the vegetation at the time that the wells were turned off. Table 11 provides a listing of April 2007 Owens monitoring site ON/OFF status, the monitoring wells associated with each monitoring site, and the pumping wells linked to each monitoring site.

Certain wells are exempt from the ON/OFF provisions of the Water Agreement because the well is in an area that can not cause an adverse impact to the nearby vegetation or because the well is a required source of water. Table 6 presents a list of the Owens Valley pumping wells that are exempt from the ON/OFF provisions of the Water Agreement.

As discussed in Section 2, the 2007-08 pumping plan is consistent with the IMP Agreement, which uses a similar but revised list of exempt wells (Table 6).

### 3.2 Wellfield Hydrographs

LADWP hydrographers monitor groundwater levels in over 700 monitoring wells throughout the Owens Valley. Groundwater levels are considered when evaluating the overall condition of the groundwater basin and are utilized for calibrating groundwater models. Hydrographs are used to observe the changes in groundwater levels over time. Figures 14a through 14f illustrate hydrographs of selected monitoring wells in Owens Valley wellfields. As shown in Figures 14a-14f, groundwater levels are generally high throughout the valley following two years of above normal runoff in the Eastern Sierra. In addition to the high volume of natural groundwater recharge, LADWP spread large volumes of water in various wellfields throughout the Owens Valley (see Section 3.8).



Wellfield	Monitoring Site	Monitoring Well	Pumping Wells	E/M Wells	ON/OFF Status
Laws	L1 L2	795T USGS 1	247, 248, 249, 398 236*, 239, 243, 244		ON ON
	L3 L4a, L4b L5**		240, 241, 242 245	376, 377 385, 386 387, 388	ON
	Exempt		236*, 354, 365, 413		na
Bishop	All wells		140, 411, 410, 371 406, 407, 408, 412		na na
Big Pine	BP1 BP2 BP3 BP4 Exempt	798T 799T 567T 800T	210, 352 220, 229, 374 222, 223, 231, 232 331 218, 219, 330, 332, 341, 352, 415	378, 379, 389 375	OFF OFF ON ON na
Taboose-Aberdeen	TA3 TA4 TA5 TA6 Exempt	505T 586T 801T 803T	106, 110, 111, 114 342, 347 349 109, 370 118		OFF OFF ON OFF na
Thibaut-Sawmill	TS1 TS2 TS3 TS4 Exempt	807T T806 454T 804T	159 155 103, 104 351, 356	382 380, 381	OFF OFF ON OFF na
Independence-Oak	IO1 IO2 Exempt	809T 548T	391, 400 63 59, 60, 61, 65, 401, 357, 384*	383, 384	OFF OFF na
Symmes-Shepherd	SS1 SS2 SS3 SS4	USGS 9G 646T 561T 811T	69, 392, 393 74, 394, 395 92, 396 75, 345	400	OFF OFF OFF OFF
	⊨xempt			402	na
Bairs-Georges	BG2 Exempt	812T	76, 343*, 348, 403 343*		OFF na
Lone Pine	Exempt Other		344, 346 416	390	na

# Table 11 -Owens Valley Monitoring Site Status (ON/OFF) as of April 2007

\*dual use

\*\* Monitoring site has not yet been located.







FIGURE 14b - Depth-To-Water Hydrographs for Selected Monitoring Wells







FIGURE 14d - Depth-To-Water Hydrographs for Selected Monitoring Wells



FIGURE 14e - Depth-To-Water Hydrographs for Selected Monitoring Wells

![](_page_9_Figure_0.jpeg)

FIGURE 14f - Depth-To-Water Hydrographs for Selected Monitoring Wells

#### 3.3 **Precipitation Record and Runoff Forecast**

The 2007-08 runoff year is forecasted to be one of the lowest on record. The snowpack on April 1 varied from 39% of normal in the Mammoth Lakes area to 3% in the Cottonwood area. The overall Eastern Sierra snowpack as of April 1, 2007 was 22% of normal (Table 12).

Valley-floor precipitation in the Owens Valley during the 2006-07 runoff year ranged from 1.41 inches at Alabama Gates to 3.49 inches at Big Pine (Table 13). The valley floor receives 5.9 inches of precipitation per year on the average.

The forecasted Owens Valley runoff for 2007-08 runoff year is 241,300 acre-feet or 58% of normal valley-wide (Table 1). Figure 15 shows how the forecasted runoff for the 2007-08 year compares to past years since 1940.

# Table 12 - Eastern Sierra Snow Survey Results April 1, 2007

MAMMOTH LAKES AREA	(Contributes 27%	of Owens River runoff)	
Course	<u>Water Content</u>	April 1 <u>Normal</u>	Percent of Normal
Mammoth Pass Mammoth Lakes Minarets 2	17.6 7.3 12.2	43.9 21.2 30.4	40% 34% 40%
Mammoth Lakes Area Averag	je: 12.4	31.8	39%
ROCK CREEK AREA (Co	ontributes 16% of Owe	ens River runoff)	
<u>Course</u>	<u>Water Content</u>	April 1 <u>Normal</u>	Percent of Normal
Rock Creek 1 Rock Creek 2 Rock Creek 3	0.0 1.1 1.4	7.5 10.7 15.6	0% 10% <u>9%</u>
Rock Creek Area Averag	je: 0.8	11.3	7%
BIG PINE AREA (Contribu	tes 32% of Owens R	iver runoff)	
<u>Course</u>	<u>Water Content</u>	April 1 <u>Normal</u>	Percent of Normal
Big Pine Creek 1 Big Pine Creek 2 Big Pine Creek 3	6.0 0.0 1.2	22.7 14.7 	26% 0% 7%
Big Pine Creek Area Averag	je: 2.4	18.6	13%
COTTONWOOD AREA	(Contributes 25% of O	wens River runoff)	
<u>Course</u>	<u>Water Content</u>	April 1 <u>Normal</u>	Percent of Normal
Cottonwood Lakes Cottonwood Lakes Trailhead*	s 1 0.0 s 2 0.8 <u>0.3</u>	12.8 14.6 13.8	0% 5% 2%
Cottonwood Area Averag	je: 0.4	13.7	3%
EASTERN SIERRA OVERALI	L SNOW PACK	(Weighted by contributi	on to Owens River runoff)
Average	<u>Water Content</u>	April 1 <u>Normal</u>	Percent of Normal
or an Snow Courses	4.3	19.8	22%

			Tinemaha		Independ.	Alabama		Cotton-	
Month	Bishop	<b>Big Pine</b>	Reservoir	LAA Intake	Yard	Gates	Lone Pine	wood	S. Haiwee
April, 2006	0.64	0.95	0.54	0.46	0.15	0.18	0.13	0.56	0.91
May	0.19	0.09	0.07	0.06	00.0	0.06	0.17	0.25	0.24
June	0.17	0.02	0.03	0.55	0.21	0.06	0.30	0.44	0.57
July	0.35	0.24	1.05	0.37	0.16	0.07	0.11	0.64	0.72
August	0.00	00.0	00.0	0.08	00.0	00.0	00.0	00.0	00.0
September	0.00	0.01	00.0	0.15	0.04	0.02	00.0	0.12	00.0
October	0.54	0.88	0.18	00.0	0.01	0.06	0.02	0.32	0.37
November	00.0	00.0	00.0	0.21	00.0	0.00	00.0	00.0	00.0
December	0.03	0.09	0.04	0.16	0.05	0.07	0.06	0.16	0.13
January, 2006	0.49	0.56	0.33	00.0	0.42	0.46	0.37	0.38	0.06
February	0.11	0.56	0.38	0.04	0.72	0.43	0.64	0.64	0.27
March	0.05	0.09	0.12	0.01	0.05	0.00	0.00	0.00	00.0
TOTAL	2.57	3.49	2.74	2.09	1.81	1.41	1.80	3.51	3.27

Table 13 - Owens Valley Precipitation during Runoff Year 2006-07

![](_page_13_Figure_0.jpeg)

#### 3.4 Owens Valley Water Supply and Use

Table 14 provides an overview of the Owens Valley water supply, in-valley uses (City Water Used in the O.V. and Other O.V. Uses and Losses), and LAA export for the actual post water agreement period (1992-2006 runoff years) as compared to the pre-project average (pre Second Los Angeles Aqueduct) and projected water supply and uses (per the Water Agreement and 1997 Memorandum of Understanding). The in-valley uses are consistent with the estimated values, with the exception of differences because of unforeseen diversions to Owens Lake and the LORP project not being fully online. The Owens Valley water supply to LAA flow is a reflection of well above normal runoff year, despite the Court Order mandated limit on pumping, reduction in diversions from Mono Basin, and releases for the LORP and Owens Lake dust mitigation measures. This information is shown on a year-by-year basis in Figures 16 and 17.

Table 15 shows different components of water use in the Owens Valley from 1985-86 to the present and also the planned water use for the 2007-08 runoff year. One component of water use, E/M water supply, is the water supply to specific projects as specified in the Water Agreement and Memorandum and Understanding. Table 16 lists a breakdown of actual water supplied to each of the E/M projects during the 2006-07 runoff year.

#### Table 14 - Owens Valley Water Supply and Uses

(Amounts in Thousands of Acre-Feet/Year)

	Pre-Project	Projected per MOU/ Agreement	Actual Post Water Agreement Averages (1992-2006)
Owens Valley Water Supply			
Runoff	310 <sup>(1)</sup>	310	316
Flowing Wells	44	15	33
Pumped Groundwater	10	110 <sup>(2)</sup>	73
Tota	364	435	422
In-Valley Uses & Losses			
City Water Used in O.V.			
Irrigated Lands <sup>(3)</sup>	62	46	47
Stockwater, Wildlife, and Rec. Uses (4)	20	23	23
Post 1985 E/M Projects <sup>(5)</sup>	0	12	10
Lower Owens River	0	40 <sup>(6)</sup>	11
Additional Mitigation (1,600 af from MOU)	0	2	0
Owens Lake <sup>(8)</sup>	0	0	<b>46</b> <sup>(7)</sup>
Sub-Tota	82	123	137
Other O.V. Uses and Losses <sup>(9)</sup>	134	122	122
Tota	216	245	259
Components of Aqueduct Export			
Owens Valley Contribution to Export	103	210	163
Long Valley Contribution to Export	149	149	144
Mono Basin Contribution to Export <sup>(10)</sup>	95	30	16 <sup>(7)</sup>
Tota	347	389	323

1. Average runoff for period 1935 to 1988 (Runoff Year)

2. Assumed based on 1991 O.V. Groundwater Pumping EIR

3. Does not include areas receiving water supplies non-tributary to the Owens River/Aqueduct (approx. 7,000 AFY).

 Includes projects such as the Billy and Twin Lakes, Farmers and Lone Pine Ponds implemented after 1970 and before 1985 when E/M projects commenced.

5. Except Lower Owens River Rewatering E/M Project

6. Assumes: 6,500 AF year-round flow to delta, 4,000 AF to habitat flows, 3,000 AF to Blackrock, 26,500 AF for other losses.

7. Represents recent years history.

8. Flow to Owens Lake (LAA releases for dust mitigation).

9. Includes uses on private lands, conveyance losses, recharge, and evaporation.

 1993 Court decision allows approximately 30,000 AFY when lake reaches elevation 6392. Prior to Court decision Mono Basin export averaged 95,000/yr.

![](_page_16_Figure_0.jpeg)

![](_page_16_Figure_1.jpeg)

![](_page_17_Figure_0.jpeg)

	All Uses	104,459	251,938	112,022	113,145	109,207	99,881	101,167	98,894	137,198	102,425	184,933	132,093	122,205	172,379	112,110	110,881	104,603	122,123	127,646	132,896	183,744	229,766	175,550	136,577
	In-Valley Uses	76,289	86,905	99,902	100,231	94,153	88,666	84,469	80,498	93,002	83,890	113,853	99,379	93,038	87,462	95,676	90,814	85,406	84,851	85,554	87,640	92,350	94,041	103,650	91,379
	Owens Lake Release																		22,983	27,049	28,981	31,643	46,300	54,000	35,159
	LORP	4,191	12,551	15,542	13,856	8,069	8,657	10,251	9,269	5,867	11,680	11,752	12,960	13,494	10,597	15,616	12,793	12,414	9,952	10,190	9,003	7,769	11,700	18,000	11,138
	Indian Res.	5,568	4,966	4,621	6,209	6,119	5,903	6,775	6,214	6,612	6,392	6,471	7,058	6,957	5,854	5,208	6,760	5,870	5,759	6,270	5,802	4,538	4,581	5,900	5,931
	Rec. & Wildlife	9,205	9,735	6,420	8,429	8,669	9,983	9,143	7,725	8,676	8,116	12,479	9,439	8,022	8,691	7,470	7,263	7,504	7,380	6,874	6,866	7,807	7,997	7,800	8,334
	Laws Spreading	4,068	20,429	0	0	0	0	0	0	10,640	0	21,083	0	4,104	31,027	0	790	230	0	0	695	24,187	16,670	0	5,823
(ACRE-FEET)	Groundwater Recharge	8,890	87,680	0	0	0	0	0	0	25,152	0	51,274	4,606	8,219	56,047	0	790	230	0	0	938	40,399	45,879	0	14,352
	E/M	109	1,610	13,818	17,102	15,261	9,242	8,301	9,088	13,443	9,132	11,162	10,989	8,114	9,075	8,836	7,989	9,401	11,442	10,926	9,915	11,587	11,525	11,450	9,979
	Ops.	13,712	72,387	7,499	6,705	8,935	5,312	9,923	12,182	12,432	12,143	13,335	21,050	13,991	23,016	11,226	12,517	13,097	8,530	8,773	9,535	14,814	38,965	12,000	15,743
	Stock Water	15,394	15,125	15,443	14,381	13,922	14,360	14,662	17,285	17,218	17,178	20,971	19,724	16,395	13,654	14,446	13,442	12,758	12,318	11,569	11,547	11,355	12,075	12,300	14,675
	Irrigation	47,390	47,884	48,679	46,463	48,232	46,424	42,112	37,131	47,798	37,784	57,489	46,267	47,013	45,445	49,308	49,327	43,329	43,759	45,995	50,309	53,832	50,744	54, 100	47,253
	Owens Valley Pumping (1000 af)	108	70	209	200	156	68	88	85	76	68	70	75	67	52	64	68	73	82	88	86	57	59	63	90
	Runoff %	103	158	89	62	63	52	64	61	106	66	154	135	124	149	89	84	83	67	81	77	136	145	58	95
	Runoff Year	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	AVG.

Table 15 - Owens Valley Water Uses for 1985-86 through 2006-07 and Planned 2007-08 Runoff Year

PUMPING 1987 TO PRESENT INCLUDES E/M PUMPING NOTES:

IN-VALLEY USES ARE THE SUM OF IRRIGATION, STOCKWATER, EM, LORP, AND RECREATION & WILDLIFE

VALUES FOR 2007-08 ARE FORECASTED OR PLANNED VALUES GROUNDWATER RECHARGE INCLUDES LAWS SPREADING

EM EXCLUDES RELEASES TO THE LORP LORP IS RECORD OF THE REWATERING EM (1986-2006) AND THE MITIGATION PROJECTS (STARTED IN DECEMBER 2006) VALUES FOR THE LORP AND OWENS LAKE RELEASE USES ARE ESTIMATED FOR 2006-2007

Project	Water Supplied
	(acie-ieei)
McNally Canals Conveyance Losses	345
McNally/Laws/Poleta Native Pasture Lands	1,241
McNally Ponds	1,491
Laws Historical Museum	99
Klondike Lake	314
Lower Owens River Rewatering	5,904
Lower Owens River Project	5,796
Independence Pasture Lands	2,785
Independence Springfield	1,850
Independence Ditch System	359
Independence Woodlot	226
Shepherd Creek Alfalfa Lands	1,206
Lone Pine Park/Richards Field	870
Lone Pine Woodlot	120
Lone Pine ∨an Norman Field	512
Lone Pine Regreening	107
Total E/M Uses	23,225

# Table 16. Water Supplied to Enhancement/Mitigation Projects During 2006-2007 Runoff Year

#### 3.5 Owens Valley Vegetation Conditions

With reference to LADWP's groundwater pumping operations, vegetation conditions within the Owens Valley are monitored using vegetation transects along with other methods. Vegetation transects are conducted per the Green Book, the technical appendix to the Water Agreement. The Green Book describes the methods and purposes of vegetation transects. As stated in the Green Book: "Vegetation transects are included within the Green Book to serve two purposes: 1) to estimate transpiration from a monitoring site, and 2) for use in determining whether vegetation has decreased or changed significantly from the previous cover." Reference points for the comparison of vegetation changes in order to determine significance include the 1984-87 vegetation inventory data.

The Green Book requires the 1984-87 vegetation inventory to be used as a baseline when determining whether vegetation cover and/or species composition has changed. The 1984-1987 inventory transects were chosen using aerial photos to aid in determining transect locations. Transects were located visually by choosing lines that appeared to cover the representative units of vegetation within the parcel being measured. Transects were generally run toward the center of the parcels in order to avoid transitional areas at parcel edges. A minimum of five transects were run on each parcel. If the vegetation cover was particularly heterogeneous, a qualitative method was employed in selecting additional transects. The transect data were checked visually and additional transects were run to lessen the degree of variability as necessary.

The Green Book advises that future transects should be performed in a similar manner as the initial inventory to determine whether vegetation has changed, but allows the technique to be modified to permit statistical comparison by randomly selected transects. In any case, the Green Book requires statistical analysis to be used to determine the statistical significance of vegetation changes from the 1984-87 inventory maps.

In 1991, ICWD began running transects annually within parcels located inside and outside wellfields. Some parcels are evaluated each year, while others are not evaluated annually. Percent cover of perennial species is calculated and compared to data collected within parcels during the baseline inventory.

Figure 18 is a series of graphs documenting Owens Valley vegetation conditions based upon vegetation transect data gathered by the ICWD within each wellfield and for the entire Owens Valley. Using the attached graphs it is possible to distinguish the trend that vegetation cover has increased valley-wide since the early 1990's. It is probably not reasonable to make year to year comparisons in vegetation cover based upon the random vegetation measurement methodologies currently employed.

![](_page_21_Figure_0.jpeg)

#### Figure 18 – Owens Valley Vegetation Condition

#### 3.6 Bishop Cone Audit

LADWP's groundwater pumping on the Bishop Cone is governed by the provisions of the Stipulation and Order filed on the 26th day of August, 1940, in Inyo County Superior Court in the case of Hillside Water Company, a corporation, et al. vs. The City of Los Angeles, a Municipal Corporation, et al., ("Hillside Decree") as well as the Water Agreement. Annual groundwater extractions from the Bishop Cone are limited to an amount not greater than the total amount of water used on Los Angeles-owned lands on the Bishop Cone during that year. Annual groundwater extractions by LADWP are limited to the total of all groundwater pumped by LADWP on the Bishop Cone, plus the amount of artesian water that flowed out of the casing of uncapped wells on the Bishop Cone, shall be the quantity of water supplied to such lands, including conveyance losses, less any return flow to the aqueduct system.

An annual audit of LADWP water uses and groundwater extractions by LADWP on the Bishop Cone is performed by the ICWD. Appendix A is a copy of the most recent audit dated July 2006. As shown in Figure 5, LADWP has historically pumped much less than allowed under the terms of the Hillside Decree. In the 2006-07 runoff year LADWP pumped approximately 5,770 acre-feet as a result of terms of the Court Order, which limited the Owens Valley pumping to 57,412 acre-feet.

### 3.7 Reinhackle Spring Monitoring

As required by the 1991 EIR, Owens Valley groundwater pumping is managed to avoid reductions in spring flows that would cause significant decreases or changes in spring associated vegetation. Additionally, groundwater pumping from wells that affect flow from Reinhackle Spring are managed so that flows from the spring are not significantly reduced compared to flows under prevailing natural conditions. Table 17 shows daily flow values for Reinhackle Spring. For the 2006-07 runoff year Reinhackle Spring had a high daily flow rate of about 3.33 cfs, a low daily flow rate of about 1.93 cfs, and average daily flow of about 2.54 cfs. A geochemistry study that included Reinhackle Spring was initiated in February 2003 and completed in December 2004. The study was conducted cooperatively by LADWP, MWH and ICWD. Three shallow testholes and one deep testhole were installed to aid in study implementation. This study analyzed water samples from Reinhackle Spring in comparison to water samples from the aqueduct, pumping wells, deep wells and shallow wells. This study concluded that the water flowing from Reinhackle Spring is similar in origin to the aqueduct and dissimilar to the deep aquifer samples and up-gradient shallow aquifer wells. An operational pumping test was started in 2005 to evaluate the effect of pumping on flow in the spring. This test was stopped because monitoring site BG2 changed to OFF status in October 2005 but will resume when this site turns back to ON status or if ICWD agrees to continue the test.

day/mo	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Annual
1	2.12	2.18	2.32	2.8	3.13	2.99	2.8	2.75	2.74	2.53	2.27	2.1	
2	2.12	2.18	2.33	2.8	3.15	3.01	2.8	2.75	2.74	2.53	2.22	2.07	
3	2.12	2.19	2.35	2.8	3.13	2.99	2.8	2.75	2.74	2.53	2.22	2.07	
4	2.13	2.18	2.36	2.8	3.13	3.01	2.8	2.75	2.74	2.53	2.22	2.07	
5	2.13	2.17	2.37	2.74	3.13	2.99	2.79	2.75	2.74	2.53	2.22	2.07	
6	2.12	2.17	2.37	2.69	3.15	3	2.77	2.75	2.74	2.53	2.22	2.07	
7	2.15	2.17	2.37	2.7	3.15	3.01	2.77	2.75	2.74	2.53	2.22	2.07	
8	2.17	2.17	2.38	2.72	3.16	3	2.74	2.73	2.74	2.53	2.22	2.05	
9	2.17	2.17	2.4	2.72	3.16	2.99	2.76	2.71	2.74	2.49	2.22	2.05	
10	2.17	2.17	2.43	2.74	3.08	2.99	2.75	2.74	2.74	2.43	2.22	2.03	
11	2.2	2.17	2.43	2.76	3.04	2.96	2.76	2.74	2.71	2.43	2.22	2.03	
12	2.21	2.17	2.43	2.8	3.04	2.96	2.75	2.74	2.67	2.43	2.22	2.05	
13	2.21	2.17	2.46	2.8	3.02	2.87	2.75	2.74	2.65	2.43	2.16	2.04	
14	2.22	2.17	2.48	2.8	3.01	2.8	2.75	2.74	2.65	2.4	2.12	1.99	
15	2.22	2.19	2.48	2.85	3.01	2.79	2.75	2.74	2.65	2.37	2.12	1.93	
16	2.23	2.22	2.48	2.85	3.01	2.76	2.75	2.74	2.63	2.37	2.12	1.93	
17	2.24	2.22	2.53	2.89	3.01	2.74	2.75	2.74	2.63	2.37	2.12	1.93	
18	2.24	2.22	2.53	2.9	3.01	2.74	2.75	2.74	2.63	2.37	2.12	1.93	
19	2.24	2.24	2.55	2.9	3.01	2.74	2.75	2.74	2.63	2.37	2.13	1.93	
20	2.24	2.27	2.58	2.94	3.01	2.74	2.75	2.74	2.63	2.37	2.12	1.94	
21	2.24	2.27	2.58	2.97	3.01	2.74	2.75	2.74	2.63	2.37	2.12	1.94	
22	2.26	2.25	2.63	3.01	3.01	2.74	2.75	2.74	2.63	2.34	2.12	1.94	
23	2.27	2.23	2.64	3.01	3.03	2.74	2.75	2.75	2.61	2.33	2.12	1.95	
24	2.27	2.27	2.69	3.01	3.01	2.74	2.75	2.78	2.58	2.32	2.12	1.95	
25	2.27	2.27	2.69	3.01	3.01	2.74	2.75	2.8	2.58	2.32	2.11	1.93	
26	2.27	2.27	2.74	3.02	3.01	2.74	2.75	2.8	2.58	2.32	2.12	1.93	
27	2.27	2.27	2.78	3.07	3.01	2.74	2.75	2.8	2.57	2.32	2.12	1.93	
28	2.24	2.27	2.8	3.1	3.01	2.74	2.75	2.8	2.57	2.32	1.96	1.93	
29	2.19	2.27	2.8	3.1	3.01	2.76	2.75	2.75	2.55	2.32		1.93	
30	2.15	2.29	2.64	3.13	3.01	2.99	2.75	2.95	2.54	2.32		1.93	
31		2.17		3.33	3.12		2.98	0	2.45	2.27		1.93	
TOTAL AF	131	136	150	178	188	170	170	164	163	148	120	111	1,829
AVG CFS	2.20	2.21	2.52	2.90	3.06	2.86	2.77	2.76	2.65	2.41	2.16	1.99	2.54
Max Daily	2.27	2.29	2.80	3.33	3.16	3.01	2.98	2.95	2.74	2.53	2.27	2.10	3.33
Min Daily	2.12	2.17	2.32	2.69	3.01	2.74	2.74	2.71	2.45	2.27	1.96	1.93	1.93

Table 17 - Reinhackle Spring Flow in cfs during 2006-07 Runoff Year

#### 3.8 Water Spreading in the Owens Valley

Based on the April 1, 2006 snow survey, Owens Valley runoff for 2006-07 was forecasted to be 126 percent of normal. Typically in such a wet year, runoff from snowmelt during the spring and summer months exceeds the capacity of the Los Angeles aqueduct system (LAA). The LADWP spreads water in Laws, Big Pine, and Independence area wellfields during the months of April through August in response to high runoff or to reduce the volume of flow in the LAA during the high runoff period in a manner that provides flood control and is beneficial to groundwater recharge.

The August 2005 Court Order obligated LADWP to conduct additional water spreading in the Laws Wellfield. Section 2.B. of the Court Order stated: "During the remainder of the current 2005-06 runoff year, and each runoff year thereafter until such time as the conditions are terminated by operation of this Order, the City shall supply 16,294 acrefeet of water from it's aqueduct system, or from the tributaries thereto, for recharging groundwater levels in the Laws Wellfield."

During the 2006-07 runoff year, LADWP spread water in the Laws Wellfield for the purpose of groundwater recharge to fulfill the Court Order. Sources of this spreading were diversions from the Owens River and Fish Slough Ditch and the total volume of spreading in response to the Court Order was 16,670 acre-feet.

Table 18 summarizes the spreading activities throughout the Owens Valley and total monthly amounts of spreading.

-	)		,	
Area/Month	Laws	Big Pine	Independence	Total
Apr	2,137	620	0	2,757
May	4,355	2,478	4,234	11,067
սոր	4,453	1,908	8,947	15,308
InL	4,160	2,064	7,050	13,274
Aug	1,565	632	1,276	3,473
Sep	0	0	0	0
Oct	o	0	0	0
Nov	0	0	0	0
Dec	0	0	0	0
Jan	0	0	0	0
Feb	0	0	0	0
Mar	0	0	0	0
Total	16,670	7,702	21,507	45,879

Table 18 - Spreading Activities in the Owens Valley During 2006-07 Runoff Year

### 3.9 Owens Lake Dust Mitigation

In accordance with the Great Basin Unified Air Pollution Control District's (GBUAPCD) 2003 Owens Valley PM<sub>10</sub> Planning Area Demonstration of Attainment State Implementation Plan, LADWP has mitigated dust emissions from approximately 29.8 square miles of the Owens Lakebed. Shallow flooding, managed vegetation, and gravel dust control measures have been used to mitigate dust emissions from the lakebed. Release of water from the Los Angeles Aqueduct (LAA) to the Owens Lake started in November 2001. A total of 7,700 acre-feet of LAA water was used for dust mitigation during 2001-02 runoff year. Releases to the Owens Lake have increased steadily since then, with a total of 46,300 acre-feet release in 2006-07 runoff year. Figure 19 shows annual water released from the LAA to the Owens Lake for dust mitigation activities. The water usage for dust mitigation at Owens Lake is expected to increase to approximately 54,000 acre-feet per year as LADWP mitigates dust emissions from an additional 12.7 square miles of the lakebed by April 2010 in accordance with the 2006 Settlement Agreement between LADWP and GBUAPCD.

![](_page_27_Figure_0.jpeg)