

## **2. ANNUAL OWENS VALLEY OPERATIONS PLAN FOR Runoff Year 2005-06**

This year's pumping program is consistent with the management strategy of the Water Agreement between the County of Inyo and the City of Los Angeles dated October 18, 1991. As stated in the Water Agreement: *"The overall goal of managing the water resources within Inyo County is to avoid certain described decreases and changes in vegetation and to cause no significant effect on the environment which cannot be acceptably mitigated while providing a reliable supply of water for export to Los Angeles and for use in Inyo County."*

### **2.1 Owens Valley Runoff Estimate**

For the period of April 1, 2005 to March 31, 2006, the forecasted Owens Valley runoff is 527,200 acre-feet, or 128% of normal (Table 1). According to the well ON/OFF provisions of the Water Agreement, approximately 145,100 acre-feet of water (Table 5) are available for groundwater pumping from Owens Valley wellfields.

### **2.2 Owens Valley Groundwater Production**

The LADWP has developed a proposed 2005-2006 Annual Operations Plan based upon the goals and principles of the Water Agreement. The proposed 2005-2006 Annual Operations Plan focuses on avoiding undesirable decreases and changes in vegetation while providing a reliable supply of water for export to Los Angeles and for use in Inyo County. This year due to operation requirements of the LAA, during the first three month (April, May, and June) LADWP will be spreading water in the Laws, Big Pine, and alluvial fan near Independence wellfield.

LADWP's planned pumping under the terms of the Inyo County/LADWP Water Agreement is similar to the long-term average pumping from Owens Valley Since 1971. Figure 1 shows Owens Valley Groundwater Pumping from 1971-72 to the proposed pumping for the 2005-06 runoff year. In considering the ON/OFF protocols of the Water Agreement which provide for approximately 145,100 acre-feet of groundwater available for pumping this year, and the current condition of water-dependent resources in the Owens Valley, LADWP is considering Owens Valley pumping for the 2005-2006 runoff year of approximately 95,000 acre-feet.

Planned pumping may be increased to provide freeze protection for the Los Angeles Aqueduct.

The attached tables provide detailed information on pumping and uses.

Consistent with the goals of the Water Agreement, pumping in all areas is within the allowable limits and consistent with the groundwater mining provisions of the Green Book (Table 2).

Table 3 details planned pumping for the 2005-2006 runoff year on a month-to-month basis for each wellfield. Pumping for town domestic use is included in that distribution.

**Table 1**

**2005 RUNOFF FORECAST**  
**April 1, 2005**

**APRIL THROUGH SEPTEMBER RUNOFF**

	<u>MOST PROBABLE VALUE (Acre-feet)</u>	<u>(% of Avg.)</u>	<u>REASONABLE MAXIMUM (% of Avg.)</u>	<u>REASONABLE MINIMUM (% of Avg.)</u>	<u>LONG-TERM MEAN (1951 - 2000) (Acre-feet)</u>
<b>MONO BASIN:</b>	142,300	136%	149%	124%	104,277
<b>OWENS VALLEY:</b>	407,600	134%	147%	121%	305,167

**APRIL THROUGH MARCH RUNOFF**

	<u>MOST PROBABLE VALUE (Acre-feet)</u>	<u>(% of Avg.)</u>	<u>REASONABLE MAXIMUM (% of Avg.)</u>	<u>REASONABLE MINIMUM (% of Avg.)</u>	<u>LONG-TERM MEAN (1951 - 2000) (Acre-feet)</u>
<b>MONO BASIN:</b>	161,500	132%	145%	119%	122,557
<b>OWENS VALLEY:</b>	527,200	128%	140%	115%	413,210

MOST PROBABLE - That runoff which is expected if median precipitation occurs after the forecast date.

REASONABLE MAXIMUM - That runoff which is expected to occur if precipitation subsequent to the forecast is equal to the amount which is exceeded on the average once in 10 years.

REASONABLE MINIMUM - That runoff which is expected to occur if precipitation subsequent to the forecast is equal to the amount which is exceeded on the average 9 out of 10 years.







Table 4 lists the April 2005 soil water status and projected soil water for each monitoring site using the methodology described in the Green Book.

Table 5 lists monitoring sites, production wells associated with each monitoring site, available production capacity according to the ON/OFF status as described in the Water Agreement, and proposed pumping from each wellfield in the Owens Valley. Since October of 2004 sites LA1, LA2, BP3, and TS3 have changed from OFF to ON status.

The following is a discussion of the proposed pumping program listed by wellfield. Maps 1 through 5 detail LADWP's Owens Valley Wellfields. The total planned Owens Valley groundwater pumping for the 2005-2006 runoff year is 95,000 acre-feet. This number is consistent with the provisions of the Water Agreement.

#### ***Laws Wellfield (Figure 2)***

Monitoring sites L1 and L2 are in ON status. Production wells controlled by these monitoring sites have an available production capacity of 24,180 acre-feet. Wells linked to monitoring site L5 have a capacity of 9,410 acre-feet. Exempt wells within the Laws Wellfield have a capacity of 2,320 acre-feet. Total capacity in the LAWS Wellfield is 35,910 acre-feet available based on ON/OFF status. Minimum pumping in this wellfield is 6,350 acre-feet to supply the irrigated land in Laws Wellfield. As 2005-06 is forecasted to be a high runoff year and as a result operational requirements of LAA, LADWP will be spreading Owens River water in the Laws wellfield through Upper and Lower McNally canals. Depending on the amount of spreading LADWP may pump some the wells associated with Monitoring sites L1 and L2 in the second half of the year. Therefore, planned groundwater pumping from the Laws Wellfield for the 2005-2006 runoff year is 12,350 acre-feet.

#### ***Bishop Wellfield (Figure 3)***

Pumping from Bishop Wellfield is governed by the provisions of the Hillside Decree. Provisions of the Hillside Decree allow LADWP to pump an amount equal to the water use on LADWP owned land within Bishop Cone area. LADWP operations in Bishop Cone area will be in accordance with the provisions of the Hillside Decree. Total current available pumping capacity in the Bishop Wellfield is 12,000 acre-feet. The planned pumping from the Bishop Wellfield in 2005-2006 runoff year is 12,000 acre-feet.

#### ***Big Pine Wellfield (Figure 4)***

Monitoring sites BP3 and BP4 are in ON status. Production wells controlled by BP3 have an available production capacity of 4,850 acre-feet. The production well W331, controlled by monitoring site BP4, has a production capacity of 7,530 acre-feet but has high sulfide levels that make it unsuitable for pumping. Exempt wells

W218, W219, town supply and Fish Hatchery wells in the Big Pine Wellfield have a capacity of 25,490 acre-feet. A total capacity of 30,340 acre-feet is available in the Big Pine Wellfield based on ON/OFF status. During the 2005-06 runoff year a limitation of the pumping will be the mining limit as described in the Green Book. Based on the preliminary calculations shown in Table 2, the pumping limit for April through September of 2005 is 20,796 acre-feet. As 2005-06 is forecasted to be a high runoff year LADWP expects to spread water from Big Pine Canal in the Big Pine Wellfield in the first three month of the year. Required pumping from the Big Pine Wellfield includes supply to the Fish Spring Fish Hatchery and the town water system on a year-round basis. Exempt wells and wells associated with monitoring site BP3 may be operated in the second half of year. The minimum required pumping in this wellfield is 20,200 acre-feet. LADWP is planning to pump 23,020 acre-feet from Big Pine Wellfield.



<b>Table 5 - Available Pumping Capacity According to Monitoring Sites with ON Status and Proposed Pumping for Runoff Year 2005-2006</b>				
<b>Wellfield</b>	<b>Monitoring Site</b>	<b>Associated production wells</b>	<b>Available Capacity (AF)</b>	<b>Proposed Pumping (AF)</b>
<b>LAWS</b>	L1	247, 248, 249, 398	12,670	
	L2	236, 239, 243, 244	11,512	
	L5*	245, 387, 388	9,412	
	Exempt	354, 365, 413	2,317	
	<b>Wellfield Pumpage</b>		<b>35,911</b>	<b>12,350</b>
<b>Bishop</b>	All wells	140, 207, 238, 371, 406, 407, 408, 412	12,000	
	<b>Wellfield Pumpage</b>		<b>12,000</b>	<b>12,000</b>
<b>Big Pine</b>	BP3	222, 223, 231, 232	4,851	
	BP4	331	0	
	Exempt	218, 219, 330, 332, 341, 352, 415	25,486	
	<b>Wellfield Pumpage</b>		<b>30,337</b>	<b>23,020</b>
<b>Taboose</b>	TA5	349	10,570	
<b>Aberdeen</b>	Exempt	118	1,810	
	<b>Wellfield Pumpage</b>		<b>12,380</b>	<b>8,910</b>
<b>Thibaut</b>	TS3	103, 104, 382EM	2,968	
<b>Sawmill</b>	Exempt	351, 356	12,598	
	<b>Wellfield Pumpage</b>		<b>15,566</b>	<b>13,560</b>
<b>Indep. - Oak</b>	IO2	63	2,100	
	Exempt	59, 60, 61, 65, 357, 383EM, 384EM, 401	15,900	
	<b>Wellfield Pumpage</b>		<b>18,000</b>	<b>11,700</b>
<b>Symmes Shepherd</b>	SS1	69, 392, 393	7,964	
	SS4	75, 345	6,009	
	Exempt	402EM	1,230	
	<b>Wellfield Pumpage</b>		<b>15,203</b>	<b>9,030</b>
<b>Bairs</b>	BG2	348, 403	2,896	
<b>Georges</b>	Exempt	343	1,158	
	<b>Wellfield Pumpage</b>		<b>4,054</b>	<b>2,790</b>
<b>Lone Pine</b>	Exempt	344, 346, 390	1,275	
	Other	416	365	
	<b>Wellfield Pumpage</b>		<b>1,640</b>	<b>1,640</b>
	<b>Owens Valley Total</b>		<b>145,091</b>	<b>95,000</b>

Figure 2

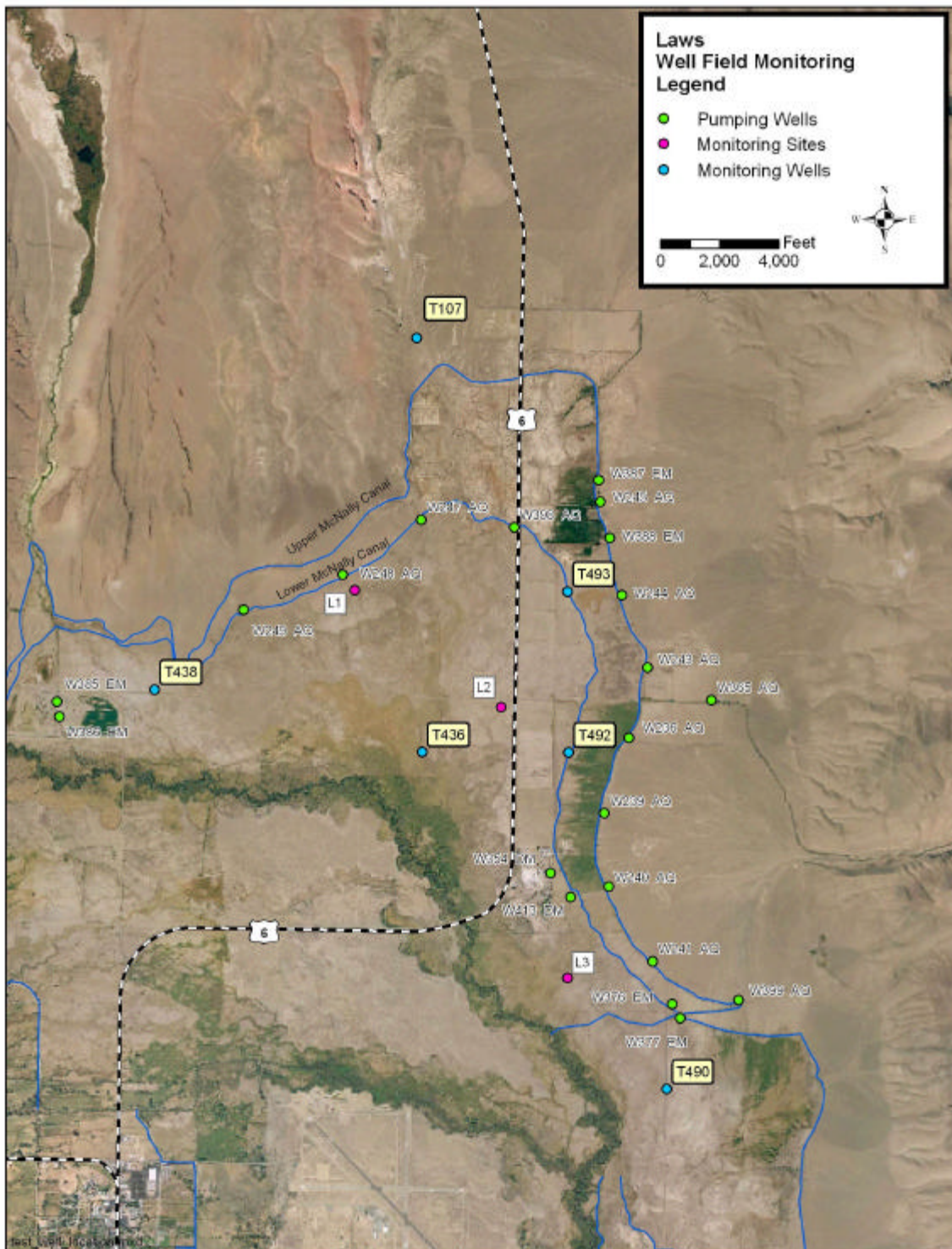
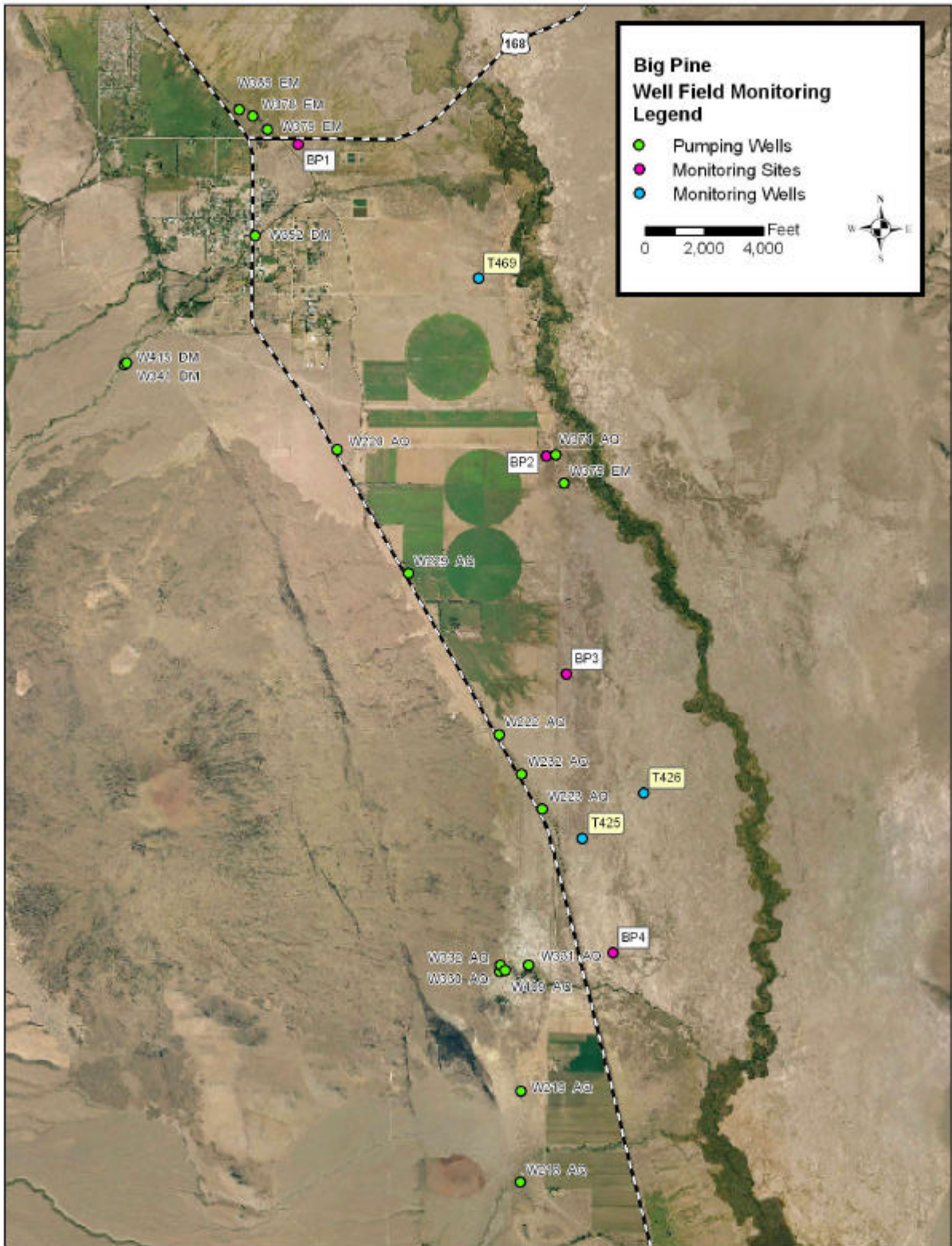


Figure 3



Figure 4



**Taboose-Aberdeen Wellfield (Figure 5)**

Monitoring site TA5 is in ON status. The production well, W349, controlled by this monitoring site has an available production capacity of about 10,570 acre-feet. Exempt Well 118 in the Taboose-Aberdeen Wellfield has a capacity of 1,810 acre-feet. A total capacity of 12,380 acre-feet is available in the Taboose-Aberdeen Wellfield based on the ON/OFF status. During the first three month of year well 349 is going to be on a timer to maintain water level in a pond adjacent to the well. LADWP pumping during 2005-2006 runoff year in Taboose-Aberdeen Wellfield is planned to be 8,910 acre-feet.

***Thibaut-Sawmill Wellfield (Figure 6)***

Monitoring site TS3 is in ON status. Production wells controlled by this monitoring site have an available production capacity of 2,970 acre-feet. Exempt Wells 351 and 356 supplying Black rock Fish Hatchery have a capacity of 13,000 acre-feet and 8,110 acre-feet respectively. A total capacity of 15,970 acre-feet is available in Thibaut-Sawmill Wellfield based on the ON/OFF status. Minimum pumping in this wellfield is 12,600 acre-feet. Pumping in the Thibaut-Sawmill Wellfield is planned to be 13,560 acre-feet.

***Independence-Oak Wellfield (Figure 6)***

Pumping from this wellfield will include exempt wells, generally for E/M projects and the town water supply. Vegetation monitoring site IO2 has ON status with a total capacity of 2,100 acre-feet. Total available capacity in Independence-Oak Wellfield is 18,000 acre-feet. Minimum pumping in this wellfield is 6,300 acre-feet. Pumping during the 2005-2006 runoff year in the Independence-Oak Wellfield is planned to be 11,700 acre-feet.

***Symmes-Shepherd Wellfield (Figure 7)***

Sites SS1 and SS4 are in ON status. Production wells controlled by these monitoring sites have an available production capacity of 13,970 acre-feet. Exempt Well 402 in the Symmes-Shepherd Wellfield has an available capacity of 1,230 acre-feet. A total of 15,200 acre-feet is available in the Symmes-Shepherd Wellfield based on the ON/OFF status. Minimum required pumping in this wellfield is 1,200 acre-feet. Symmes-Shepherd Wellfield pumping is planned to be 9,030 acre-feet.

***Bairs-Georges Wellfield (Figure 7)***

Monitoring site BG2 is in ON status. Production wells controlled by this monitoring site have an available production capacity of 2,900 acre-feet. Exempt Well 343 has a capacity of 1,158 acre-feet. A total capacity of 4,050 acre-feet is available in the Bairs-Georges Wellfield based on the ON/OFF status. LADWP is currently performing an operational test related to Reinhackle Spring. This operational testing is expected to continue in 2005-2006 runoff year. Pumping in the Bairs-Georges Wellfield is planned to be 2,790 acre-feet.

***Lone Pine Wellfield (Figure 8)***

Available pumping capacity in the Lone Pine Wellfield is 1,275 acre-feet, excluding the newly drilled W416. As outlined in the Green Book, LADWP is planning to operate Well 416 for one (1) month as part of the initial operation phase in the process of activating this well, pumping approximately 325 acre-feet. Minimum required pumping in this wellfield is 1,275 acre-feet. Pumping in the Lone Pine Wellfield for the 2005-2006 runoff year is planned to be 1,640 acre-feet.

Figure 5

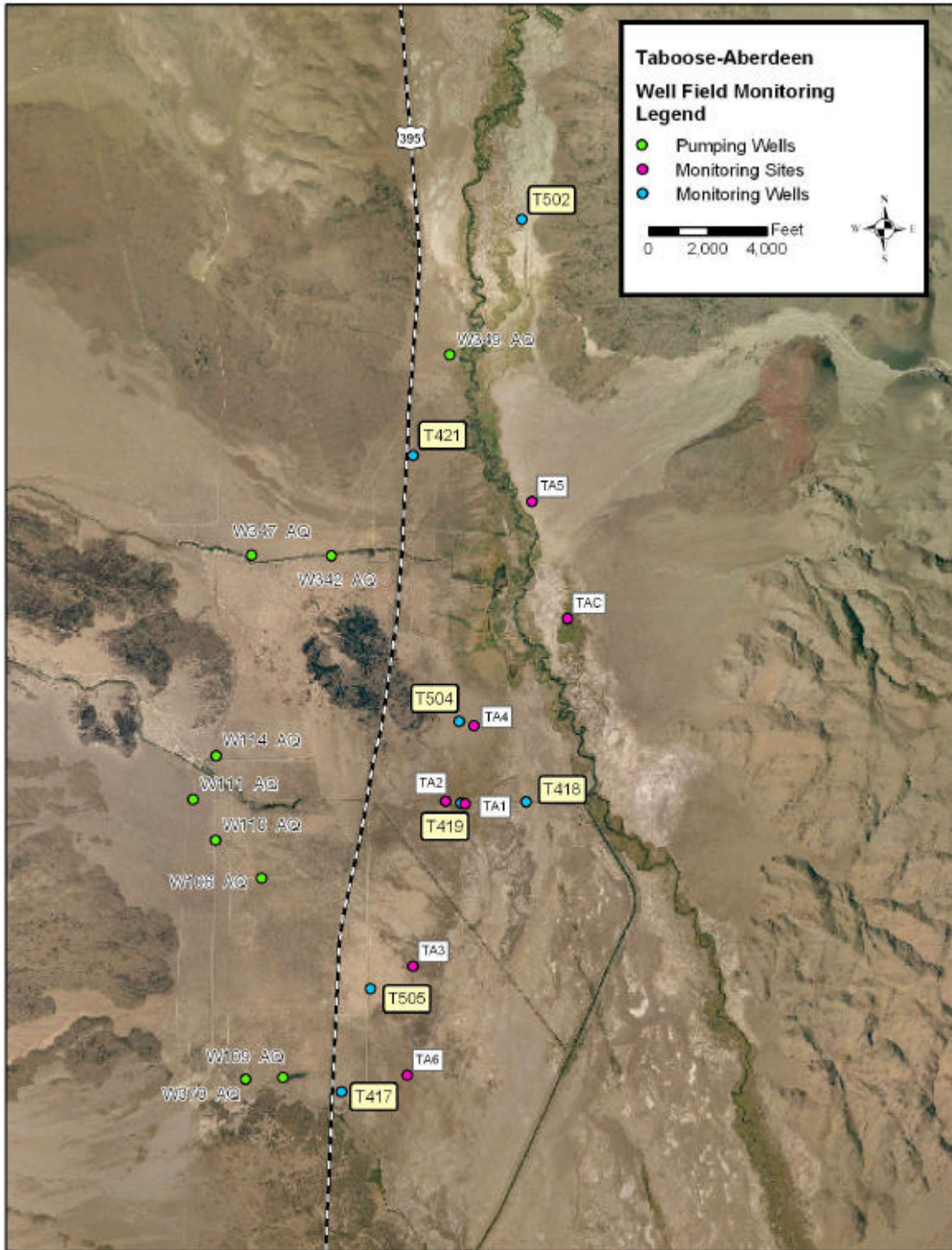


Figure 6

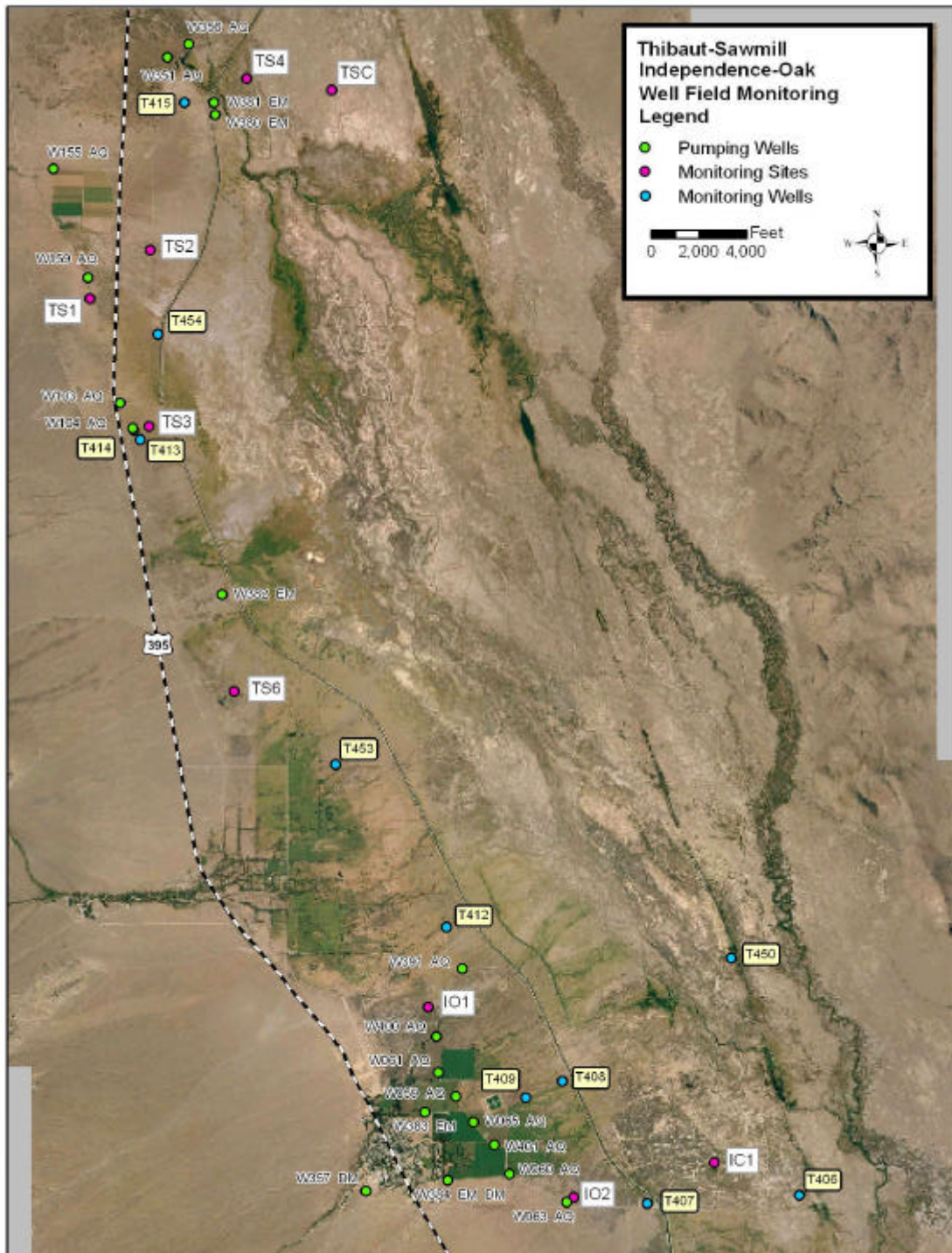


Figure 7

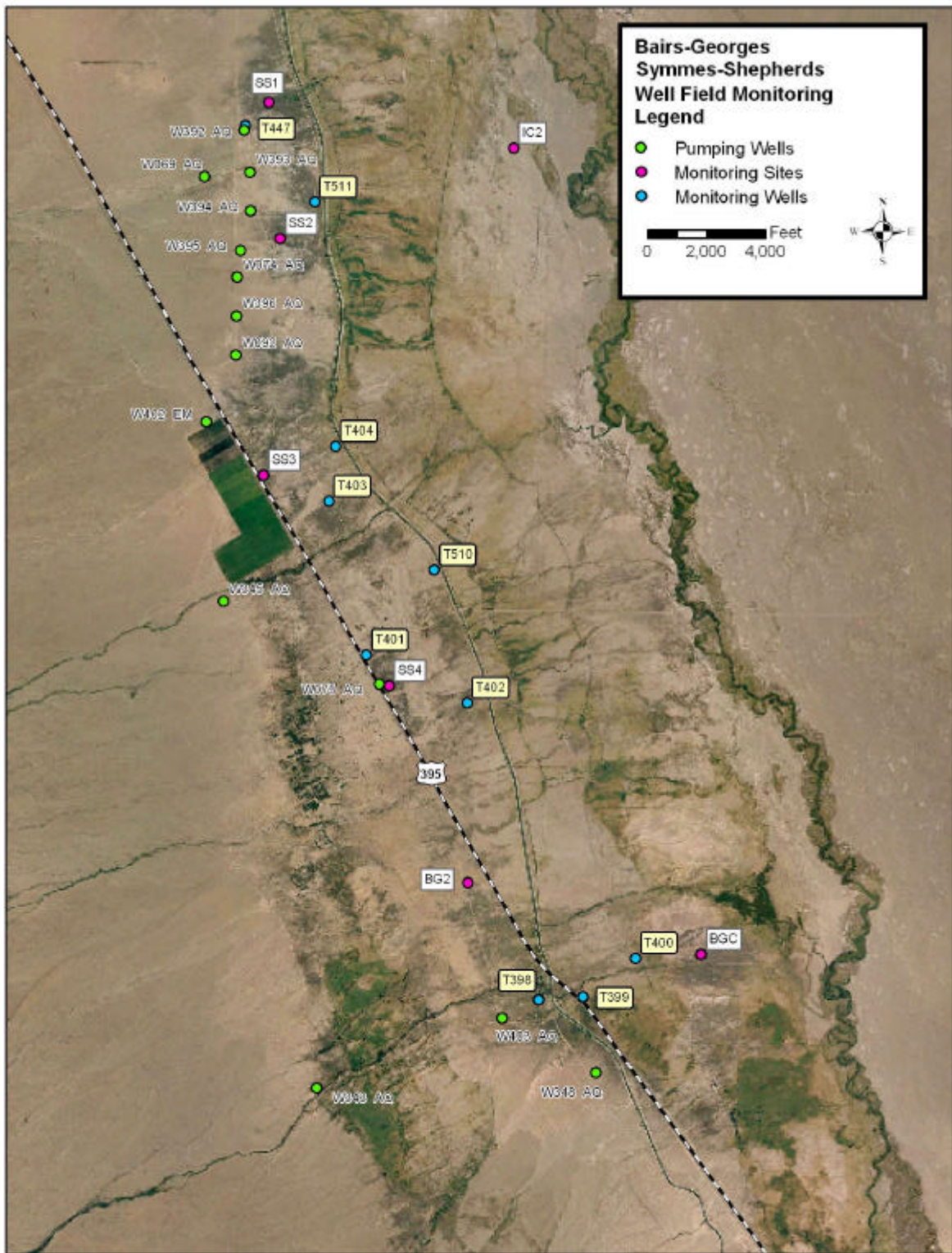
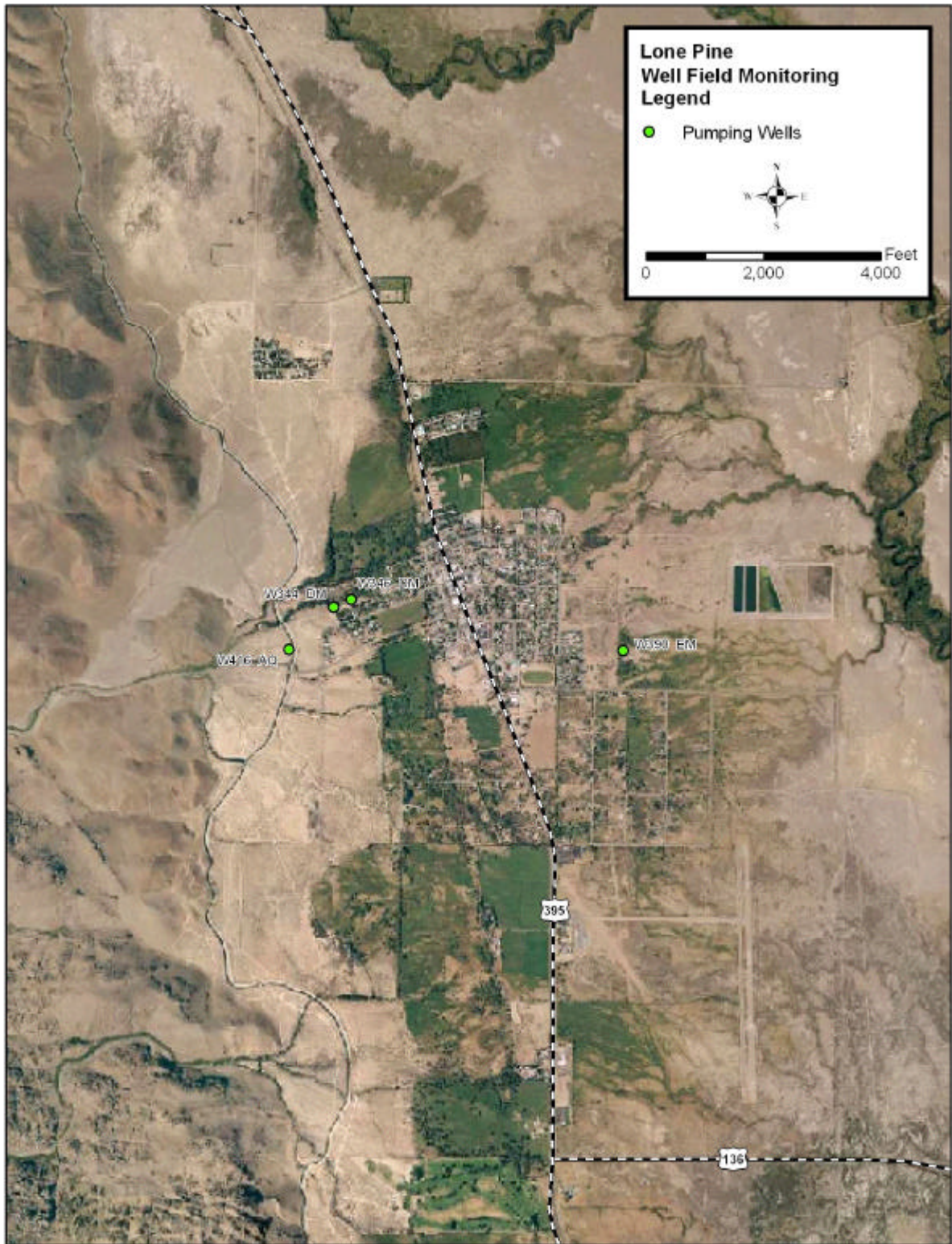


Figure 8



### **2.3 In Valley Uses (Including Enhancement/Mitigation Projects)**

Similar to runoff years 1996-1997 through 2004-2005, full allotments will be available for most in-valley uses in 2005-2006. Exceptions are some E/M projects discussed below. LADWP leases will be provided with their normal allotted duty. Alfalfa and improved pasture E/M projects allotted 5 acre-feet duty will receive 5 acre-feet per acre. Native pasture E/M projects allotted 3 acre-feet duty will receive 3 acre-feet per acre. Table 6 shows the historic (1981-1982) and proposed monthly in-valley uses for 2005-2006. LADWP is currently evaluating a program to encourage water conservation on some irrigated lands leased from LADWP.

The Water Agreement provides that “... *enhancement/mitigation projects shall continue to be supplied by enhancement/mitigation wells as necessary.*” Due to monitoring sites being in soil water deficit status the amount of water supplied to E/M projects has exceeded the amount of water provided by E/M project supply wells (Table 7). Los Angeles’ commitment to pump conservatively, and the imbalance between E/M project use and pumping from E/M wells, will result in a reduction of approximately 4,500 acre-feet in E/M project supply. The scheduled supply reduction for this year to the Lower Owens River Project is 3,000 acre-feet.

To conserve water and to reduce groundwater pumping, releases to the Lower Owens River Project will be as conducted similar to past years. Releases will commence east of Independence and be augmented through additional releases at the Georges and Locust spill gates to maintain a continuous flow in the river channel.

Meeting the E/M water use in the program described above will result in a shortfall of E/M pumping of approximately 10,500 acre-feet. This shortfall will be made up by pumping Los Angeles Aqueduct supply wells and/or by providing surface water from the Los Angeles Aqueduct.

### **2.4 Aqueduct Operations**

Table 8 shows proposed Los Angeles Aqueduct first-of-month reservoir storage levels and proposed monthly Aqueduct deliveries to Los Angeles.

### **2.5 Water Exports to Los Angeles**

Figure 8 provides a record of Owens Valley and Mono Basin combined yearly exports from 1970 to the present. Figure 9 shows how the Owens Valley and Mono Basin contribution to the water supply for the City of Los Angeles water supply compares to the total supply between 1970 and present. During the 2004-2005 runoff year, approximately 30% of the water supply for the City of Los Angeles was provided by imports from the Owens Valley and Mono Basin.

### **2.6 Owens Valley Water Uses**

LADWP provides water for a number of uses within the Owens Valley including irrigation, stock water, in-valley enhancement/mitigation projects, and for the benefit of recreation and wildlife. This year LADWP predicts that it will provide 84,640 acre-feet for in-valley uses. Table 9 provides a summary of the water provided by LADWP for various uses within the valley from the 1985-1986 runoff year to the present.





<b>Table 8 - Proposed Los Angeles Aqueduct Operations</b>		
<b>2005-2006</b>		
<b>Month</b>	<b>Owens Valley Resv. Storage (1st of Month) (acre-feet)</b>	<b>Aqueduct Deliveries to LA (acre-feet)</b>
Apr	155,810	35,702
May	135,395	30,744
Jun	142,285	29,752
Jul	161,941	46,116
Aug	168,817	46,116
Sep	155,461	44,628
Oct	137,736	33,818
Nov	118,269	32,727
Dec	113,970	30,744
Jan	116,071	21,521
Feb	123,030	20,132
Mar	129,713	21,521
<b>TOTAL</b>		<b>393,521</b>







