

Los Angeles  Department of Water & Power

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October 19, 2015

Dr. Robert Harrington, Director
Inyo County Water Department
P.O. Box 337
Independence, CA 93526-0337

Dear Dr. Harrington:

Subject: Los Angeles Department of Water and Power's (LADWP) 2015 Operations Plan for the Second Six Months - October 1, 2015, through March 31, 2016

This operations plan is being provided to you as Inyo County's senior Technical Group member and in conformance with Section V.D of the *Agreement between the County of Inyo and the City of Los Angeles and its Department of Water and Power on a Long Term Groundwater Management Plan for Owens Valley and Inyo County*. The plan outlines LADWP proposed operations in the Owens Valley during the six month period from October 1, 2015, through March 31, 2016. Elements of the proposed operations plan include the 2015 Eastern Sierra Runoff Forecast, soil/vegetation water balance calculations for October 2015, Planned Owens Valley Groundwater Pumping for the Second Six Months of the 2015-16 Runoff Year (acre-feet), Historic (1981-82) and Projected (2015-16) Water Supplied by the City of Los Angeles within the Owens Valley, and Planned Los Angeles Aqueduct Operations for the 2015-16 Runoff Year. A summary of the enclosed plan is as follows:

Forecast Owens River Basin snowpack runoff during the 2015 runoff year is not revised from the April 1, 2015, forecast at 148,600 acre-feet or about 36 percent of average runoff (Table 2.1).

The following wellfield monitoring sites are in "ON" status pursuant to Water Agreement Section V and Green Book Section I.B: L2, BP4, TA5, TS2, SS1, and BG2. Water balance calculations for the wellfield monitoring sites are summarized in Table 2.2. No vegetation monitoring site that was in "ON" status on April 1, 2015, has changed to "OFF" status. No vegetation monitoring site that was in "OFF" status on April 1, 2015, has changed to "ON" status.

Total planned Owens Valley pumping between October 1, 2015 and March 31, 2016, is between 19,942 and 34,552 acre-feet. Projected groundwater production by wellfield for the second six months of the 2015 runoff year is included in Table 2.6.

Los Angeles Aqueduct Centennial Celebrating 100 Years of Water 1913-2013

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Dr. Robert Harrington

Page 2

October 19, 2015

Projected water diversions for Owens Valley uses during the 2015 runoff year are expected to be 133,389 acre-feet. Owens Valley water uses include irrigation, stockwater, enhancement/mitigation project, the Lower Owens River Project, Owens Lake, Recreation and Wildlife, and 1,600 acre foot projects. A summary of Owens Valley water uses is provided in Table 2.7.

Projected aqueduct delivery to Los Angeles during the 2015 runoff year is 21,754 acre-feet. The projected beginning-of-month reservoir storage amounts and monthly Los Angeles Aqueduct deliveries to Los Angeles are included in Table 2.9.

Please review LADWP's proposed plan of operations and provide any comments to LADWP within ten days of receipt. Please contact Mr. Eric Tillemans, Civil Engineering Associate if you have any questions regarding the plan. Mr. Tillemans may be reached at (760) 873-0256.

Sincerely,



James G. Yannotta
Manager of Aqueduct

SJ:fj

Enclosures

c: Mr. Eric Tillemans

**2015 EASTERN SIERRA
RUNOFF FORECAST
April 1, 2015**

APRIL THROUGH SEPTEMBER RUNOFF

	MOST PROBABLE VALUE		REASONABLE MAXIMUM	REASONABLE MINIMUM	LONG-TERM MEAN (1961 - 2010)
	<u>(Acre-feet)</u>	<u>(% of Avg.)</u>	<u>(% of Avg.)</u>	<u>(% of Avg.)</u>	<u>(Acre-feet)</u>
MONO BASIN:	20,200	20%	32%	7%	103,522
OWENS RIVER BASIN:	76,000	25%	38%	12%	303,903

APRIL THROUGH MARCH RUNOFF

	MOST PROBABLE VALUE		REASONABLE MAXIMUM	REASONABLE MINIMUM	LONG-TERM MEAN (1961 - 2010)
	<u>(Acre-feet)</u>	<u>(% of Avg.)</u>	<u>(% of Avg.)</u>	<u>(% of Avg.)</u>	<u>(Acre-feet)</u>
MONO BASIN:	30,400	25%	38%	12%	122,333
OWENS RIVER BASIN:	148,600	36%	49%	24%	412,284

NOTE - Owens River Basin includes Long, Round and Owens Valleys (not incl Laws Area)

- 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 2.2 Monitoring sites status and soil/vegetation water balance calculations for October 1, 2015 according to Green Book Section III

Site	July 1, 2015 Status	October, 2015 Veg. Water Req./Soil AWC for turn-on (cm)	October 2015 soil AWC (cm)	+30% annual ppt. (cm)	October 1, 2015 Status	Soil AWC req. for well turn-on (cm)
L1	OFF	3.8/15.6	1.6	NA	OFF	15.6, OFF 7-10
L2	ON	7.0/NA	7.3	7.3 + 4.7 = 12.0	ON	NA
L3	OFF	12.4/25.2	7.5	NA	OFF	25.2, OFF 10-11
BP1	OFF	2.1/22.9	0.9	NA	OFF	22.9†, OFF 10-97
BP2	OFF	4.9/28.4	1.3	NA	OFF	28.4, OFF 7-98
BP3	OFF	4.2/10.6	2.6	NA	OFF	10.6, OFF 7-12
BP4	ON	7.5/NA	35.3	35.3 + 4.9 = 40.2	ON	NA
TA3	OFF	14.2/26.0	6.3	NA	OFF	26.0, OFF 10-11
TA4	OFF	8.8/23.3	13.4	NA	OFF	23.3, OFF 10-11
TA5	ON	3.9/NA	21.4	21.4 + 4.9 = 26.3	ON	NA
TA6	OFF	10.7/17.6	8.8	NA	OFF	17.6, OFF 10-11
TS1	OFF	3.1/20.4	1.3	NA	OFF	20.4†, OFF 10-96
TS2	ON	9.1/NA	6	6.0 + 4.4 = 10.4	ON	NA
TS3	OFF	12.8/32.9	16.5	NA	OFF	32.9, OFF 10-12
TS4	OFF	27.7/55.9	33.2	NA	OFF	55.9, OFF 10-11
IO1	OFF	35.0/42.2	11.1	NA	OFF	42.2, OFF 10-98
IO2	OFF	3.4/18.9	4.5	NA	OFF	18.9, OFF 7-11
SS1	ON	4.8/NA	11.7	11.7 + 3.9 = 15.6	ON	NA
SS2	OFF	1.5/25.6	2.9	NA	OFF	25.6, OFF 7-11
SS3	OFF	5.9/33.8	18.9	NA	OFF	33.8, OFF 10-11
SS4	OFF	4.8/15.9	4.8	NA	OFF	15.9, OFF 7-05
BG2	ON	1.7/NA	23	23.0 + 4.0 = 27.0	ON	NA

These values of soil water required for well turn-on were derived using calculations based on percent cover that were routinely performed in the past. The values have not been updated to conform with the Green Book equations in Section III.D.2, p. 57-59

Table 2.6 - Planned Owens Valley Pumping for the Second Six Month of 2015-16 Runoff Year in acre-feet

Month	Laws	Bishop	Big Pine	Taboose- Aberdeen	Thibaut- Sawmill	Indep.-Oak	Symmes- Shepherd	Bairs- Georges	Lone Pine	TOTAL
October	40	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	25	3,332-5,767
November	40	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	25	3,332-5,767
December	30	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	25	3,322-5,757
January	30	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	25	3,322-5,757
February	30	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	20	3,317-5,752
March	30	300	1,700-2,150	240-1250	667	100-550	150-615	110-170	20	3,317-5,752
TOTAL	200	1,800	10,200-12,900	1,440-7,500	4,002	600-3,300	900-3,690	660-1,020	140	19,942-34,552

Table 7. Historic (1981-82) and Projected (2015-16) Water Supply by LADWP in the Owens Valley (acre-feet)

Use	April		May		June		July		August		September		TOTAL Apr-Sep	
	1981	2015	1981	2015	1981	2015	1981	2015	1981	2015	1981	2015	1981	2015
Irrigation	3,980	4,894	7,958	6,878	10,373	8,369	9,476	8,050	8,295	6,778	6,321	3,960	46,403	38,929
Stockwater	1,141	918	1,319	1,029	1,244	974	1,245	1,022	1,219	953	1,319	882	7,487	5,778
E / M	0	1,424	0	1,351	0	1,546	0	1,460	0	1,103	0	1,089	0	7,973
LORP	0	832	0	1,296	0	2,516	0	3,240	0	3,435	0	2,954	0	14,273
Owens Lake	0	7,078	0	5,197	0	3,622	0	1,277	0	1,293	0	4,301	0	22,768
Rec. & Wildlife	379	626	804	887	1,160	878	1,455	995	1,381	606	1,406	776	6,585	4,768
1600 ACFT Proj.	0	92	0	93	0	85	0	119	0	71	0	71	0	531
Total	5,500	15,864	10,081	16,731	12,777	17,990	12,176	16,163	10,895	14,239	9,046	14,033	60,475	95,020

Use	October		November		December		January		February		March		TOTAL Oct-Mar		TOTAL Apr-Mar	
	1981	2015	1981	2015	1981	2015	1982	2016	1982	2016	1982	2016	81-82	15-16	81-82	15-16
Irrigation	263	600	0	0	0	0	0	0	0	0	14	100	277	700	46,680	39,629
Stockwater	1,065	700	1,045	700	1,050	700	1,007	700	1,010	700	1,098	700	6,275	4,200	13,762	9,978
E / M	0	250	0	100	0	100	0	100	0	100	0	100	0	750	0	8,723
LORP	0	900	0	250	0	150	0	250	0	250	0	600	0	2,400	0	16,673
Owens Lake	0	8,000	0	3,700	0	3,925	0	3,825	0	2,200	0	4,500	0	26,150	0	48,918
Rec. & Wildlife	781	650	713	550	565	550	478	550	342	400	447	400	3,326	3,100	9,911	7,868
1600 ACFT Proj.	0	250	0	250	0	142	0	97	0	185	0	145	0	1,069	0	1,600
Total	2,109	11,350	1,758	5,550	1,615	5,567	1,485	5,522	1,352	3,835	1,559	6,545	9,878	38,369	70,353	133,389

NOTE: Rec & Wildlife includes LORP off-river lakes and ponds water use
An additional 3,200 acre-feet per year is provided to Indian lands

**Table 9 - Planned Los Angeles Aqueduct Operations
for 2015-16 Runoff Year**

Month	Owens Valley-Bouquet Reservoir Storage 1st of month Storage (acre-feet)	Aqueduct Delivery to Los Angeles (acre-feet)
April	160,819	462
May	160,933	307
June	162,953	298
July	162,649	2,900
August	161,088	3,948
September	152,789	5,875
October	141,786	0
November	144,751	0
December	150,869	0
January	159,384	3,074
February	165,485	2,222
March	172,359	2,668
TOTAL		21,754