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COUNTY OF INYO
WATER DEPARTMENT

April 30, 2018

Mr. James Yannotta, Aqueduct Manager
Los Angeles Department of Water and Power
300 Mandich Street
Bishop, California 93514

Subject: Inyo County comments on LADWP's proposed Annual Operations Plan for Runoff Year 2018-2019

Dear Mr. Yannotta:

In accordance with Section V.D of the Inyo/Los Angeles Long Term Water Agreement, the following are the Inyo County Water Department's (ICWD) comments on LADWP's Draft Owens Valley Operations Plan for Runoff Year 2018-2019 (Draft Plan).

General comments. The Draft Plan indicates that between 77,990 and 96,230 acre-feet (af) will be pumped during the 2018-2019 runoff year, and that runoff is forecast to be 78% of normal. The extraordinarily high amount of runoff during 2017 promoted substantial rise in the water table in most areas of the Owens Valley; however, some areas remain below the water levels that prevailed during the mid-1980s when the baseline vegetation mapped. ICWD's analysis and recommendations are based on water table conditions in each wellfield relative to baseline water levels, groundwater uses within each wellfield, and groundwater dependent vegetation conditions. ICWD's analysis resulted proposed valley-wide LADWP groundwater pumping of 74,450 af.

2017 was an exceptional year for runoff, water availability, and groundwater recharge in Owens Valley, but it comes on the heels of an exceptional drought with runoff values below 60% for four consecutive years. The negative effects of this drought on vegetation are evident in 2016 perennial cover values. Increased cover was noted in most parcels in 2017; however, perennial cover and grass cover remain below baseline in many vegetation parcels across the valley. Maintaining a shallow water table in areas of groundwater-dependent vegetation in 2018 is

necessary to encourage further recovery to baseline values, especially given the feast-or-famine pattern of precipitation observed during the past 30 years. Shallow groundwater levels are particularly important to maintain perennial grasses which have seen more substantial declines than overall cover.

The upper range of pumping in the Draft Plan would be the most pumping since the environmentally damaging amounts of the late 1980s and would significantly lower water levels in areas like Laws, where perennial cover continues to be below baseline, and Big Pine and Independence where water tables remain depressed from pumping during the 2012-2016 drought. ICWD's recommended pumping amount is a more prudent plan which allows the multiple goals of the Water Agreement to be met with a more responsible and sustainable approach: a significant amount of groundwater would be pumped for use in Owens Valley and export to Los Angeles, while maintaining hydrologic conditions conducive to water table and vegetation recovery where needed.

Miscellaneous comments. Section 1.2, page 1-4, of the Draft Plan states that "LADWP's 2018-2019 groundwater management approach is more conservative than the environmentally conservative pumping plans advocated by the Standing Committee during the dry years of the early 1990s." Considering that the upper bound of 96,230 acre-feet of pumping given in the Draft Plan exceeds any year of the early-1990s, this statement seems unjustified.

Section 1.2, page 1-5, of the Draft Plan states "No additional testing of wells subject to the Water Agreement is included in this year's planned pumping total and if performed, it will be in addition to the planned pumping for 2018-19." There is no other reference to testing of wells in Section 1.2. Does this mean that LADWP plans no testing of wells during 2018-2019?

Neither Table 1.7 in the Draft Plan nor LADWP's 2018 Annual Report Chapter 2 – "Conditions in the Owens Valley" provide data on the amount of water used for Owens Lake dust mitigation. To assist Inyo County's participation in the Owens Lake groundwater advisory group, please include such data in the Annual Operations Plan or elsewhere in the Annual Report.

Evaluation of 2017 Operations Plan - methods. Multiple linear regression models for indicator wells were used to predict water table elevation in April 2019 as a function of wellfield pumping, 2018 water table elevation, and forecasted Owens Valley runoff (water table models). The Laws water table models rely on the sum of diversions into the Upper and Lower McNally canals at the Owens River as the variable related to recharge instead of Owens Valley runoff. No water spreading is planned for Laws in 2018-19 (Table 2.5 of the Draft Plan), so no operation of the McNally Canals was assumed in the Laws regression models.

Three pumping scenarios are presented in this letter: minimum pumping, the upper limit of pumping proposed in the Draft Plan, and ICWD's proposed pumping (Tables 2 and 3). The analysis of water level changes if minimum pumping were conducted for specific uses in the Owens Valley is included as a basis for comparison with the higher levels of pumping in LADWP's proposed and Inyo County's proposed pumping amounts. Minimum pumping in each wellfield varies over time depending on runoff availability to supply irrigation or mitigation projects instead of groundwater where possible. The estimated minimum pumping of 54,195 af represents expected pumping needs for uses in the Owens Valley in normal or slightly below normal runoff years (Table 2). The upper limit of the pumping proposed in the Draft Plan is used to evaluate LADWP's proposed pumping because it represents the maximum impact on the water table that the Draft Plan could have, and except in high runoff conditions, LADWP has generally pumped near the upper end of the proposed range.

ICWD's proposed pumping aims to balance the Water Agreement's goals of maintaining groundwater dependent resources while supplying water for use in the Owens Valley and in Los Angeles. LADWP's proposed operations plan does not include pumping for export from Bishop, Symmes-Shepherd, or Lone Pine wellfields. ICWD's proposed pumping corresponds with the Draft Plan in these wellfields. ICWD has expressed concerns about pumping and water level declines in three wellfields during the recent drought: Independence-Oak, Symmes-Shepherd, and southern Big Pine. Pumping for aqueduct supply during the drought was concentrated from exempt and On-status wells located in these wellfields and water levels have not recovered from pumping/drought (Table 1). The goal for these areas/wellfields should be to limit pumping to raise or at least maintain 2018 water level. Water table management was used for wellfields where water levels are at baseline or above (Laws, Taboose-Aberdeen, Thibaut-Sawmill, and Bairs-George wellfields). The amount of pumping in 2018 was determined that could allow for water table recovery (or near recovery) by 2022 assuming average runoff and minimum pumping during the 2019-2021 runoff years. The recommend pumping based solely on these hydrologic criteria is shown in Table 2.

Wellfield specific conditions. The following presents a summary of conditions in each wellfield, LADWP's proposed pumping, predicted effects of the proposed pumping, the County's comments on LADWP's proposed operations for each wellfield, and ICWD's proposed pumping. In the discussion below, 'baseline water levels' are defined as the average of April water levels for 1985, 1986, and 1987, and 'baseline vegetation conditions' refer to the conditions documented in the baseline maps attached to the Water Agreement as Exhibit A. Observed April, 2018 water table levels, changes since April, 2017, and deviations from baseline water levels are given in Table 1. Wellfield pumping proposed by LADWP in the Draft Plan and pumping proposed by ICWD are given in Table 2. Predicted water table changes discussed below are based on the pumping amounts given in Table 3. Tables 1, 2, and 3 are attached.

Laws. The Draft Plan proposes 9,400 and 13,900 af of pumping in the Laws wellfield to supply Owens Valley demands including town water systems, irrigation, enhancement/mitigation (E/M) projects, and export. Last year water table increases in indicator wells ranged from 2.19 to 11.64 feet. Water levels range from 0.82 feet above to more than 9.15 feet above baseline. Vegetation parcels Laws 35, 43, 52, 62, 70, 72, 82, and 85 are chronically below baseline vegetation cover.

Given the relatively poor vegetation conditions and infrequent recovery of the water table to baseline, this wellfield should not be stressed further. ICWD proposes pumping 6,300 af for irrigation, town supply and E/M use. Even with minimum pumping, groundwater levels are expected to decline.

The Proposed Plan discusses operational testing of wells W385 and W386 to determine the potential effects of the wells on nearby resources. Reiterating points raised in our October 29, 2015 letter to LADWP concerning testing of these wells and our October 17, 2017 comments on LADWP's draft negative declaration concerning operational testing of W385, a mitigation measure 10-12 was adopted by LADWP in the 1991 Final Environmental Impact Report to mitigate the impacts caused by the operation of Wells W385 and W386 in the late 1980s (See page 10-58 of the 1990 DEIR, Sept. 1990). The adopted mitigation measure includes a discontinuation of pumping from these two wells. This is apparent from the last paragraph of page 3-16 of the 1991 FEIR (Aug. 1991) which states: "*Approximately 300 acres in the Five Bridges area are being mitigated through a combination of alternatives one and two; that is, pumping has been discontinued in the area, surface water has been supplied to stimulate natural revegetation and active revegetation has occurred in a portion of the area.*" Mitigation Measure 10-12, including the cessation of pumping from Wells W385 and W386, remains in effect, as well as the 1999 "Revegetation Plan for Impacts Identified in the LADWP, Inyo County EIR for Groundwater Management," which requires that these wells be permanently shut down. Under these circumstances, neither well can be operated until the Technical Group agrees upon a modification of the adopted mitigation measure in such a manner that the operation of the wells would be permitted. Although staff has agreed upon the components of a potential two-month operational test plan with water level and vegetation monitoring and protective triggers established in the Five Bridges and Fish Slough areas, operation of these wells should not occur until the revegetation goals of the mitigation measure have been met, the Technical Group has agreed on a modification to the mitigation plan and operational testing plan, and the CEQA requirements for modification of an existing mitigation measure have been met.

Bishop. LADWP proposes to pump 10,560 to 11,280 af from the Bishop wellfield. It appears that the proposed pumping will be within the limits of the Hillside Decree. ICWD proposed pumping: 11,280 af.

Big Pine. LADWP proposes to pump between 20,550 and 26,010 af from the Big Pine wellfield contingent on water needs and environmental conditions. This amount apparently includes hatchery and town supply as well as several months of operation of exempt wells for export. Last year water table increases at monitoring sites and indicator monitoring wells ranged from 1.64 to 4.57 feet, and range from 4.15 feet above to 2.42 feet below baseline water levels. Vegetation parcel BGP162 has been chronically below baseline vegetation cover.

Exempt wells W218 and W219 were operated during the drought and water levels in the southern Big Pine indicator wells are below baseline (Table 1; 800T, 425T, 426T, 567T). LADWP is currently operating these wells. To allow water levels to be approximately maintained this year, these wells should not be operated. ICWD proposed pumping: 20,550 af for fish hatchery, town supply, and E/M use.

Taboose-Aberdeen. LADWP proposes to pump between 15,000 and 18,080 af in the Taboose-Aberdeen wellfield. Last year, water table changes at monitoring sites and indicator wells ranged from an increase of 4.89 feet to a decrease of 0.11 feet. Water levels range from 3.84 feet above baseline to 1.29 feet below baseline water levels. All wells except 502T and 801T (indicator-monitoring site pair) could recover to baseline under LADWP's proposed pumping. Those two wells will not recover to baseline even with several years of minimum pumping and average runoff, but could be within 1 feet of baseline. ICWD proposed pumping: 18,080 af.

Thibaut-Sawmill. LADWP proposes to pump 8,000 to 9,000 af in the Thibaut-Sawmill wellfield. Last year, water table change at monitoring sites and indicator wells ranged from an increase of 2.84 to a decrease of 1.25 feet. Well 415T is continuing to rise due to the reduced pumping at the Black Rock Fish Hatchery. Water levels ranged from equal to baseline to 9.03 feet above baseline. Water levels in the three indicator wells are at or well above baseline. ICWD proposed pumping: 9,000 af.

Independence-Oak. LADWP proposes to pump between 10,020 and 13,230 af in the wellfield. Last year, water table changes at monitoring sites and indicator wells ranged from a decrease of 0.84 to an increase of 9.17 feet. The water table ranged from 1.97 to 6.10 feet below baseline water levels. Due to the persistently depressed water table, pumping in Independence-Oak should be limited to sole source uses to provide slight water table recovery in most wells in 2018 (Table 3, average DTW decline 0.08 feet). ICWD proposed pumping: 5,990 af.

Symmes-Shepherd. LADWP proposes to pump 960 af from the Symmes-Shepherd wellfield. Last year, water table changes at monitoring sites and indicator wells ranged from an increase of 9.35 feet to a decline of 0.93 feet. Water table levels range from 2.20 to 18.27 feet below baseline. ICWD proposed pumping: 960 af.

Bairs-Georges. LADWP proposes to pump 2,610 to 2,880 af in the Bairs-Georges wellfield. Last year, water table increases in indicator and monitoring site wells ranged from 0.29 to 2.30 feet. Water table levels range from 0.90 to 3.29 feet above baseline. Monitoring wells 398T and 400T could remain at baseline in 2022 with LADWP proposed pumping. Well 812T will not remain at baseline even with several years of minimum pumping and average runoff, but could be within 1 ft of baseline if pumping in 2018 is limited to 1,400 af. ICWD proposed: 1,400 af.

Lone Pine. LADWP proposes to pump 890 af from the Lone Pine wellfield for town supply and E/M project supply. Concerning operation of well W416, the Draft Plan notes that LADWP has requested that the Technical Group designate a monitoring site to manage this well. The management requirements of this well differ from those of many of LADWP's aqueduct supply wells in that effects on non-LADWP wells are a much more substantial concern here than in wellfields where LADWP wells are located farther from potentially affected non-LADWP wells. Before W416 can be operated, the Technical Group needs to identify monitoring sites where groundwater level triggers can be set to manage pumping to avoid impacts to non-LADWP wells. ICWD proposed pumping: 890 af.

We look forward to addressing these comments at a Technical Group meeting. If you wish to discuss these comments prior to the Technical Group meeting, feel free to contact me.

Sincerely,

Robert Harrington, Water Director

cc: Inyo County Board of Supervisors
Inyo County Water Commission
Kevin Carunchio, County CAO
Marshall Rudolph, County Counsel
Greg James, Special Counsel

Table 1. Depth to Water (DTW) at indicator wells, April 2018. All data are in feet. Negative values denote a decline in water level. Depths are from reference point on the test well. For monitoring sites where wells were installed after 1985-1987, baseline was estimated from correlation with nearby indicator wells.

Station ID, Monitoring site	DTW April 2018	Change from April 2017	Deviation from Baseline in 2018
Laws			
107T	23.45	NA	0.82
434T	6.13	2.19	1.47
436T	6.22	5.76	1.88
438T	8	4.9	1.60
490T	10.16	7.43	2.91
492T	23.65	11.64	9.15
795T, LW1	8.17	6.34	5.12
V001G, LW2	14.10	NA	5.52
574T, LW3	10.15	5.76	2.93
Big Pine			
425T	17.15	4.57	-2.25
426T	13.78	3.1	-2.21
469T	21.75	4.16	-0.08
572T	8.59	1.99	3.31
798T, BP1	11.90	2.82	4.15
799T, BP2	19.31	1.64	-0.80
567T, BP3	15.02	4.28	-1.06
800T, BP4	16.01	3.66	-2.42
Taboose Aberdeen			
417T	23.22	4.75	3.75
418T	8.15	1.19	0.08
419T, TA1	4.67	4.69	1.96
421T	33.27	6.78	1.08
502T	9.11	3.36	-1.62
504T	8.36	4.82	2.41
505T	15.03	4.89	3.57
586T, TA4	7.11	2.91	1.21
801T, TA5	14.81	-0.11	-1.29
803T, TA6	4.86	4.69	3.84
Thibaut Sawmill			
415T	9.47	2.84	9.03
507T	4.67	-1.25	0.00
806T, TS2	9.60	1.81	3.58
Independence Oak			
406T	5.44	0.23	-3.87

Station ID, Monitoring site	DTW April 2018	Change from April 2017	Deviation from Baseline in 2018
407T	13.11	-0.84	-5.81
408T	5.10	0.77	-1.97
409T	7.70	9.17	-6.10
546T	4.51	7.16	-1.08
809T, IO1	10.57	6.09	-4.00
Symmes Shepherd			
402T	10.36	0.11	-2.33
403T	8.19	1.4	-2.86
404T	6.51	-0.66	-2.94
447T	40.14	9.35	-18.27
510T	7.20	-0.9	-2.20
511T	8.03	-0.93	-3.40
V009G, SS1	22.36	7.48	-15.53
646T, SS2	Dry	NA	NA
Bairs George			
398T	3.57	2.3	2.78
400T	5.40	0.29	0.90
812T, BG2	10.17	8.70	3.29

Table 2. Pumping totals by wellfield that were evaluated using the regression models. Regression modeling is not completed for Bishop because pumping in that wellfield is regulated by the Hillside decree and for Lone Pine because the proposed pumping is for mitigation and town supply only.

Wellfield	Minimum Pumping	LADWP proposed	Inyo Recommended
		Af/year	Af/year
Laws	6,300	13,900	6,300
Bishop	10,400	11,280	11,280
Big Pine	20,550	26,010	20,550
Taboose-Aberdeen	300	18,080	18,080
Thibaut-Sawmill	8,160	9,000	9000
Independence-Oak	5,990	13,230	5990
Symmes-Shepherd	960	960	960
Bairs-George	500	2,880	1400
Lone Pine	1,035	890	890
Sum	54,195	96,230	74,450

Table 3. Predicted water level changes at indicator wells and monitoring sites for LADWP's proposed annual operations plan for 2018 and for pumping proposed by Inyo County. Negative values denote a decline.

Station ID, Monitoring site	LADWP Proposed pumping 96,230 af	Minimum Pumping 54,195 af	Inyo Proposed pumping 74,450 af	Dev. from baseline 2019, LADWP
	(ft)	(ft)	(ft)	(ft)
Laws				
107T	-7.05	-4.52	-4.52	-6.22
434T	-2.12	-1.04	-1.04	-0.65
436T	-3.83	-2.74	-2.74	-1.95
438T	-4.60	-3.68	-3.68	-3.00
490T	-2.55	-2.07	-2.07	0.36
492T	-9.88	-5.81	-5.81	-0.73
795T	-13.99	-10.38	-10.38	-8.87
V001g	-8.03	-5.94	-5.94	-2.51
574T	-5.14	-4.00	-4.00	-2.20
Big Pine				
425T	-1.31	-0.38	-0.38	-3.56
426T	-0.78	-0.25	-0.25	-2.99
469T	-1.08	-0.57	-0.57	-1.16
572T	-3.35	-2.34	-2.34	-0.04
798T, BP1	-4.19	-3.29	-3.29	-0.04
799T, BP2	-0.31	0.17	0.17	-1.11
567T, BP3	-1.71	-0.88	-0.88	-2.76
800T, BP4	-1.14	-0.01	-0.01	-3.56
Taboose Aberdeen				
417T	-4.69	-0.04	-4.69	-0.95
418T	-1.40	0.62	-1.40	-1.31
419T, TA1	-4.02	0.77	-4.02	-2.06
421T	-4.45	0.41	-4.45	-3.37
502T	-2.02	0.20	-2.02	-3.64
504T	-5.10	0.85	-5.10	-2.69
505T	-4.62	0.13	-4.62	-1.05
586T, TA4	-3.00	0.96	-3.00	-1.79
801T, TA5	-0.51	0.59	-0.51	-1.79
803T, TA6	-4.74	-0.33	-4.74	-0.90
Thibaut Sawmill				
415T	-0.48	0.17	-0.48	8.55
507T	0.40	0.53	0.40	0.39

Station ID, Monitoring site	LADWP Proposed pumping 96,230 af	Minimum Pumping 54,195 af	Inyo Proposed pumping 74,450 af	Dev. from baseline 2019, LADWP
806T, TS2	0.04	0.20	0.04	3.62
Ind. Oak				
406T	-0.35	0.16	0.16	-4.22
407T	-1.76	0.70	0.70	-7.57
408T	-1.30	0.34	0.34	-3.27
409T	-4.82	0.21	0.21	-10.92
546T	-2.70	-1.63	-1.63	-3.78
809T, IO1	-2.78	-0.27	-0.27	-6.78
Symmes Shep.				
402T	0.15	0.15	0.15	-2.19
403T	0.84	0.84	0.84	-2.02
404T	0.59	0.59	0.59	-2.36
510T	1.66	1.66	1.66	-16.62
511T	0.46	0.46	0.46	-1.74
447T	0.50	0.50	0.50	-2.90
V009G, SS1	1.36	1.36	1.36	-14.17
Bairs George				
398T	-4.00	-0.76	-1.99	-1.22
400T	-0.97	-0.37	-0.60	-0.07
812T	-5.54	-2.73	-3.79	-2.25