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COUNTY OF INYO
WATER DEPARTMENT

April 28, 2014

Mr. Jim 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 2014-2015

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 comments on LADWP's proposed Annual Operations Plan for Runoff Year 2014-2015 (proposed plan).

General Comments. Based on your cover letter provided with the proposed plan, we understand that total pumping for the period from April 1, 2014 through March 31, 2015 (2014 runoff-year) will likely be around 65,000 acre-feet (AF). The expected low runoff this year and the extremely low precipitation of the past three winters certainly present challenges to meeting Water Agreement goals. These conditions stress native vegetation and also reduce water available for export to Los Angeles and for use in Owens Valley. We recognize that LADWP has attempted to balance these challenging conditions and goals in the proposed plan, and concur that the proposed plan is substantially more conservative than pumping plans developed during the dry years of the early-1990's. Also, we concur that the provisions of Water Agreement section V.D require that the Annual Operations Plan for 2014-2015 require that the proposed plan be for the six-month period from April through September.

Analysis of the proposed plan. In order to analyze the proposed plan, we extrapolated the six months of pumping described in the proposed plan out to the end of the 2014 runoff year to allow us to use our indicator well regression models to estimate water table conditions in April 2015. Your cover letter indicates that pumping for the entire 2014 runoff year be in the 65,000 acre-foot range. To analyze the proposed plan, the Water Department estimated water table changes due to pumping for 65,015 AFY (around 65,000 acre-feet) and for 54,005 acre-feet (estimated lower end range proposed by LADWP).

The models ICWD used to analyze the proposed plan predict water levels one year in the future (e.g. April 2014 through March 2015) based on annual pumping for each well field. The models cannot be used to analyze changes over a shorter period. However, the information provided in the pumping plan and cover letter allows us to estimate annual pumping with sufficient accuracy to apply the models. The models usually predict the direction of water table change correctly (rise or decline), and on average the predicted values are within 1 foot of the actual values.

Estimated October-March pumping was added to the proposed high and low ranges of pumping provided in the LADWP plan to derive the annual estimates for the modeling analysis (Table 1). Minimum pumping during the fall and winter months is approximately 17,415 ac-ft. That estimate for winter pumping consists of supply for town use, fish hatcheries, stock water, and environmental projects. It includes an anticipated reduction in pumping at the Black Rock Fish Hatchery and no extension of irrigation reliant on pumped water into October. The sum of the high range of proposed summer pumping and the minimum pumping during the winter is approximately 65,015 ac-ft, approximately the annual total included anticipated by LADWP. The sum of the low range proposed summer pumping and minimum pumping during the winter was 54,005 ac-ft, almost the same as the minimum annual pumping estimated by the County in past years (54,535 ac-ft). Actual pumping distributions among well fields may differ from the modeled values, but the assumptions to derive the values in Table 1 are reasonable enough to use the models to evaluate the proposed plan.

Table 1. Estimated maximum and minimum pumping totals for runoff-year 2014 evaluated using the regression models. Values are in acre-feet. Regression modeling was not completed for Bishop because pumping in that well field must comply with the Hillside decree and for Lone Pine because the proposed pumping is for mitigation and town supply only.

Well Field	LADWP proposal: high	LADWP proposal: low	Estimated Minimum Pumping
Laws	7,350	5,910	6,460
Bishop	10,740	9,240	10,600
Big Pine	21,750	20,400	20,400
Taboose-Aberdeen	4,650	1,650	300
Thibaut-Sawmill	8,800	8,800	8,400†
Ind.-Oak	6,750	5,430	5,900
Symmes-Shep.	2,760	720	1,200
Bairs-George	1,440	1,080	500
Lone Pine	775	775	775
Sum	65,015	54,005	54,535

†: annual total includes reduced hatchery pumping rate.

Well field specific conditions. The following presents a summary of conditions in each well field, LADWP's proposed pumping, predicted effects of the proposed pumping, and the County's comments on LADWP's proposed operations for each well field. In the discussion

below, 'baseline water levels' are 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. Predicted water table changes discussed below are based on the pumping amounts given in Table 1 totaling 65,015 AF.

Predicted water table changes at monitoring sites are based on correlations between wells at monitoring sites and nearby indicator wells. The Water Department's April 2014 water level measurements are attached as Table 2, and multiple linear regression model results are attached as Table 3. Feel free to have your staff contact the Water Department should you have any questions concerning the methods used by the Water Department.

Laws. LADWP proposes to pump between 5,760 – 7,200 AF through September in the Laws well field for the town water system, irrigation, and enhancement/mitigation (E/M) projects. Last year, 6,199 AF were pumped from Laws, resulting in water table declines in indicator monitoring wells ranging from 0.53 feet to 1.93 feet (Table 2). Water levels range from 3.45 to 12.99 feet below baseline. As of 2013, 10 out of the 18 Laws well field parcels measured by the Water Department were significantly below baseline when evaluated from line point transect data. LAW035 has been below baseline perennial cover over the last 11 consecutive years since 2003 by an average of over 20% perennial cover. LAW052 has been below baseline for all 18 years sampled by a similar magnitude as LAW052. LAW065 has been below baseline for the last five consecutive years but by a lesser magnitude of around only 5% cover. LAW072 has been below baseline for the last seven consecutive years, and LAW078 has been below baseline for the last five consecutive years. Originally classified as rabbitbrush meadow, LAW062 has been below baseline for the last 13 consecutive years and LAW082 has been below baseline the last five consecutive years. Originally classified as rush/sedge meadow, LAW043 has been below baseline in each of nine years sampled since 2003 and LAW070 has been below baseline in all seven years it was sampled.

The proposed high range of pumping appears to accommodate irrigation, town, and mitigation project needs in Laws. Predicted water levels are expected to rise or decline only slightly (depending on location) if these projects are fully supplied. We agree with the proposed pumping to supply these uses. The low values for monthly pumping during the growing season are less than typically provided for these uses. LADWP has not requested a reduction in irrigation or mitigation project supply. If reduced water supply to these projects is contemplated, the applicable procedures in the Water Agreement need to be followed. Please provide us with the any reports or data concerning the status of LADWP's modifications to wells W385 and W386.

Bishop. LADWP proposes to pump 7,200-8,700 AF from Bishop through September. In accordance with the Hillside Decree, groundwater extracted must be less than groundwater used on the Bishop Cone. Proposed pumping will be compliant with the Hillside Decree. Last year, 11,433 AF was pumped from Bishop. Concerning LADWP's claim that the Bishop Cone Audit does not account for known uses and losses, any proposed changes to the audit protocol to better account for uses and losses should be described in detail in a report to the Technical Group. In 2013, one alkali meadow parcel, FSL123, was below baseline in the Bishop well field but this was only for the last two years and it reached baseline cover in 2008 and 2011. It appears that the

proposed range of pumping will be compliant with the Hillside Decree. We encourage LADWP to work with other water management entities and water rights holders on Bishop Creek to reach equitable solutions on the Bishop Cone. We also request that stockwater uses on the Bishop Cone be supplied fully.

Big Pine. LADWP proposes to pump between 10,200 and 11,550 AF from the Big Pine well field through September. Last year, 23,866 AF were pumped from Big Pine, resulting in water table declines at monitoring sites and in indicator monitoring wells ranging from 0.11 to 2.40 feet. Indicator monitoring wells were 3.70 to 6.39 feet below their baseline water levels. Well field parcel BGP162 has been below baseline in 20 out of 23 years since 1991 and consecutively for the last five years. Proposed pumping is predicted to result in water table changes ranging from an increase of 0.63 to a decrease of 1.30 feet, resulting in water tables 3.57 to 7.39 feet below baseline.

The Water Department does not object to LADWP's proposed pumping amount. Please provide us with the status of the Big Pine Northeast Regreening E/M Project.

Taboose-Aberdeen. LADWP proposes to pump between 1,500 and 4,500 AF in the Taboose-Aberdeen well field through September. Last year, 9,593 AF were pumped from Taboose-Aberdeen, resulting in water table changes at monitoring sites and in indicator monitoring wells ranging from an increase of 0.36 feet to a decrease of 1.72 feet. Water levels ranged from 0.52 to 7.64 feet below baseline water levels. In 2013, three reinventoried well field parcels were significantly below baseline in the Taboose-Aberdeen (TA) well field. Only one of these parcels has been below baseline for an appreciable number of consecutive years. BLK021, originally classified as Nevada saltbush scrub, has been below baseline in 15 of 19 reinventory years and consecutively for the last seven years. LADWP's proposed pumping is predicted to result in water table changes ranging from an increase of 0.68 to a decrease of 0.52 feet, resulting in water tables 0.02 to 7.57 feet below baseline. The ICWD models do not explicitly include Blackrock Hatchery pumping, yet that pumping affects the southern portion of the Taboose-Aberdeen well field (the effect of hatchery pumping has been constant). Hatchery pumping is proposed to be reduced substantially in 2014-15 which should promote a rise in the water table not reflected in our predictions. The Water Department does not object to LADWP's proposed pumping.

Thibaut-Sawmill. LADWP proposes to pump 4,600 AF in the Thibaut-Sawmill well field through September. Last year, 12,717 AF were pumped, resulting in water table declines at monitoring sites and in indicator monitoring wells ranging from 0.17 to 2.28 feet. Water levels ranged from 0.60 feet above to 6.58 feet below baseline water levels. In 2013, four well field parcels (two Alkali meadow parcels and two desert sink scrub parcels) were significantly below baseline. BLK075 was below baseline in 2012 and 2013 and has been 10% below baseline since 2001. BLK094 has been below baseline in 16 of the last 22 reinventory years and consecutively for the last 10 years since 2003 according to line point data. BLK077 and BLK096 were below baseline in 2012 and 2013. LADWP's proposed well field pumping is predicted to result in water table changes ranging from an increase of 2.13 feet to a decline of 0.34 feet at indicator wells and monitoring site TS2, resulting in water tables ranging from 0.05 feet above baseline to 4.45 feet below baseline.

The pumping amount proposed for Thibaut-Sawmill appears to include reduced pumping at the Black Rock Fish Hatchery. Water Department supports the Technical Group cooperatively monitoring the effects of reduced pumping on the water table and soil water in the area around the hatchery. It is also important that any reduced pumping be coordinated with the Department of Fish and Wildlife so that they can maintain historic levels of fish production in the eastern Sierra. The Water Department does not object to LADWP's proposed pumping, and supports using on-status available pumping capacity to supplement surface-water supplied irrigation in the event that surface water is not available.

Independence-Oak. LADWP proposes to pump between 5,280 and 6,600 AF in the well field through September. Last year, LADWP pumped 9,519 AF, resulting in water table declines at monitoring sites and in indicator monitoring wells ranging from 0.96 to 2.45 feet. The water table ranged from 2.91 to 12.42 feet below baseline water levels. Shrub cover in parcel IND011 significantly increased over time. In summary, one out of six (17%) of the Independence-Oak well field parcels had increasing shrub proportion but none of the reinventoried well field parcels were significantly below baseline perennial cover. LADWP's proposed pumping is predicted to result in water table changes ranging from an increase of 2.44 feet to a decrease of 1.40 feet at indicator wells and monitoring site IO1, and the resulting water tables would be 2.73 to 10.48 feet below baseline. The water table at monitoring site IO2 has declined approximately 10 feet since 2011 and is far below a depth accessible to plant roots (greater than 30 feet).

The Water Department does not object to LADWP's proposed pumping. Please provide us with the status of the Independence Eastside Regreening E/M Project.

Symmes-Shepherd. LADWP proposes to pump between 720-2,760 AF from the Symmes-Shepherd well field through September. Last year, LADWP pumped 3,334 AF from Symmes-Shepherd, resulting in water table declines at monitoring sites and in indicator monitoring wells ranging from 0.01 to 1.35 feet. Water table levels range from 2.64 to 23.60 feet below baseline levels. Shrub cover in parcel IND132 has significantly increased since baseline. LADWP's proposed pumping is predicted to result in water table changes ranging from an increase of 0.49 feet to a decline of 0.01 feet at indicator wells and monitoring sites SS1 and SS2, resulting in water tables 2.26 to 23.39 feet below baseline. We are concerned over water table declines of greater than 6 feet since 2011 at SS1 and SS2. Vegetation conditions in IND132 and IND139 near monitoring sites SS1 and SS3 have also declined in 2012.

The Water Department does not object to LADWP's planned pumping, and support using pumped water to supply irrigation at the Symmes-Shepherd Enhancement/Mitigation Project. The low values for monthly pumping during the growing season are less than typically provided for the Symmes-Shepherd E/M project uses. LADWP has not requested a reduction in irrigation or mitigation project supply. If reduced water supply to this project is contemplated, the applicable procedures in the Water Agreement need to be followed.

Bairs-Georges. LADWP proposes to pump between 1,080 and 1,440 AF in the Bairs-Georges well field through September. Last year, LADWP pumped 1,510 AF from the well field, and the water table increased 0.05 to 0.65 feet in indicator monitoring wells. Water levels in indicator monitoring wells ranged from 0.27 to 0.58 feet below their mid-1980's baseline levels. In 2013

the only well field parcel, MAN037, in Bairs-Georges well field, was not below baseline perennial cover nor did it have increasing shrub cover. LADWP's proposed pumping is predicted to increase the water table elevation by 0.13 feet in one well and decrease the water table elevation by 0.58 feet in another well, resulting in water tables 0.45 to 0.86 feet below baseline.

The Water Department does not object to LADWP's proposed pumping. Please provide us with the status of LADWP's modifications to well W348, and any reports or data related to those modifications.

Lone Pine. LADWP proposes to pump 580 AF from the Lone Pine well field through September. Last year, LADWP pumped 709 AF. The Water Department has not developed indicator well models for the Lone Pine well field because of the absence of discretionary pumping in the well field. In 2013, perennial cover in the only well field parcel in the Long Pine (LP) well field, LNP045, classified as Nevada saltbush meadow, was significantly below baseline.

The Water Department does not object to LADWP's proposed pumping in the Lone Pine well field. Please provide us with the status of wells W390 and W425, and water supple for the Van Norman Field E/M Project (as recently modified by the Standing Committee). Also, please provide us with the status of LADWP's modifications to well W416, and any reports or data related to those modifications.

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
Marge Kemp-Williams, County Counsel
Greg James, Special Counsel

Table 2. Depth to Water (DTW) at indicator wells, April 2014. All data are in feet. A negative change from April 2013 indicates a water table decline; negative deviation from baseline indicates the water table is below baseline. Depths are from reference point on the test well. Baseline elevation at monitoring sites was predicted from monitoring site/indicator wells regression models unless the test well was present 1985-87.

Well ID	DTW, April 2014	Change from April 2013	Deviation from Baseline in 2014††
Laws			
107T	35.27	-1.34	-11.00
436T	12.97	-0.64	-4.87
438T	15.74	-0.53	-6.14
490T	16.67	-1.93	-3.60
492T	36.2	-1.27	-3.40
795T, LW1	27.56	-1.41	-12.99
V001G, LW2	26.64	-1.13	-7.00
574T, LW3†	16.67	-0.70	-3.45
Big Pine			
425T	21.29	-1.07	-6.39
426T	16.29	-1.19	-4.72
469T	25.37	-1.05	-3.70
572T	17.02	-1.67	-5.12
798T, BP1	20.68	-2.40	-4.50
799T, BP2	21.94	-1.07	-3.56
567T, BP3	20.06	-0.11	-6.08
800T, BP4	19.53	-0.78	-5.99
Taboose Aberdeen			
417T	34.56	-1.72	-7.59
418T	9.8	-0.14	-1.57
419T	8.77	-0.20	-2.14
421T	37.78	0.36	-3.43
502T	11.55	0.05	-4.06
504T	12.51	0.28	-1.74
505T	26.24	-1.70	-7.64
586T, TA4	10.03	0.06	-1.74
801T, TA5	16.20	-0.01	-0.52
803T, TA6	15.88	-1.71	-7.49
Thibaut Sawmill			
415T	25.08	-2.28	-6.58
507T	5.27	-0.17	-0.60
806T, TS2	14.43	-1.33	-1.98
Independence Oak			
406T	4.48	-1.6	-2.91
407T	15.53	-0.96	-8.23
408T	7.33	-1.8	-4.20
409T	14.02	-1.16	-12.42
546T	9.9	-1.45	-6.47
809T, IO1	15.01	-2.45	-9.08
Symmes Shepherd			
402T	11.66	-0.48	-3.63
403T	8.56	-0.24	-3.23
404T	6.92	-0.48	-3.35
447T	45.45	-0.92	-23.6
510T	7.64	-0.01	-2.64
511T	9.09	-0.36	-4.46
V009G, SS1	26.06	-1.35	-20.09
646T, SS2	Dry	NA	NA
Bairs George			
398T	6.62	0.65	-0.27
400T	6.88	0.05	-0.58

†: The new test well at LW3, 840T, tracks 574T except during active spreading on the site, and depth to water is on average 1.23ft deeper.

Table 3. Predicted water level changes at indicator wells and monitoring sites for LADWP's proposed annual operations plan for 2014 and estimated minimum pumping required for sole source uses. Negative DTW values denote a decline. Baseline is the average of April water levels in 1985-87.

Station ID, Monitoring site	Predicted change in DTW: 65,015 ac-ft	Predicted change in DTW: 54,005 ac-ft	2015 predicted dev. from baseline: 64,015 ac-ft
	(ft)		(ft)
Laws			
107T	1.23	1.73	-9.77
436T	0.10	0.32	-4.77
438T	0.21	0.39	-5.93
490T	-0.50	-0.40	-4.10
492T	-0.90	-0.13	-4.30
795T, LW1	1.92	2.18	-11.07
V001G, LW2	-1.01	-0.60	-8.02
574T	0.56	0.63	-2.89
Big Pine			
425T	-0.88	-0.66	-7.27
426T	-0.64	-0.51	-5.36
469T	0.13	0.27	-3.57
572T	0.47	0.73	-4.65
798T, BP1	0.63	0.84	-3.87
799T, BP2	-0.12	0.02	-3.68
567T, BP3	-1.30	-1.11	-7.39
800T, BP4	-0.61	-0.41	-6.60
Taboose Aberdeen			
417T	0.03	0.75	-7.57
418T	-0.24	0.08	-1.81
419T, TA1	-0.47	0.31	-2.61
421T	-0.49	0.31	-3.92
502T	-0.04	0.34	-4.09
504T	-0.52	0.45	-2.27
505T	0.10	0.84	-7.54
803T, TA6	-0.08	0.64	-7.56
586T, TA4	-0.02	0.64	-1.76
801T, TA5	0.68	0.87	-0.02
Thibaut Sawmill			
415T	2.13	2.13	-4.45
507T	0.65	0.65	0.05
806T, TS2	-0.34	-0.34	-2.32
Ind. Oak			
406T	0.19	0.34	-2.73
407T	1.02	1.46	-7.21
408T	0.54	0.85	-3.65
409T	2.44	3.54	-9.98
546T	-0.04	0.17	-6.50
809T, IO1	-1.40	-1.07	-10.48
Symmes Shep.			
402T	-0.01	0.22	-3.64
403T	0.02	0.66	-3.21
404T	0.49	0.73	-2.86
510T	0.38	0.61	-2.26
511T	0.46	0.71	-4.00
447T	0.20	1.68	-23.39
646T, SS2	NA	NA	NA
V009G, SS1	0.16	1.46	-19.93
Bairs George			
398T	-0.59	-0.13	-0.86
400T	0.13	0.21	-0.45