

July 1, 2015

Dr. Bob Harrington Inyo County Water Department 135 South Jackson Street Independence, CA 93526

#### **RE:** Summary of Hydrologic Monitoring Activities, June 2015 Rose Valley, Inyo County, California Hay Ranch Project Conditional Use Permit #2007-03

Dear Dr. Harrington:

This letter summarizes hydrologic monitoring activities conducted in June 2015 by TEAM Engineering & Management, Inc. (TEAM), related to the Hay Ranch Water Extraction Project and CUP #2007-03.

#### Background

As outlined in the Hay Ranch Water Extraction Final EIR's Hydrologic Monitoring and Mitigation Plan (HMMP), Phase 1: Monitoring System Setup and Supplemental Data Collection occurred prior to December 25, 2009 at monitoring points throughout Rose Valley. With the initiation of pumping by Coso Operating Company (COC) on December 25, 2009, the Hay Ranch Water Extraction Project entered into the Phase 2: Startup Monitoring and Reporting period. Phase 3: Model Recalibration and Redefinition of Pumping Rates and Durations occurred from September 2010 to April 2011, with recalibration of the groundwater model by Daniel B. Stephens & Associates (DBS&A) and with redefinition of pumping rates and durations by Inyo County Water Department (ICWD). With the April 1, 2011 issuance of the ICWD's "Addendum to the HMMP for CUP#2007-003/Coso Operating Company, LLC" (2011 ICWD Addendum) the project entered Phase 4: Ongoing Monitoring, Mitigation and Reporting. In August 2013 further model revision occurred with results and new trigger levels detailed in ICWD's August 30, 2013 letter to Chris Ellis, Site Manager, Coso Operating Company, LLC regarding Conditional Use Permit #2007-003/Coso. In June 2014 further model revision was conducted by DBS&A with results and new trigger levels detailed in ICWD's June 27, 2014 letter to Chris Ellis, Site Manager, Coso Operating Company, LLC regarding Conditional Use Permit #2007-003/Coso.

### **Monitoring and Reporting**

During the June 2015 monthly hydrologic data collection event at the monitoring locations in the Rose Valley area, static depth-to-water (DTW) measurements, one visual observation of the Little Lake Ranch (LLR) Siphon Well Outflow and four sets of flow rates were collected by TEAM, as summarized in the attached table (Table 1). Data for this monthly field event was collected on June 17-18, 2015. Pressure transducer data was downloaded from monitoring units, including one "BaroTroll" measuring barometric pressure. Also in June, a DTW measurement at LADWP 816 Well was provided by LADWP personnel.

At the Hay Ranch Property, COC has pumped groundwater from two production wells: Hay Ranch North and Hay Ranch South. For the current year of project pumping (January 2, 2015 to June 17, 2015) a total of approximately 736 acre feet (AF) of groundwater have been extracted from the Hay Ranch property (732 AF from the Hay Ranch North Well, and 4 AF from the Hay Ranch South Well).

Figure 1 presents the combined amount of groundwater pumped from the Hay Ranch North and South wells, in acre feet, from December 25, 2009 through June 17, 2015 compared to the maximum allowable pumping amounts. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to June 17, 2015 (Hay Ranch CUP project total) is approximately 15,014 AF. The

maximum allowable pumping rate was approximately 3,000 acre-feet per year (AFY) for December 25, 2009 through December 31, 2010; was 4,839 AFY from January 1, 2011 through August 30, 2013; was 3,040 AFY from September 2013 through June 2014; and is 1,614 AFY from July 1, 2014 to June 30, 2016. Coso Operating Company has been and currently is pumping less than the maximum allowable amount of groundwater from the Hay Ranch Wells.

#### Trigger Levels and Maximum Acceptable Drawdowns

In Table 1 of the June 27, 2014 ICWD Letter to Coso Operating Company, Drawdown at Cessation of Pumping Trigger Levels (Trigger Levels) and Maximum Acceptable Drawdowns have been set for specific monitoring wells based on a pumping rate of 1,614 AFY starting on July 1, 2014.

Based on data collected by TEAM during the June 2015 monitoring event, no Trigger Levels or Maximum Acceptable Drawdowns have been exceeded at Hay Ranch Project monitoring wells which have baselines and trigger levels established (Table 2).

#### **Operational Notes**

During the May to June 2015 period, there were no significant operational issues.

#### Data Transmittal

TEAM posted updates to the "Coso" database on the ICWD web server. Current Hay Ranch Project hydrographs in PDF form were uploaded to the ICWD website (<u>www.inyowater.org</u>).

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If you have any questions or require additional information, please contact TEAM at your convenience.

Sincerely,

TEAM Engineering & Management, Inc.

Keith Rainville Project Geologist

# TABLE 1Field Observations of Rose Valley Hydrologic Monitoring PointsJune 17-18, 2015

Project Name:	Hay Ranch Project HMMP	Date: June 17-18, 2015		
Location:	Rose Valley, Inyo County			
Observer(s):	K. Rainville	Page: 1 of 1		

Well ID	Monitoring Point	Date	Time	DTW	Flow	GWE	Method	Transducer	Notes
				(ft)	(cfs)	(ft amsl)		Log Interval	
RV-10	Dews	06/17/15	14:05	231.99		3754.93	TEAM manual read	NA	
RV-20	LADWP 816	UA	UA	UA		UA	LADWP manual read	NA	Data provided by LADWP
RV-30	Cal Pumice	06/17/15	9:00	260.35		3245.54	TEAM manual read	Hourly	
RV-40	Dunmovin	NM	NM	NM		NM	TEAM manual read	NA	Discontinued due to new in-well infrastructure
RV-50	Hay Ranch North	06/17/15	11:05	NM	No	NM	TEAM manual read	NA	2,953,298,417 gallons (9063 AF) pumped since 12/25/09
RV-60	Hay Ranch 1A	06/17/15	11:25	201.35		3230.82	TEAM manual read	Hourly	
RV-61	Hay Ranch 1B	06/17/15	11:20	224.65		3207.20	TEAM manual read	Hourly	
RV-62	Hay Ranch 1C	06/17/15	11:15	220.05		3211.45	TEAM manual read	Hourly	
RV-70	Hay Ranch South	06/17/15	11:06	NM	Yes	NM	TEAM manual read	NA	1,938,931,428 gallons (5950 AF) pumped since 12/25/09
RV-80	Hay Ranch 2A	06/17/15	11:50	202.04		3230.96	TEAM manual read	Hourly	
RV-81	Hay Ranch 2B	06/17/15	11:45	224.47		3208.16	TEAM manual read	Hourly	
RV-82	Hay Ranch 2C	06/17/15	11:40	212.60		3219.50	TEAM manual read	Hourly	
RV-90	Coso Jct Ranch	06/17/15	9:20	174.96		3228.17	TEAM manual read	Hourly	
RV-100	Coso Jct Store #1	06/17/15	9:35	147.60		3224.52	TEAM manual read	Hourly	
RV-110	Davis Ranch North Well	06/17/15	10:15	6.57		3886.49	TEAM manual read	Hourly	
RV-111	Davis Ranch South Well	06/17/15	10:30	11.32		3886.74	TEAM manual read	Hourly	
RV-112	Davis Ranch South Flow	06/17/15	10:45	NA	0.005	NA	TEAM manual read	Hourly	
RV-120	Red Hill Well (BLM)	06/17/15	9:55	140.58		3200.25	TEAM manual read	Hourly	
RV-130	G-36	06/17/15	13:20	181.99		3198.03	TEAM manual read	NA	
RV-140	Lego	06/17/15	13:10	224.03		3198.82	TEAM manual read	Hourly	
RV-150	Cinder Road	06/17/15	12:20	191.65		3186.31	TEAM manual read	Hourly	
RV-160	18-28 GTH	06/17/15	12:52	174.50		3188.08	TEAM manual read	Hourly	
RV-170	Fossil Falls Campground	06/17/15	12:35	141.63		3175.14	TEAM manual read	NA	
RV-180	LLR North Well	06/18/15	11:50	40.50		3158.60	TEAM manual read	Hourly	
RV-210	LLR Dock Well	06/18/15	10:00	6.15		3147.99	TEAM manual read	Hourly	
RV-220	LLR Stilling Well (lake surface)	06/18/15	10:15	3.54		3147.50	TEAM manual read	Hourly	
RV-230	LLR Little Lake Outflow	06/18/15	11:00	NA	0.02	NA	TEAM manual read	Hourly	
RV-240	LLR Coso Springs Flow	06/18/15	10:45	NA	0.39	NA	TEAM manual read	Hourly	
RV-245	LLR North Culvert Flow	06/18/15	11:25	NA	0.03	NA	TEAM manual read	Hourly	
RV-250	LLR Siphon Discharge	06/18/15	11:15	NA	Yes	NA	TEAM visual read	NA	Siphon Well flowing into Pond 2
RV-260	LLR Hotel Well	06/18/15	9:30	0.28		3138.50	TEAM manual read	Hourly	

NM - not measured; NA - not applicable; IO - Inoperative; UA - Data currently unavailable

DTW - Depth to water in feet (ft) below top of casing or other reference point; a negative DTW indicates that the groundwater elevation is above the surveyed reference point

Flow - In cubic feet per second (cfs)

GWE- Groundwater elevation in feet above mean sea level (ft amsl)

## TABLE 2Hay Ranch Project Groundwater Baselines and Trigger LevelsJune 2015

Well ID	Monitoring Point	Baseline GWE <sup>1</sup>	Recent Date	Recent GWE	Recent GWE	Trigger Level	Recent GWE	Recent GWE
		(feet amsl)	of Measurement	(feet amsl)	Compared to Baseline (feet)	At Cessation of Pumping <sup>3</sup> (feet)	Compared to Trigger Level (feet)	Above Max DD <sup>2</sup>
		(root arrier)		(root amoly	(1000)	(1000)	(1001)	(1001)
RV-80	HR 2A	3240.92	06/17/15	3230.96	-9.96	15.3	5.34	6.54
RV-90	Coso Jct Ranch	3230.65	06/17/15	3228.17	-2.48	9.30	6.82	6.82
RV-100	Coso Jct Store #1	3227.59	06/17/15	3224.52	-3.07	8.30	5.23	5.33
RV-120	Red Hill Well	3200.66	06/17/15	3200.25	-0.41	3.00	2.59	3.39
RV-130	G-36	3198.35	06/17/15	3198.03	-0.32	2.20	1.88	2.98
RV-140	Lego	3199.21	06/17/15	3198.82	-0.39	0.70	0.31	2.01
RV-150	Cinder Road	3186.92	06/17/15	3186.31	-0.61	1.00	0.39	1.69
RV-160	18-28 GTH	3187.67	06/17/15	3188.08	0.41	0.70	1.11	2.51
RV-180	LLR North Well	3158.88	06/18/15	3158.60	-0.28	0.40	0.12	1.02

1) GWE: Groundwater elevation measured in feet above mean sea level. Baseline GWEs set January 2010 and March 2011 and approved by Inyo County Water Department (ICWD)

2) Max DD: Maximum Acceptable Drawdown from Table 1 of ICWD's "June 27, 2014 Conditional Use Permit#2007-003/Coso "

3) Trigger Level at Cessation of Pumping from Table 1 of ICWD's "June 27, 2014 Conditional Use Permit#2007-003/Coso "

16000 16000 -15000 15000 14000 14000 13000 13000 Hay Ranch Project Total Pumping Amounts (AF) 12000 12000 11000 11000 10000 10000 9000 9000 8000 8000 7000 7000 6000 6000 5000 5000 Hay Ranch Project ACTUAL Pumping (Acre Feet) 4000 4000 Maximum Allowable Pumping (Year 1: 3000 Acre Feet; Years 2-4: 4839 Acre Feet per 3000 3000 Year) Maximum Allowable Pumping (Sept. 2013 to June 2014: 3040 Acre Feet per Year) 2000 2000 Maximum Allowable Pumping (July 1, 2014 to June 30, 2015: 1614 Acre Feet per Year) 1000 1000 0 0 Jun-10 Aug-10 Oct-10 Dec-10 Feb-11 Apr-11 Jun-11 Aug-11 Dec-11 Feb-12 Apr-12 Jun-12 Aug-12 Oct-12 Dec-12 Feb-13 Apr-13 Jun-13 Aug-13 Oct-13 Dec-13 Feb-14 Apr-14 Jun-14 Aug-14 Oct-14 Dec-14 Feb-15 Apr-15 Jun-15 Aug-15 Dec-09 Feb-10 Apr-10 Oct-11 Oct-15

FIGURE 1 ACTUAL AND MAXIMUM ALLOWABLE PUMPING AMOUNTS (TOTALS) FOR HAY RANCH PROJECT

Note: The "maximum allowable pumping" is based on a pumping rate of 3000 AF/yr for 12/09 to 12/10, 4839 AF/yr for 1/11 to 8/13, 3040 AF/yr from 9/13 to 6/14, and 1,614 AF/yr from 7/14 to 6/16.

#### TEAM ENGINEERING & MANAGEMENT, INC. Bishop and Mammoth Lakes, California 6/22/2015