

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

September 1, 2015

**RE: Summary of Hydrologic Monitoring Activities, August 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 August 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, LLC (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 COC 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 COC regarding Conditional Use Permit #2007-003/Coso.

### **Monitoring and Reporting**

During the August 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 August 19-20, 2015. Pressure transducer data was downloaded from monitoring units, including one "BaroTroll" measuring barometric pressure. Also in August, a DTW measurement at LADWP 816 Well is 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 August 19, 2015) a total of approximately 1,015 acre feet (AF) of groundwater have been extracted from the Hay Ranch property (1,010 AF from the Hay Ranch North Well, and 5 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 August 19, 2015 compared to the maximum allowable pumping amounts. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to August 19, 2015 (Hay Ranch CUP project total) is approximately 15,293 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 July to August 2015 monitoring period, no Trigger Levels or Maximum Acceptable Drawdowns were exceeded at Hay Ranch Project monitoring wells which have baselines and trigger levels established (Table 2).

### **Operational Notes**

During the July to August 2015 period, battery backups were installed in HR1B and Coso Junction Store. The Coso Junction Ranch pressure transducer experienced data failure; this transducer was removed and an attempt will be made to repair and reinstall it. The pressure transducer in HR2B will need a new battery backup; this backup will be installed during the September field event. Also at the Davis Ranch, a new pump was installed in the Davis Ranch South Well. During this installation process, the pressure transducer was removed, but then re-installed after the pump was in place.

### **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 ([www.inyowater.org](http://www.inyowater.org)).

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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  
Staff Geologist

**TABLE 1**  
**Field Observations of Rose Valley Hydrologic Monitoring Points**  
**August 19-20, 2015**

Project Name:	Hay Ranch Project HMMP	Date: August 19-20, 2015
Location:	Rose Valley, Inyo County	
Observer(s):	G. Foote/ K.Rainville	Page: 1 of 1

Well ID	Monitoring Point	Date	Time	DTW (ft)	Flow (cfs)	GWE (ft amsl)	Method	Transducer Log Interval	Notes
RV-10	Dews	08/19/15	15:30	231.92		3755.00	TEAM manual read	NA	
RV-20	LADWP 816	UA	UA	UA		UA	LADWP manual read	NA	Data provided by LADWP
RV-30	Cal Pumice	08/19/15	8:52	259.36		3246.53	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	08/19/15	13:46	NM	Yes	NM	TEAM manual read	NA	3,044,084,059 gallons (9342 AF) pumped since 12/25/09
RV-60	Hay Ranch 1A	08/19/15	14:09	201.15		3231.02	TEAM manual read	Hourly	
RV-61	Hay Ranch 1B	08/19/15	14:05	224.40		3207.45	TEAM manual read	Hourly	
RV-62	Hay Ranch 1C	08/19/15	14:00	219.81		3211.69	TEAM manual read	Hourly	
RV-70	Hay Ranch South	08/19/15	13:47	NM	Yes	NM	TEAM manual read	NA	1,939,197,428 gallons (5951 AF) pumped since 12/25/09
RV-80	Hay Ranch 2A	08/19/15	14:38	201.99		3231.01	TEAM manual read	Hourly	
RV-81	Hay Ranch 2B	08/19/15	14:40	220.70		3211.93	TEAM manual read	Hourly	
RV-82	Hay Ranch 2C	08/19/15	14:35	212.35		3219.75	TEAM manual read	Hourly	
RV-90	Coso Jct Ranch	08/19/15	9:25	174.99		3228.14	TEAM manual read	Hourly	
RV-100	Coso Jct Store #1	08/19/15	10:08	147.54		3224.58	TEAM manual read	Hourly	
RV-110	Davis Ranch North Well	08/19/15	12:08	6.56		3886.50	TEAM manual read	Hourly	
RV-111	Davis Ranch South Well	08/19/15	12:25	13.39		3884.67	TEAM manual read	Hourly	
RV-112	Davis Ranch South Flow	08/19/15	12:29	NA	No	NA	TEAM manual read	Hourly	Pump installed in DR South well; Flow actively managed
RV-120	Red Hill Well (BLM)	08/19/15	10:40	140.55		3200.28	TEAM manual read	Hourly	
RV-130	G-36	08/19/15	11:05	182.08		3197.94	TEAM manual read	NA	
RV-140	Lego	08/19/15	13:24	223.98		3198.87	TEAM manual read	Hourly	
RV-150	Cinder Road	08/19/15	11:39	191.67		3186.29	TEAM manual read	Hourly	
RV-160	18-28 GTH	08/19/15	13:05	174.49		3188.09	TEAM manual read	Hourly	
RV-170	Fossil Falls Campground	08/19/15	11:19	141.63		3175.14	TEAM manual read	NA	
RV-180	LLR North Well	08/20/15	10:17	40.61		3158.49	TEAM manual read	Hourly	
RV-210	LLR Dock Well	08/20/15	10:25	6.51		3147.63	TEAM manual read	Hourly	
RV-220	LLR Stilling Well (lake surfa	08/20/15	10:41	3.98		3147.06	TEAM manual read	Hourly	
RV-230	LLR Little Lake Outflow	08/20/15	11:35	NA	0.01	NA	TEAM manual read	Hourly	
RV-240	LLR Coso Springs Flow	08/20/15	11:19	NA	0.39	NA	TEAM manual read	Hourly	
RV-245	LLR North Culvert Flow	08/20/15	12:25	NA	0.01	NA	TEAM manual read	Hourly	
RV-250	LLR Siphon Discharge	08/20/15	12:10	NA	Yes	NA	TEAM visual read	NA	Siphon Well flowing into Pond 2
RV-260	LLR Hotel Well	08/20/15	9:50	0.66		3138.12	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 2**  
**Hay Ranch Project Groundwater Baselines and Trigger Levels**  
**August 2015**

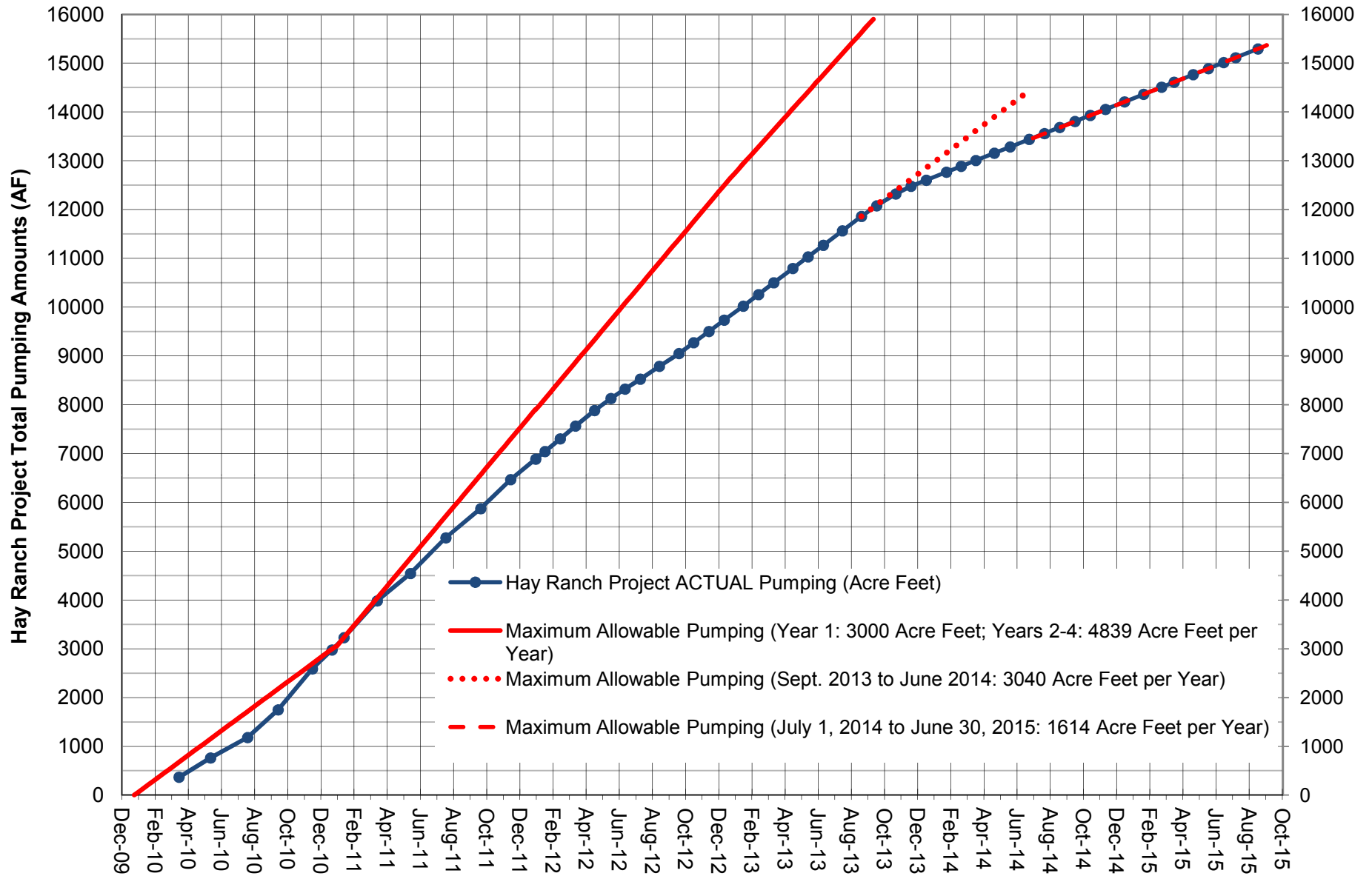
Well ID	Monitoring Point	Baseline GWE <sup>1</sup> (feet amsl)	Recent Date of Measurement	Recent GWE (feet amsl)	Recent GWE Compared to Baseline (feet)	Trigger Level At Cessation of Pumping <sup>3</sup> (feet)	Recent GWE Compared to Trigger Level (feet)	Recent GWE Above Max DD <sup>2</sup> (feet)
RV-80	HR 2A	3240.92	08/19/15	3231.01	-9.91	15.3	5.39	6.59
RV-90	Coso Jct Ranch	3230.65	08/19/15	3228.14	-2.51	9.30	6.79	6.79
RV-100	Coso Jct Store #1	3227.59	08/19/15	3224.58	-3.01	8.30	5.29	5.39
RV-120	Red Hill Well	3200.66	08/19/15	3200.28	-0.38	3.00	2.62	3.42
RV-130	G-36	3198.35	08/19/15	3197.14	-1.21	2.20	0.99	2.09
RV-140	Lego	3199.21	08/19/15	3198.87	-0.34	0.70	0.36	2.06
RV-150	Cinder Road	3186.92	08/19/15	3186.29	-0.63	1.00	0.37	1.67
RV-160	18-28 GTH	3187.67	08/19/15	3188.09	0.42	0.70	1.12	2.52
RV-180	LLR North Well	3158.88	08/20/15	3158.49	-0.39	0.40	0.01	0.91

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 "

**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.