

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

April 4, 2016

RE: Summary of Hydrologic Monitoring Activities, March 2016
Rose Valley, Inyo County, California
Hay Ranch Project Conditional Use Permit #2007-03

Dear Dr. Harrington:

This letter summarizes hydrologic monitoring activities conducted in March 2016 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 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 March 2016 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 three 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 March 16-17, 2016. Pressure transducer data was downloaded from monitoring units, including one "BaroTroll" measuring barometric pressure. Also in March, a DTW measurement at LADWP 816 Well was requested from LADWP personnel.

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 March 16, 2016 compared to the maximum allowable pumping amounts. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to March 16, 2016 (Hay Ranch CUP project total) is approximately 16,219 AF. The maximum allowable pumping rate was 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. As indicated on Figure 1, Coso Operating Company has pumped less than the maximum allowable amount of groundwater from the Hay Ranch Wells, for each respective period.

For the current pumping rate period (July 1, 2015 to June 30, 2016) an estimated 1,142 AF of groundwater, of the 1,614 AF allowable, have been extracted from the Hay Ranch Property as of March 16, 2016. If pumping continues at current pumping rates (4.4 AF per day) this will equate to approximately 1,612 AF on June 30, 2016.

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 the manual depth to water (DTW) data collected by TEAM on March 17, 2016, the Water Level at the Little Lake Ranch North Well (LLR North) was measured in exceedance of its Trigger Level by 0.03 feet.

The baseline groundwater elevation (GWE) for LLR North, set by ICWD in January 2010, is 3158.88 feet. The GWE at LLR North, as measured at 10:20 on March 17, 2016, was 3,158.45 feet. The LLR North GWE had decreased by 0.43 feet, exceeding its Trigger Level by 0.03 feet. The LLR North GWE was 0.87 feet above its Maximum Acceptable Drawdown level as of March 17, 2016.

Based on data collected by TEAM during the February to March 2016 monitoring period, none of the other Trigger Levels were exceeded at Hay Ranch Project monitoring wells which have baselines and trigger levels established (Table 2). No Maximum Acceptable Drawdown levels have been reached during COC pumping under CUP #2007-03.

Operational Notes

During the March 2016 monitoring event, the pressure transducer in LLR North stopped working properly. Data was retrieved from the transducer, however efforts to restore proper function were unsuccessful and the transducer was removed and returned to the manufacturer for assessment. A repaired or replacement transducer will be installed in the well in April 2016.

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).

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

Sincerely,

TEAM Engineering & Management, Inc.



Greg M. Foote
Project Scientist

TABLE 1
Field Observations of Rose Valley Hydrologic Monitoring Points
March 16-17, 2016

Project Name:	Hay Ranch Project HMMP	Date: March 16-17, 2016
Location:	Rose Valley, Inyo County	
Observer(s):	G. Foote	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	NM	NM	NM	NA	NM	TEAM manual read	NA	
RV-20	LADWP 816	UA	UA	UA	NA	UA	LADWP manual read	NA	Data provided by LADWP
RV-30	Cal Pumice	03/16/16	9:50	256.81	NA	3249.08	TEAM manual read	Hourly	
RV-40	Dunmovin	NM	NM	NM	NA	NM	TEAM manual read	NA	Discontinued due to new in-well infrastructure
RV-50	Hay Ranch North	03/16/16	13:35	NM	Yes	NM	TEAM manual read	NA	3,252,517,804 gallons (9,982 AF) pumped since 12/25/09
RV-60	Hay Ranch 1A	03/16/16	13:56	201.70	NA	3230.47	TEAM manual read	Hourly	
RV-61	Hay Ranch 1B	03/16/16	13:49	222.78	NA	3209.07	TEAM manual read	Hourly	
RV-62	Hay Ranch 1C	03/16/16	13:45	217.21	NA	3214.24	TEAM manual read	NA	
RV-70	Hay Ranch South	03/16/16	13:36	NM	Yes	NM	TEAM manual read	NA	2,032,332,289 gallons (6,237 AF) pumped since 12/25/09
RV-80	Hay Ranch 2A	03/16/16	14:23	202.47	NA	3230.53	TEAM manual read	Hourly	
RV-81	Hay Ranch 2B	03/16/16	14:15	220.88	NA	3211.75	TEAM manual read	Hourly	
RV-82	Hay Ranch 2C	03/16/16	14:05	211.83	NA	3220.27	TEAM manual read	NA	
RV-90	Coso Jct Ranch	03/16/16	10:45	175.25	NA	3227.88	TEAM manual read	NA	
RV-100	Coso Jct Store #1	03/16/16	10:09	147.83	NA	3224.29	TEAM manual read	Hourly	
RV-110	Davis Ranch North Well	03/16/16	10:57	6.55	NA	3886.51	TEAM manual read	Hourly	
RV-111	Davis Ranch South Well	03/16/16	11:08	13.25	NA	3884.81	TEAM manual read	Hourly	Pump installed in DR South well
RV-112	Davis Ranch South Flow	NM	NM	NM	NM	NM	NM	NA	Discontinued: Flow actively managed
RV-120	Red Hill Well (BLM)	03/16/16	10:24	140.80	NA	3200.03	TEAM manual read	Hourly	
RV-130	G-36	03/16/16	12:31	182.33	NA	3197.69	TEAM manual read	NA	
RV-140	Lego	03/16/16	13:12	224.25	NA	3198.60	TEAM manual read	Hourly	
RV-150	Cinder Road	03/16/16	11:46	191.86	NA	3186.10	TEAM manual read	Hourly	
RV-160	18-28 GTH	03/16/16	12:55	174.65	NA	3187.93	TEAM manual read	NA	
RV-170	Fossil Falls Campground	03/16/16	12:05	141.75	NA	3175.02	TEAM manual read	NA	
RV-180	LLR North Well	03/17/16	10:20	40.65	NA	3158.45	TEAM manual read	Hourly	
RV-210	LLR Dock Well	03/17/16	11:30	6.59	NA	3147.55	TEAM manual read	NA	
RV-220	LLR Stilling Well (lake surface)	03/17/16	11:36	4.14	NA	3146.90	TEAM manual read	Hourly	
RV-230	LLR Little Lake Outflow	03/17/16	12:24	NA	1.0	NA	TEAM manual read	Hourly	
RV-240	LLR Coso Springs Flow	03/17/16	12:06	NA	0.39	NA	TEAM manual read	Hourly	
RV-245	LLR North Culvert Flow	03/17/16	12:44	NA	1.6	NA	TEAM manual read	Hourly	
RV-250	LLR Siphon Discharge	03/17/16	12:39	NA	Yes	NA	TEAM visual read	NA	Siphon Well flowing into Pond 2
RV-260	LLR Hotel Well	03/17/16	9:55	0.05	NA	3138.73	TEAM manual read	NA	Water level above measuring point

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
March 2016

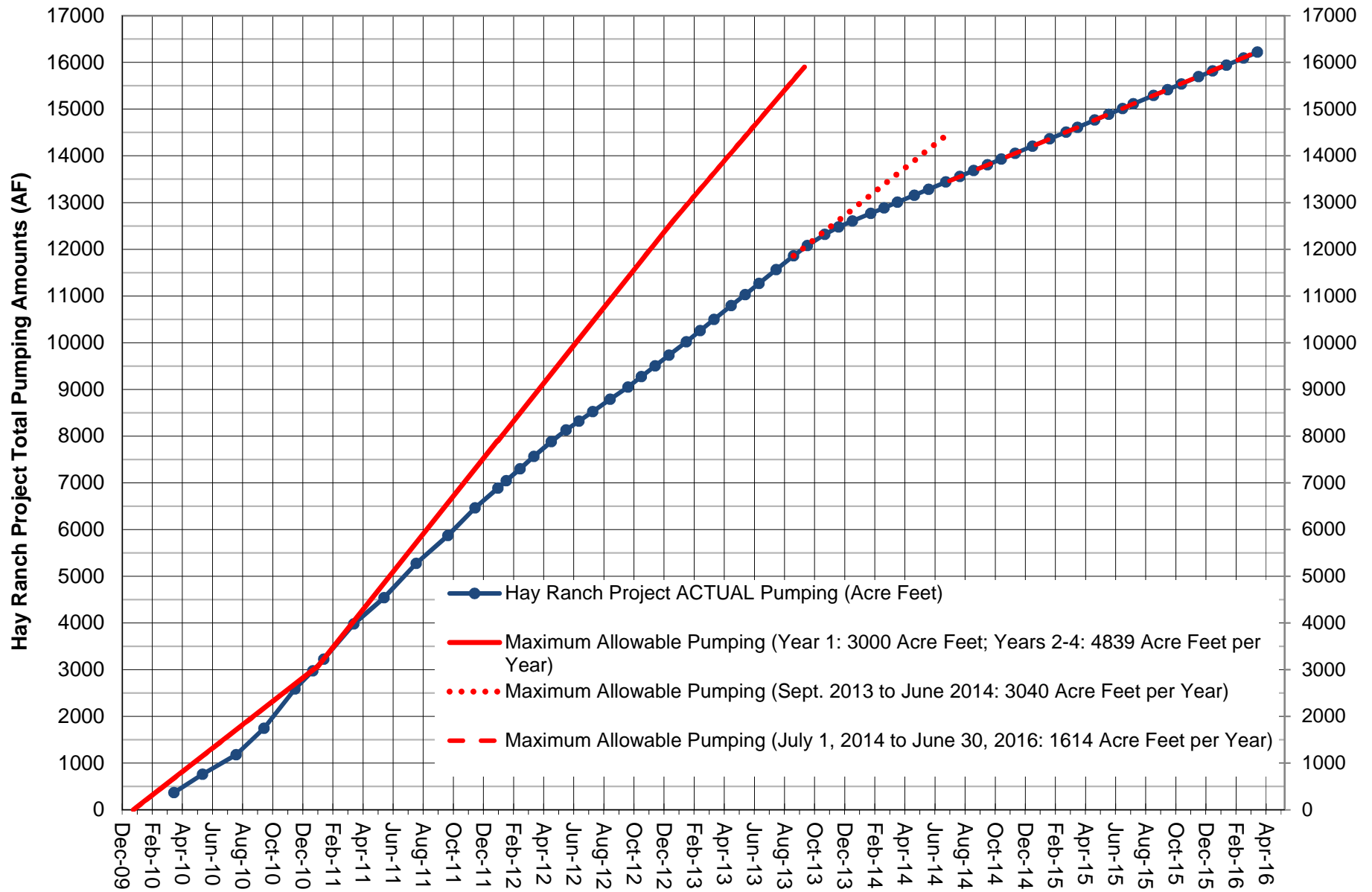
Well ID	Monitoring Point	Baseline GWE ¹ (feet amsl)	Recent Date of Measurement	Recent GWE (feet amsl)	Recent GWE Compared to Baseline (feet)	Drawdown Trigger Level ³ (feet)	Recent GWE Compared to Trigger Level (feet)	Recent GWE Above Max DD ² (feet)
RV-80	HR 2A	3240.92	03/16/16	3230.53	-10.39	15.3	4.91	6.11
RV-90	Coso Jct Ranch	3230.65	03/16/16	3227.88	-2.77	9.30	6.53	6.53
RV-100	Coso Jct Store #1	3227.59	03/16/16	3224.31	-3.28	8.30	5.02	5.12
RV-120	Red Hill Well	3200.66	03/16/16	3200.03	-0.63	3.00	2.37	3.17
RV-130	G-36	3198.35	03/16/16	3197.69	-0.66	2.20	1.54	2.64
RV-140	Lego	3199.21	03/16/16	3198.60	-0.61	0.70	0.09	1.79
RV-150	Cinder Road	3186.92	03/16/16	3186.10	-0.82	1.00	0.18	1.48
RV-160	18-28 GTH	3187.67	03/16/16	3187.93	0.26	0.70	0.96	2.36
RV-180	LLR North Well	3158.88	03/17/16	3158.45	-0.43	0.40	-0.03	0.87

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.