

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

June 29, 2011

**RE: Summary of Hydrologic Monitoring Activities June 2011**  
Rose Valley, Inyo County, California  
Hay Ranch Project Conditional Use Permit #2007-03

Dear Dr. Harrington:

This letter is intended to summarize hydrologic monitoring activities conducted in June 2011 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 (Coso) 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 has entered Phase 4: Ongoing Monitoring, Mitigation and Reporting.

### **Monitoring and Reporting**

During the June 2011 monthly hydrologic data collection event at 30 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 16 and 17. Pressure transducer data were downloaded from 24 units, including one "BaroTroll" measuring barometric pressure. On June 7, a DTW measurement at LADWP 816 Well was taken by LADWP personnel.

At the Hay Ranch Property, Coso pumped groundwater from two production wells: Hay Ranch North and Hay Ranch South. For the first year of project pumping, from December 25, 2009 to December 24, 2010, a total of approximately 2992 acre feet (AF) of groundwater were extracted from these two wells (821 AF from the Hay Ranch North Well, and 2171 AF from the Hay Ranch South Well).

During the January 1, 2011 to June 17, 2011 period, a total of approximately 1887 AF of groundwater have been extracted from the Hay Ranch property (683 AF from the Hay Ranch North Well, and 1204 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 AF) from December 25, 2009 through June 17, 2011 compared to a hypothetical pumping amount. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to June 17, 2011 was approximately 4954 AF. The hypothetical pumping amount assumes a pumping rate of approximately 3000 acre-feet per year (AFY) for December 25, 2009 through December 31, 2010 and assumes a pumping rate of approximately 4839 AFY from January 1, 2011 through December 31, 2011. These hypothetical pumping rates represent the maximum allowable pumping amounts for the 2010 and 2011 periods.

### **Trigger Levels and Maximum Acceptable Drawdowns**

In Table 2 of the 2011 ICWD Addendum, Trigger Levels and Maximum Acceptable Drawdowns have been set based on an annual pumping rate of 4839 AFY. Approximately 18 months (1.5 years) have elapsed since the Hay Ranch Project's pumping was initiated. Based on data collected by TEAM during the June 2011 monitoring event, no Trigger Levels or Maximum Acceptable Drawdowns have been exceeded at Hay Ranch Project monitoring wells which have baseline and trigger levels established.

### **Operational Notes**

At Davis Ranch South Well, the in-well pressure transducer experienced significant upward pressure drift during the monitoring period (May-June 2011) that was not confirmed by manual measurements. Therefore, the Davis Ranch South Well pressure transducer was inspected, recalibrated and reinstalled on June 17, 2011. The Davis Ranch South Flume experienced upward pressure drifts due to root growth in the flume; the flume was cleaned.

At Red Hill Well, the pressure transducer experienced power instability and was removed from the well on June 17, 2011. The unit will be replaced, and a new unit will be installed.

At Little Lake Ranch, two instances of water management were note worthy. For parts of the May-June 2011 monitoring period, the Dock Well was actively pumped. Temporary groundwater level drawdowns were captured by the in-well pressure transducer at the Dock Well. At Coso Springs, Little Lake Ranch staff conducted water management work in the vicinity of the Coso Springs Flume. There was an increase in flow through the flume during the monitoring period.

### **Data Transmittal**

TEAM posted updates to the "Coso" database on the ICWD web server. New 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**  
**June 16-17, 2011**

Project Name:	Hay Ranch Project HMMP	Date: June 16-17, 2011
Location:	Rose Valley, Inyo County	
Observer(s):	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	06/16/11	15:30	231.22		3755.70	TEAM manual read	NA	
RV-20	LADWP 816	06/07/11	12:00	75.64		3439.42	LADWP manual read	NA	Data provided by LADWP
RV-30	Cal Pumice	06/16/11	9:21	254.95		3250.94	TEAM manual read	Hourly	
RV-40	Dunmovin	06/16/11	9:00	299.87		3248.00	TEAM manual read	NA	
RV-50	Hay Ranch North	06/17/11	10:23	NM	Yes	NM	TEAM manual read	NA	499,509,014 gallons (1533) pumped since 12/25/09
RV-60	Hay Ranch 1A	06/17/11	10:54	200.11		3232.06	TEAM manual read	Hourly	
RV-61	Hay Ranch 1B	06/17/11	10:59	234.35		3197.50	TEAM manual read	Hourly	
RV-62	Hay Ranch 1C	06/17/11	11:05	221.39		3210.11	TEAM manual read	Hourly	
RV-70	Hay Ranch South	06/17/11	10:24	NM	Yes	NM	TEAM manual read	NA	1,114,707,057 gallons (3421 AF) pumped since 12/25/09
RV-80	Hay Ranch 2A	06/17/11	11:15	200.40		3232.60	TEAM manual read	Hourly	
RV-81	Hay Ranch 2B	06/17/11	11:25	229.10		3203.53	TEAM manual read	Hourly	
RV-82	Hay Ranch 2C	06/17/11	11:19	213.10		3219.00	TEAM manual read	Hourly	
RV-90	Coso Jct Ranch	06/16/11	15:04	172.00		3231.13	TEAM manual read	Hourly	
RV-100	Coso Jct Store #1	06/16/11	9:42	145.05		3227.07	TEAM manual read	Hourly	
RV-110	Davis Ranch North Well	06/17/11	12:15	6.48		3886.52	TEAM manual read	Hourly	
RV-111	Davis Ranch South Well	06/17/11	12:25	11.24		3886.76	TEAM manual read	Hourly	
RV-112	Davis Ranch South Flow	06/17/11	12:52	NA	0.012	NA	TEAM manual read	Hourly	
RV-120	Red Hill Well (BLM)	06/16/11	14:23	139.78		3201.05	TEAM manual read	Hourly	
RV-130	G-36	06/16/11	14:12	180.10		3199.92	TEAM manual read	NA	
RV-140	Lego	06/16/11	13:59	222.13		3200.72	TEAM manual read	Hourly	
RV-150	Cinder Road	06/16/11	12:22	190.89		3187.07	TEAM manual read	Hourly	
RV-160	18-28 GTH	06/16/11	13:40	173.82		3188.76	TEAM manual read	Hourly	
RV-170	Fossil Falls Campground	06/16/11	12:51	141.03		3175.74	TEAM manual read	NA	
RV-180	LLR North Well	06/16/11	10:15	40.08		3159.02	TEAM manual read	Hourly	
RV-210	LLR Dock Well	06/16/11	10:35	6.25		3147.89	TEAM manual read	Hourly	
RV-220	LLR Stilling Well (lake surface)	06/16/11	10:43	3.66		3147.38	TEAM manual read	Hourly	
RV-230	LLR Little Lake Outflow	06/16/11	11:25	NA	0.00	NA	TEAM manual read	Hourly	
RV-240	LLR Coso Springs Flow	06/16/11	11:01	NA	0.41	NA	TEAM manual read	Hourly	
RV-245	LLR North Culvert Flow	06/16/11	11:49	NA	0.99	NA	TEAM manual read	Hourly	
RV-250	LLR Siphon Discharge	06/16/11	11:45	NA	Yes	NA	TEAM visual read	NA	Siphon Well flowing into Pond 2
RV-260	LLR Hotel Well	06/16/11	10:02	0.56		3138.22	TEAM manual read	Hourly	

NM - not measured; NA - not applicable; IO - Inoperative

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**  
**June 2011**

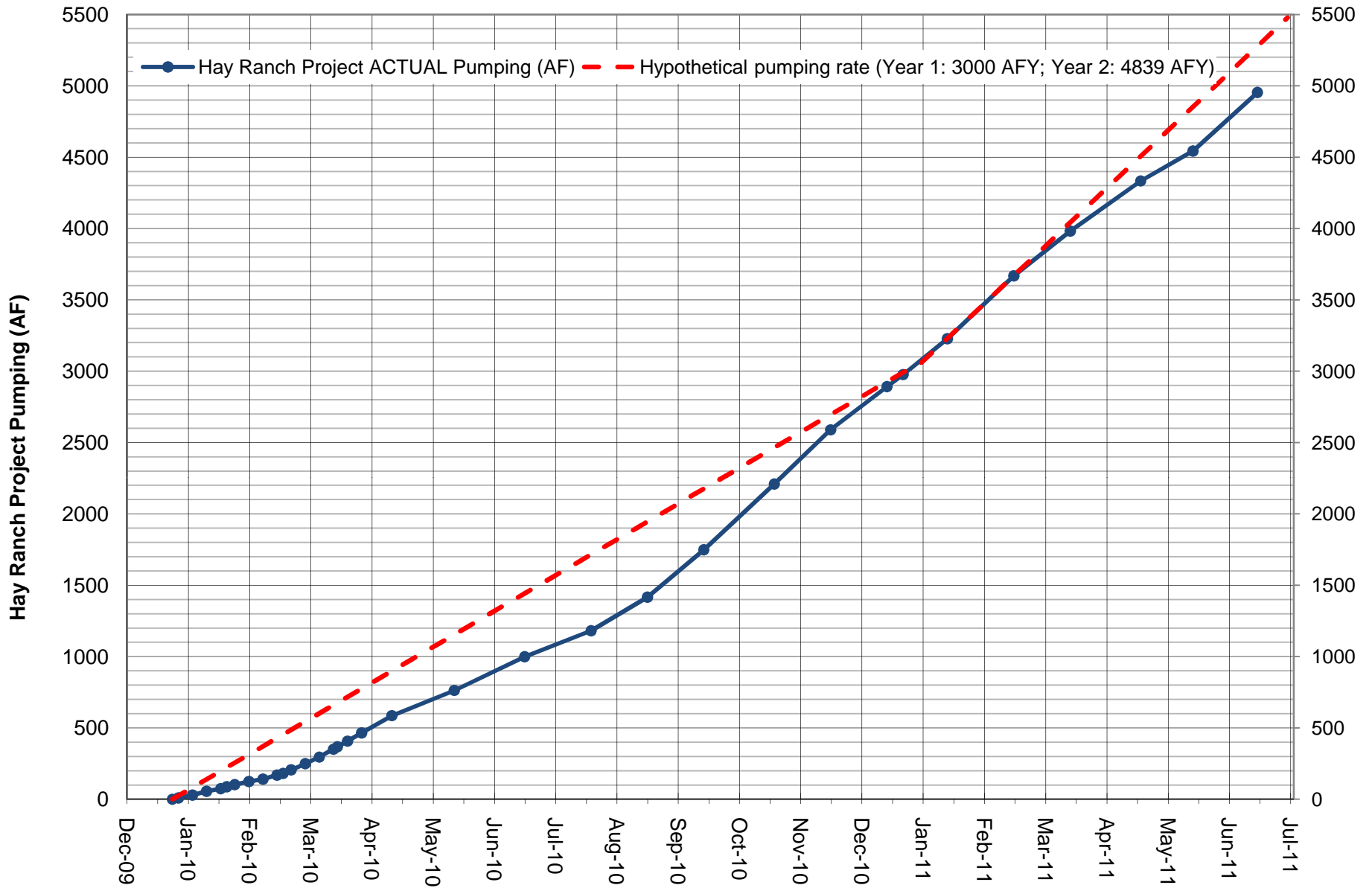
Well ID	Monitoring Point	Baseline GWE <sup>1</sup> (feet amsl)	Recent Date of Measurement	Recent GWE (feet amsl)	Recent GWE Compared to Baseline (feet)	Recent GWE Above Max DD <sup>2</sup> (feet)	Trigger Level At Cessation of Pumping <sup>3</sup> (feet)	Recent GWE Compared to Trigger Level (feet)
RV-40	Dunmovin	3252.73	06/16/11	3248.00	-4.73	18.57	23.2	18.47
RV-80	HR 2A	3240.92	06/17/11	3232.60	-8.32	19.28	27.6	19.28
RV-90	Coso Jct Ranch	3230.65	06/16/11	3231.13	0.48	12.18	11.3	11.78
RV-100	Coso Jct Store #1	3227.59	06/16/11	3227.07	-0.52	9.58	9.5	8.98
RV-120	Red Hill Well	3200.66	06/16/11	3201.05	0.39	4.29	1.8	2.19
RV-130	G-36	3198.35	06/16/11	3199.92	1.57	4.97	1.0	2.57
RV-140	Lego	3199.21	06/16/11	3200.72	1.51	3.81	0.0	1.51
RV-150	Cinder Road	3186.92	06/16/11	3187.07	0.15	2.45	0.2	0.35
RV-160	18-28 GTH	3187.67	06/16/11	3188.76	1.09	3.19	0.0	1.09
RV-180	LLR North Well	3158.88	06/16/11	3159.02	0.14	1.44	0.0	0.14

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

2) Max DD: Maximum Acceptable Drawdown from Table 2 of "Addendum to HMMP for CUP#2007-003/Coso Operating Company, LLC"

3) Trigger Level at Cessation of Pumping from Table 2 of "Addendum to HMMP for CUP#2007-003/Coso Operating Company, LLC"

**FIGURE 1**  
**HYPOTHETICAL AND ACTUAL HAY RANCH PROJECT PUMPING**



Note: Coso Operating Co. initiated Hay Ranch Project pumping on 12/25/09.

The "hypothetical pumping rate" is based on a pumping rate of 3000 AF per year for 12/25/09 to 12/31/10, and 4839 AF per year for 1/1/11 to 12/31/11.