

Dr. Aaron Steinwand  
Inyo County Water Department  
135 South Jackson Street  
Independence, CA 93526

October 6, 2021

**RE: Summary of Hydrologic Monitoring Activities, September 2021**  
Rose Valley, Inyo County, California  
Hay Ranch Project Conditional Use Permit #2007-03

Dear Dr. Steinwand:

This letter summarizes hydrologic monitoring activities conducted in September 2021 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. On June 20, 2016 the ICWD extended the June 30, 2016 cessation of pumping date to September 30, 2016.

Re-evaluation of pumping rates and duration based on recalibration of the model was conducted by DBS&A in 2017. Continuation of pumping, at a rate not to exceed 1,611 acre-feet annually beginning on June 1, 2017, was approved in ICWD's June 27, 2017 letter to COC regarding Conditional Use Permit #2007-003/Coso. Revised Maximum Acceptable Drawdown and Drawdown at Cessation of Pumping values were provided to TEAM in the DBS&A report titled "Third Updated Groundwater Flow Model and Predictive Simulation Results, Coso Operating Company, Hay Ranch Water Extraction and Delivery System" dated August 24, 2017. On

November 2, 2018, COC requested an evaluation be performed to determine if pumping could be extended past May 31, 2019. In a letter dated November 27, 2018, ICWD agreed to allow COC to pump the remaining volume from the amount permitted to be extracted from June 1, 2017 through May 31, 2019. This allowed COC to pump up to the remaining 1,936 AF from November 14, 2018 through May 31, 2021. Approximately 130 AF of the 1,936 AF were extracted from November 14, 2018 to May 12, 2021.

Re-evaluation of pumping rates and duration based on an update of the model was conducted by DBS&A in May 2021. Continuation of pumping, at a rate not to exceed 800 acre-feet annually beginning on June 1, 2021, was approved in ICWD's May 28, 2021 letter to COC regarding Conditional Use Permit #2007-003/Coso. Revised Maximum Acceptable Drawdown and Drawdown at Cessation of Pumping values were provided in the DBS&A report titled "Fourth Updated Groundwater Flow Model and Predictive Simulation Results, Coso Operating Company, Hay Ranch Water Extraction and Delivery System" dated May 27, 2021.

### **Monitoring and Reporting**

During the September 2021 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 were collected on September 15 and 16, 2021. Pressure transducer data were downloaded from monitoring units including one "BaroTroll" which records barometric pressure. Data for LADWP 816 Well were requested from LADWP.

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 September 15, 2021 compared to the current maximum allowable pumping amount. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to September 15, 2021 (Hay Ranch CUP project total) is approximately 18,000 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 2011 through August 2013; was 3,040 AFY from September 2013 through June 2014; was 1,614 AFY from July 2014 through September 2016; and was 1,611 AFY from June 2017 through May 31, 2021. The current maximum allowable pumping rate is 800 AFY for the period of June 1, 2021 to May 31, 2025.

For the current annual pumping period (measured from May 12, 2021 to May 31, 2022) totalizers have indicated an estimated 75 AF of groundwater, of the 800 AF allowable, have been extracted from the Hay Ranch Property through September 15, 2021.

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

In the May 2021 DBS&A report, Trigger Levels and Maximum Acceptable Drawdowns were recommended for specific monitoring wells, based on a maximum allowable pumping rate of 800 AFY beginning on June 1, 2021 through May 31, 2025. These levels were incorporated into the updated Table 2 provided herein.

Based on data collected by TEAM during the September 2021 monitoring period, none of the Trigger Levels were exceeded at Hay Ranch Project monitoring wells which have baselines and trigger levels established (see Table 2). No Maximum Acceptable Drawdown levels have been reached during COC pumping under CUP #2007-03.

### **Operational Notes**

The battery for the transducer in the LLR North Well (RV-180) stopped working. An external backup battery was installed and function was restored. There were no other new significant operational issues observed during the reporting period.

### **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)).

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

Sincerely,

TEAM Engineering & Management, Inc.



Greg M. Foote  
Senior Environmental Scientist

**TABLE 1**  
**Field Observations of Rose Valley Hydrologic Monitoring Points**  
**September 2021**

Project Name:	Hay Ranch Project HMMP	Date: September 15 & 16, 2021
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	NA	TEAM manual read	NA	
RV-20	LADWP 816	NM	NM	NM	NA	BA	LADWP manual read	NA	Data requested from LADWP
RV-30	Cal Pumice	NM	NM	NM	NA	NA	TEAM manual read	Hourly	Measured to be dry in Jan. 2021 and previously.
RV-40	Dunmovin	NM	NM	NM	NA	NA	TEAM manual read	NA	Discontinued due to new in-well infrastructure
RV-50	Hay Ranch North	09/15/21	12:40	NM	No	NA	TEAM manual read	NA	3,770,613,310 gallons (11,572 AF) pumped since 12/25/09
RV-60	Hay Ranch 1A	09/15/21	12:56	192.73	NA	3239.44	TEAM manual read	Hourly	
RV-61	Hay Ranch 1B	09/15/21	12:52	196.05	NA	3235.80	TEAM manual read	Hourly	
RV-62	Hay Ranch 1C	09/15/21	12:48	192.32	NA	3239.18	TEAM manual read	NA	
RV-70	Hay Ranch South	09/15/21	12:41	NM	No	NA	TEAM manual read	NA	2,094,680,750 gallons (6,417 AF) pumped since 12/25/09
RV-80	Hay Ranch 2A	09/15/21	13:13	196.52	NA	3236.48	TEAM manual read	Hourly	
RV-81	Hay Ranch 2B	09/15/21	13:09	201.37	NA	3231.26	TEAM manual read	Hourly	
RV-82	Hay Ranch 2C	09/15/21	13:03	195.21	NA	3236.89	TEAM manual read	NA	
RV-90	Coso Jct Ranch	09/15/21	11:54	174.42	NA	3228.71	TEAM manual read	NA	
RV-100	Coso Jct Store #1	09/15/21	12:05	145.34	NA	3226.78	TEAM manual read	Hourly	
RV-110	Davis Ranch North Well	NM	NM	NM	NA	NA	TEAM manual read	NA	Pump installed in DR North well in May 2021.
RV-111	Davis Ranch South Well	09/15/21	11:29	14.11	NA	3883.95	TEAM manual read	NA	Pump installed in DR South well in Aug 2015
RV-112	Davis Ranch South Flow	09/15/21	11:35	NM	0.021	NM	TEAM manual read	NA	Flow actively managed
RV-120	Red Hill Well (BLM)	09/15/21	12:17	141.45	NA	3199.38	TEAM manual read	Hourly	
RV-130	G-36	09/15/21	10:31	182.93	NA	3197.09	TEAM manual read	NA	
RV-140	Lego	09/15/21	10:19	225.04	NA	3197.81	TEAM manual read	Hourly	
RV-150	Cinder Road	09/15/21	9:15	192.66	NA	3185.30	TEAM manual read	Hourly	Surveyed measuring point removed, DTW measured to TOC
RV-160	18-28 GTH	09/15/21	10:10	175.56	NA	3187.02	TEAM manual read	NA	
RV-170	Fossil Falls Campground	09/15/21	9:42	141.85	NA	3174.92	TEAM manual read	NA	
RV-180	LLR North Well	09/16/21	9:42	41.10	NA	3158.00	TEAM manual read	Hourly	
RV-210	LLR Dock Well	09/16/21	10:11	7.03	NA	3147.11	TEAM manual read	NA	Surveyed measuring point removed, DTW measured to TOC
RV-220	LLR Stilling Well (lake surface)	09/16/21	10:08	4.61	NA	3146.43	TEAM manual read	Hourly	
RV-230	LLR Little Lake Outflow	09/16/21	10:24	NA	0.00	NA	TEAM manual read	Hourly	Accuracy limitations (maintenance recommended)
RV-240	LLR Coso Springs Flow	09/16/21	11:00	NA	0.43	NA	TEAM manual read	Hourly	
RV-245	LLR North Culvert Flow	09/16/21	11:22	NA	0.67	NA	TEAM manual read	Hourly	
RV-250	LLR Siphon Discharge	09/16/21	11:15	NA	Yes	NA	TEAM visual read	NA	Siphon Well flowing into Pond 2
RV-260	LLR Hotel Well	09/15/21	9:31	0.32	NA	3138.46	TEAM manual read	NA	

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**  
**September 2021**

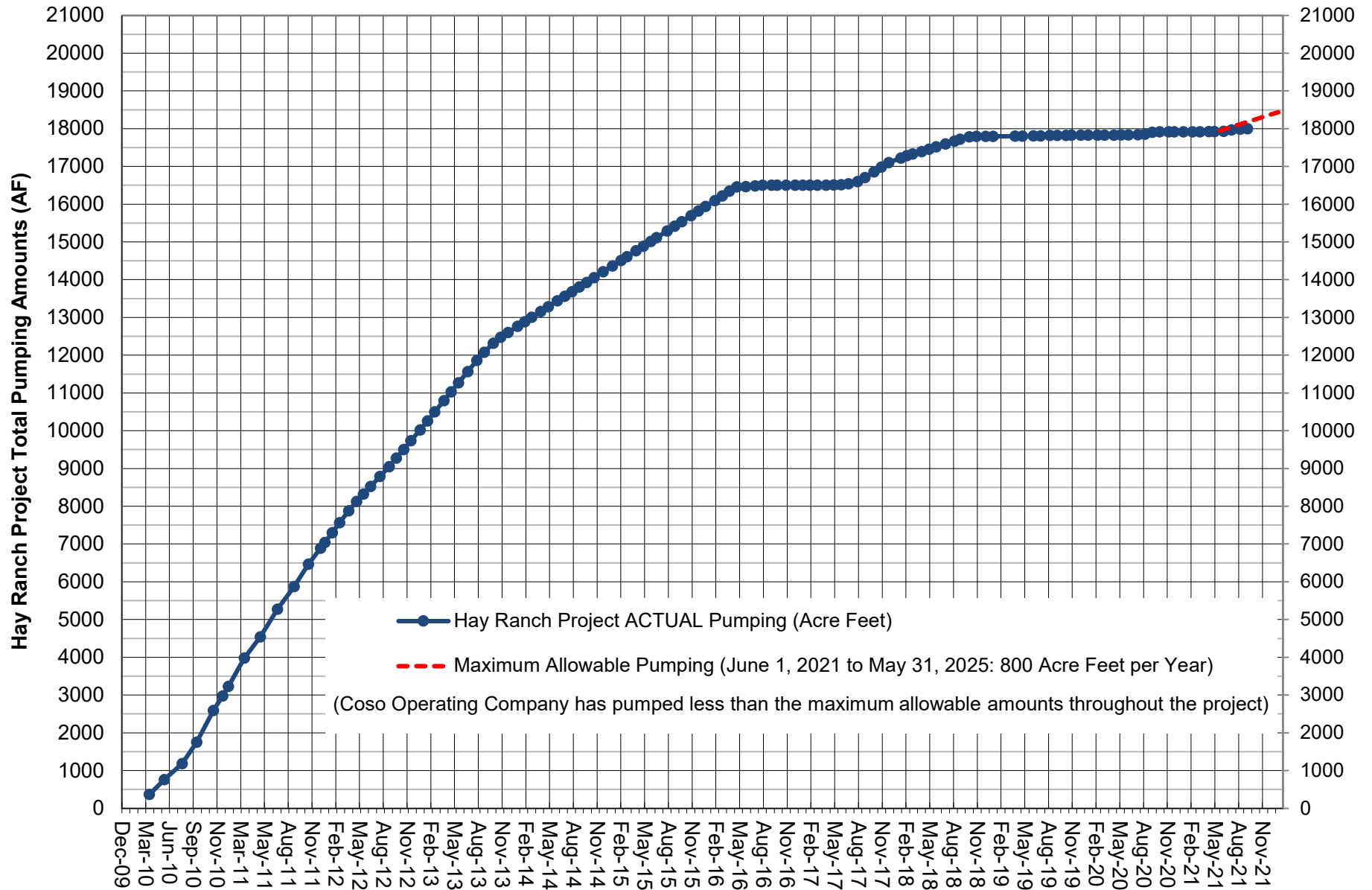
Well ID	Monitoring Point	Baseline GWE <sup>1</sup> (feet amsl)	Recent Date of Measurement	Recent GWE (feet amsl)	Recent GWE Compared to Baseline (feet)	Drawdown Trigger Level <sup>2</sup> (feet)	Recent GWE Compared to Trigger Level (feet)	Maximum Acceptable Drawdown <sup>2</sup> (feet)	Recent GWE Above Max. Drawdown (feet)
RV-80	HR 2A	3240.92	09/15/21	3236.48	-4.44	13.6	9.16	17.6	13.16
RV-90	Coso Jct Ranch	3230.65	09/15/21	3228.71	-1.94	8.3	6.36	9.4	7.76
RV-100	Coso Jct Store #1	3227.59	09/15/21	3226.78	-0.81	7.6	6.79	8.4	7.89
RV-120	Red Hill Well	3200.66	09/15/21	3199.38	-1.28	3.4	2.12	3.5	2.72
RV-130	G-36	3198.35	09/15/21	3197.09	-1.26	3.0	1.74	3.1	2.34
RV-140	Lego	3199.21	09/15/21	3197.81	-1.40	2.1	0.70	2.5	1.30
RV-150	Cinder Road	3186.92	9/15/21 (3)	3185.30	-1.62	2.0	0.38	2.2	0.78
RV-160	18-28 GTH	3187.67	09/15/21	3187.02	-0.65	1.9	1.25	2.1	1.65
RV-180	LLR North Well	3158.88	09/16/21	3158.00	-0.88	1.1	0.22	1.3	0.52

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 and Trigger Level: Maximum Acceptable Drawdown and Drawdown Trigger Level from Table 4 of the "Fourth Updated Groundwater Flow Model and Predictive Simulation Results, Coso Operating Company Hay Ranch Water Extraction and Delivery System, Conditional Use Permit (CUP) 2007-003" Dated May 27, 2021.

3) Cinder Road well damaged in October 2017, surveyed measuring point removed. Accuracy of GWE calculation may be reduced.

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



Note: The max. allowable pumping is based on a 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, 1,614 AF/yr from 7/14 to 6/16, 1611 AFY for 6/17 to 5/21 and 800 AFY from 6/21 to 5/25.