

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

December 3, 2019

**RE: Summary of Hydrologic Monitoring Activities, November 2019**  
Rose Valley, Inyo County, California  
Hay Ranch Project Conditional Use Permit #2007-03

Dear Dr. Steinwand:

This letter summarizes hydrologic monitoring activities conducted in November 2019 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 allows COC to pump up to the remaining 1,936 AF from November 14, 2018 through May 31, 2021 as long as all other agreed upon conditions are followed.

### **Monitoring and Reporting**

During the November 2019 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 were collected on November 12 and 14, 2019. Pressure transducer data were downloaded from monitoring units including one “BaroTroll” which records barometric pressure. Data for LADWP 816 Well were requested from LADWP in November.

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 November 12, 2019 compared to the maximum allowable pumping amounts. The total amount of groundwater extracted from the Hay Ranch property from December 25, 2009 to November 12, 2019 (Hay Ranch CUP project total) is approximately 17,825 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 June 2016, extended by ICWD through September 2016; and is 1,611 AFY from June 2017 through May 2019, extended by ICWD through May 31, 2021.

For the current extended pumping period (November 14, 2018 to May 31, 2021) totalizers have indicated an estimated 30 AF of groundwater, of the 1,936 AF allowable, have been extracted from the Hay Ranch Property through November 12, 2019.

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

In the August 2017 DBS&A report, Trigger Levels and Maximum Acceptable Drawdowns were recommended for specific monitoring wells, based on a maximum allowable pumping rate of 1,611 AFY starting on June 1, 2017. These levels were incorporated into the updated Table 2 provided herein.

Based on the manual depth to water (DTW) data collected by TEAM on November 12, 2019, the Water Level at the Lego Well (RV-140) was measured in exceedance of its Trigger Level, by 0.02 feet. No action is required other than notification, until two triggers are exceeded by 0.25 feet or more.

Based on data collected by TEAM during the November 2019 monitoring period, none of the other 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**

Due to extended artesian conditions, a 2” PVC cap was used to close the opening at the top of the Hotel Well. (RV-260). There were no other 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**  
**November 2019**

|               |                          |                              |
|---------------|--------------------------|------------------------------|
| Project Name: | Hay Ranch Project HMMP   | Date: November 12 & 14, 2019 |
| 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                        | NA       | NA    | NA       | NA         | NA            | LADWP manual read | NA                      | Data requested from LADWP                                |
| RV-30   | Cal Pumice                       | NM       | NM    | NA       | NA         | NA            | TEAM manual read  | Hourly                  | Measured to be dry to appx. 238' below TOC in Sept. 2019 |
| RV-40   | Dunmovin                         | NM       | NM    | NM       | NA         | NM            | TEAM manual read  | NA                      | Discontinued due to new in-well infrastructure           |
| RV-50   | Hay Ranch North                  | 11/12/19 | 12:55 | NM       | No         | NM            | TEAM manual read  | NA                      | 3,769,696,021 gallons (11,569 AF) pumped since 12/25/09  |
| RV-60   | Hay Ranch 1A                     | 11/12/19 | 13:10 | 193.06   | NA         | 3239.11       | TEAM manual read  | Hourly                  |  |
| RV-61   | Hay Ranch 1B                     | 11/12/19 | 13:06 | 197.49   | NA         | 3234.36       | TEAM manual read  | Hourly                  |  |
| RV-62   | Hay Ranch 1C                     | 11/12/19 | 13:03 | 194.00   | NA         | 3237.50       | TEAM manual read  | NA                      |  |
| RV-70   | Hay Ranch South                  | 11/12/19 | 12:56 | NM       | No         | NM            | TEAM manual read  | NA                      | 2,038,663,424 gallons (6,256 AF) pumped since 12/25/09   |
| RV-80   | Hay Ranch 2A                     | 11/12/19 | 13:27 | 197.19   | NA         | 3235.81       | TEAM manual read  | Hourly                  |  |
| RV-81   | Hay Ranch 2B                     | 11/12/19 | 13:23 | 203.05   | NA         | 3229.58       | TEAM manual read  | Hourly                  |  |
| RV-82   | Hay Ranch 2C                     | 11/12/19 | 13:20 | 197.21   | NA         | 3234.89       | TEAM manual read  | NA                      |  |
| RV-90   | Coso Jct Ranch                   | 11/12/19 | 10:16 | 175.38   | NA         | 3227.75       | TEAM manual read  | NA                      |  |
| RV-100  | Coso Jct Store #1                | 11/12/19 | 10:09 | 145.90   | NA         | 3226.22       | TEAM manual read  | Hourly                  |  |
| RV-110  | Davis Ranch North Well           | 11/12/19 | 10:36 | 6.60     | NA         | 3886.46       | TEAM manual read  | Hourly                  |  |
| RV-111  | Davis Ranch South Well           | 11/12/19 | 10:41 | 0.57     | NA         | 3884.67       | TEAM manual read  | Hourly                  | Pump installed in DR South well in Aug 2015              |
| RV-112  | Davis Ranch South Flow           | 11/12/19 | 10:51 | NM       | 0.016      | NM            | TEAM manual read  | NA                      | Flow actively managed                                    |
| RV-120  | Red Hill Well (BLM)              | 11/12/19 | 9:54  | 141.51   | NA         | 3199.32       | TEAM manual read  | Hourly                  |  |
| RV-130  | G-36                             | 11/12/19 | 12:33 | 182.99   | NA         | 3197.03       | TEAM manual read  | NA                      |  |
| RV-140  | Lego                             | 11/12/19 | 12:25 | 224.96   | NA         | 3197.89       | TEAM manual read  | Hourly                  |  |
| RV-150  | Cinder Road                      | 11/12/19 | 11:15 | 192.52   | NA         | 3185.44       | TEAM manual read  | Hourly                  | Surveyed measuring point removed, DTW measured to TOC    |
| RV-160  | 18-28 GTH                        | 11/12/19 | 12:12 | 175.19   | NA         | 3187.39       | TEAM manual read  | NA                      |  |
| RV-170  | Fossil Falls Campground          | 11/12/19 | 11:45 | 141.51   | NA         | 3175.26       | TEAM manual read  | NA                      |  |
| RV-180  | LLR North Well                   | 11/14/19 | 10:22 | 40.80    | NA         | 3158.30       | TEAM manual read  | Hourly                  |  |
| RV-210  | LLR Dock Well                    | 11/14/19 | 10:50 | 6.35     | NA         | 3147.79       | TEAM manual read  | NA                      | Surveyed measuring point removed, DTW measured to TOC    |
| RV-220  | LLR Stilling Well (lake surface) | 11/14/19 | 10:42 | 3.85     | NA         | 3147.19       | TEAM manual read  | Hourly                  |  |
| RV-230  | LLR Little Lake Outflow          | 11/14/19 | 11:04 | NA       | 0.00       | NA            | TEAM manual read  | Hourly                  |  |
| RV-240  | LLR Coso Springs Flow            | 11/14/19 | 11:25 | NA       | 0.48       | NA            | TEAM manual read  | Hourly                  |  |
| RV-245  | LLR North Culvert Flow           | 11/14/19 | 11:47 | NA       | 0.92       | NA            | TEAM manual read  | Hourly                  |  |
| RV-250  | LLR Siphon Discharge             | 11/14/19 | 11:40 | NA       | Yes        | NA            | TEAM visual read  | NA                      | Siphon Well flowing into Pond 2                          |
| RV-260  | LLR Hotel Well                   | 11/12/19 | 11:30 | -0.48    | NA         | 3139.26       | TEAM manual read  | NA                      | Artesian, 0.48 ft. above casing                          |

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**  
**November 2019**

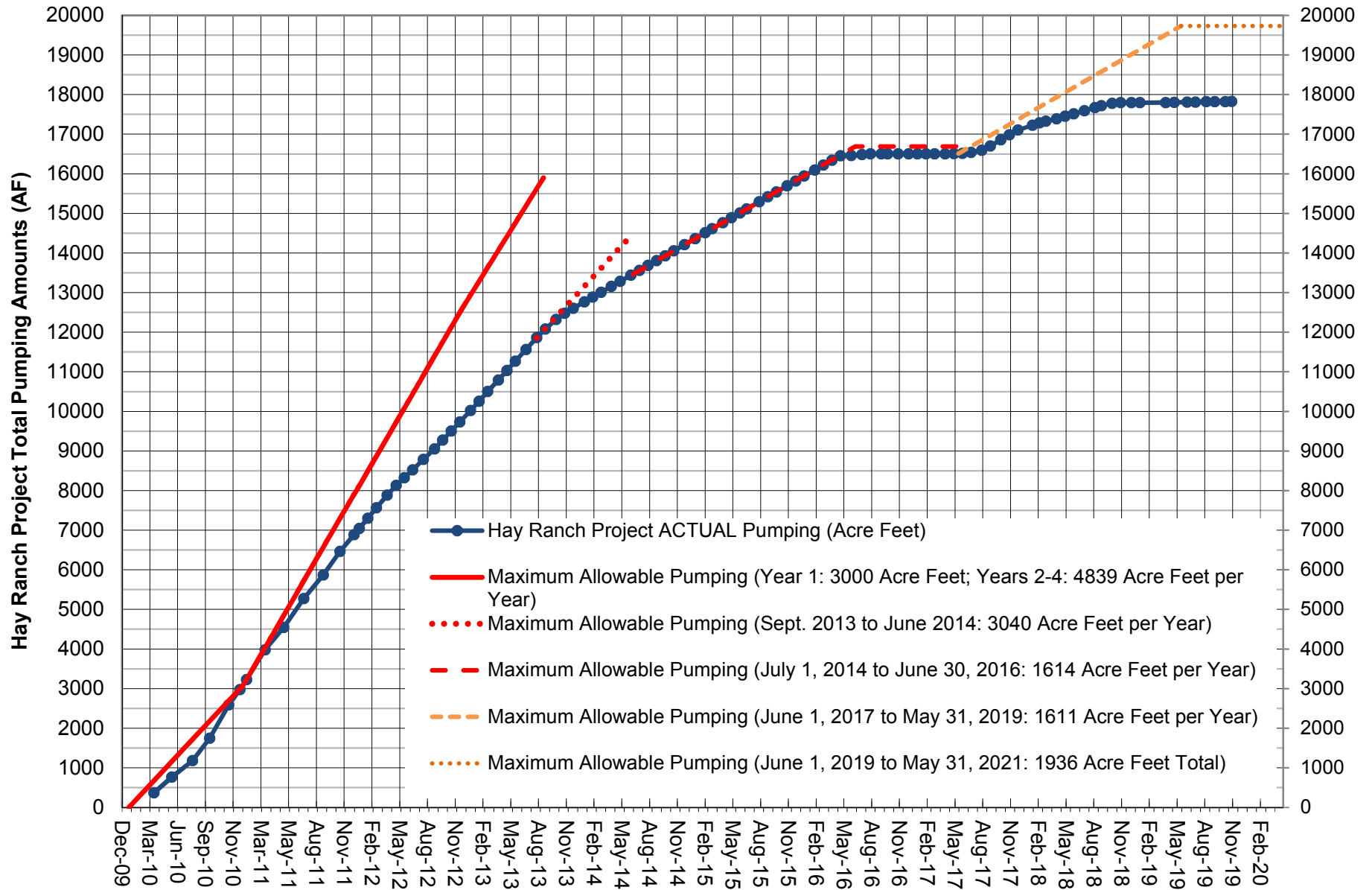
| Well ID | Monitoring Point  | Baseline GWE <sup>1</sup><br>(feet amsl) | Recent Date<br>of Measurement | Recent GWE<br>(feet amsl) | Recent GWE<br>Compared to Baseline<br>(feet) | Drawdown<br>Trigger Level <sup>2</sup><br>(feet) | Recent GWE<br>Compared to Trigger Level<br>(feet) | Recent GWE<br>Above Max<br>Drawdown <sup>2</sup><br>(feet) |
|---------|-------------------|--|-------------------------------|---------------------------|--|--|---|--|
| RV-80   | HR 2A             | 3240.92                                  | 11/12/19                      | 3235.81                   | -5.11  | 16.9   | 11.79   | 12.49  |
| RV-90   | Coso Jct Ranch    | 3230.65                                  | 11/12/19                      | 3227.75                   | -2.90  | 9.60   | 6.70  | 6.80   |
| RV-100  | Coso Jct Store #1 | 3227.59                                  | 11/12/19                      | 3226.22                   | -1.37  | 8.60   | 7.23  | 7.33   |
| RV-120  | Red Hill Well     | 3200.66                                  | 11/12/19                      | 3199.32                   | -1.34  | 3.40   | 2.06  | 2.66   |
| RV-130  | G-36              | 3198.35                                  | 11/12/19                      | 3197.03                   | -1.32  | 2.70   | 1.38  | 2.28   |
| RV-140  | Lego              | 3199.21                                  | 11/12/19                      | 3197.89                   | -1.32  | 1.30   | -0.02   | 1.38   |
| RV-150  | Cinder Road       | 3186.92                                  | 11/12/19 (3)                  | 3185.44                   | -1.48  | 1.50   | 0.02  | 0.92   |
| RV-160  | 18-28 GTH         | 3187.67                                  | 11/12/19                      | 3187.39                   | -0.28  | 1.20   | 0.92  | 2.02   |
| RV-180  | LLR North Well    | 3158.88                                  | 11/14/19                      | 3158.30                   | -0.58  | 0.70   | 0.12  | 0.82   |

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 "Third 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 August 24, 2017.

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 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, 1,614 AF/yr from 7/14 to 6/16 and 1611 AFY for 6/17 to 5/21.