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<td><strong>Filer:</strong></td>
<td>Kyle McCormack</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>Heorot Power Management</td>
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QUARTERLY COMPLIANCE REPORT
(Third Quarter 2020)

MALBURG GENERATING STATION
4963 SOTO STREET, VERNON, CA 90058

SUBMITTED TO:
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET, SACRAMENTO, CA 95814
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SECTION 1
INTRODUCTION

This Quarterly Compliance Report (QCR) has been prepared to meet the California Energy Commission (CEC) requirements for the Malburg Generating Station (MGS). This QCR fulfills various Conditions of Certifications as described in the California Energy Commission’s Petition to Amend License, June 20, 2019.

1.1 PROJECT LOCATION AND DESCRIPTION
The Malburg Generating Station is located at 4963 Soto Street on approximately 3.4 acres, in an industrial land use area. MGS is located near the geographic center of metropolitan Los Angeles County. MGS consists of two Alstom GTX-100 frame type natural gas combustion turbine generators (CTGs); two heat recovery steam generators (HRSG); a steam turbine-generator (STG); a cooling tower, a diesel fuel fired emergency firewater pump and support equipment.

The commissioning of MGS was completed in October 2005 and the power plant began Commercial Operation on October 17, 2005.

1.2 ORGANIZATION OF THE QUARTERLY COMPLIANCE REPORT
A summary of each condition of certification and required means of verification are provided in Section 2. Each sub-section also contains a description of the method used by MGS to demonstrate compliance with the verification requirements and references to Appendices, Figures and Tables as appropriate.
SECTION 2
COMPLIANCE DETAILS

The compliance details for various conditions of certification are provided below.

2.1 CONDITION OF CERTIFICATION AQ-C6
As per the Condition of Certification Number AQ-C6, MGS shall determine the Total Dissolved Solids (TDS) levels in the blowdown water by independent laboratory testing prior to initial operation and periodically thereafter.

For verification of the above condition of certification, the CEC requires MGS to submit weekly TDS reports for the blowdown water as part of the quarterly emission report to the Compliance Project Manager (CPM) for approval.

As demonstration of compliance, the weekly TDS results are provided in Table 2-1, and the weekly sample reports during operation are provided in Appendix A.

2.2 CONDITION OF CERTIFICATION AQ-C7
As per the Condition of Certification Number AQ-C7, particulate matter of diameter less than 10 microns (PM$_{10}$) emissions from the cooling tower shall not exceed 6.2 lb/day.

Compliance with the PM$_{10}$ daily emission limit shall be demonstrated as follows:

$$\text{PM}_{10} \text{ lb/day} = A \times B \times C \times D$$

Where:

- $A$ = circulating water recirculation rate
- $B$ = total dissolved solids concentration in the blowdown water to be updated on a weekly basis
- $C$ = design drift rate
- $D$ = correction factor

For verification of the above condition of certification, the CEC requires the project owner to calculate the daily PM$_{10}$ emissions from the cooling tower and submit all calculations and results on a quarterly basis in the quarterly emissions reports to the CPM for approval.

As demonstration of compliance, the daily PM$_{10}$ emissions from the cooling tower are provided in Tables 2-2 through 2-4.

2.3 CONDITION OF CERTIFICATION AQ-C8
As per the Condition of certification Number AQ-C8, the project owner shall refrain from testing the firewater pump during the same hour as either gas fired combustion turbines is in start up or shut down as defined by Condition of Certification AQ-C9.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all testing times and results of the diesel fired emergency firewater pump in the quarterly emissions report.

As demonstration of compliance, the testing times for the diesel fired emergency firewater pump are provided in Table 2-5. MGS refrained from testing the diesel fired
emergency firewater pump on the same hour the combustion turbines were either started or shutdown.

2.4 CONDITION OF CERTIFICATION AQ-C9

As per the Condition of certification Number AQ-C9, MGS shall use the provided definitions to determine compliance with startup, shutdown and any related emission or operational limitations.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval, a record of all startups and shutdowns including duration and date of occurrence on a quarterly basis as part of the quarterly emission report.

As demonstration of compliance, the startup and shutdown details are provided in Table 2-14.

2.5 CONDITION OF CERTIFICATION AQ-C10

The condition of certification number AQ-C10 has been deleted.

2.6 CONDITION OF CERTIFICATION AQ-C11

As per the Condition of Certification Number AQ-C11, MGS shall submit a quarterly emissions report on a quarterly basis to the CPM for approval. The quarterly emissions report shall generally report all ammonia, NO\textsubscript{x}, SO\textsubscript{x}, CO, PM\textsubscript{10} and VOC emissions from the MGS as necessary to demonstrate compliance with all emission limits. The fourth quarter emission report shall include an annual summary of all emissions of ammonia, NO\textsubscript{x}, SO\textsubscript{x}, CO, PM\textsubscript{10} and VOC as necessary to demonstrate compliance with all annual emission limits.

For verification of the above condition of certification, the CEC requires MGS to submit the quarterly emissions report no less than 30 days after the end of each calendar quarter.

2.7 CONDITION OF CERTIFICATION AQ-2

As per the Condition of Certification Number AQ-2, MGS shall not use diesel oil containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

For verification of the above condition of certification, the CEC requires MGS to submit fuel purchase records for approval to the CPM on a quarterly basis in the quarterly emissions report.

Low sulfur diesel fuel was purchased February 19, 2020.

2.8 CONDITION OF CERTIFICATION AQ-3

As per the Condition of Certification Number AQ-3, MGS shall keep records, in a manner approved by the District, for the following parameter(s) or item(s): Purchase records of fuel oil and sulfur content of the fuel.

For verification of the above condition of certification, the CEC requires MGS to submit fuel purchase records for approval to the CPM on a quarterly basis in the quarterly emissions report.
Low sulfur diesel fuel was purchased February 19, 2020.

2.9 CONDITION OF CERTIFICATION AQ-5
As per the condition of certification number AQ-5, MGS shall limit the emissions from both gas-fired combustion turbine-heat recovery steam generator train exhaust stacks as follows:

Contaminant Emissions Limit
- CO 7,633 lbs in any one month
- PM$_{10}$ 4,876 lbs in any one month
- PM$_{2.5}$ 4,876 lbs in any one month
- VOC 3,236 lbs in any one month
- SO$_x$ 227 lbs in any one month

For verification of the above condition of certification, the CEC requires the MGS to submit all emission calculations, fuel use and a summary demonstrating compliance of all emission limits stated in this condition for approval to the CPM on a quarterly basis in the quarterly emissions report.

As demonstration of compliance, the monthly emissions of CO, PM$_{10}$, VOC, and SO$_x$ are presented in Tables 2-11 through 2-13. In addition, the fuel usage for the two turbine-duct burner pairs is provided in Table 2-15. MGS calculates the emission limit(s) for CO based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions are calculated in accordance with the approved CEMS Plan. MGS calculates the emission limit(s) by using the monthly fuel use data and the following emission factors:- PM$_{10}$, PM$_{2.5}$: 6.014 lb/mmscf, VOC: 1.54 lb/mmscf & SO$_x$: 0.28lb/mmscf.

2.10 CONDITION OF CERTIFICATION AQ-6
As per the condition of certification numbers AQ-6; following commissioning, start-ups shall not exceed 120 minutes during a cold start-up without a trip, and 150 minutes during a cold start-up with a trip. Cold start-ups with or without a trip shall not exceed the following limits: NO$_x$ 122.8 lbs, CO 204.8 lbs and VOC 1.75 lbs.

Start-ups shall not exceed 90 minutes during a non-cold start-up without a trip or 120 minutes during a non-cold start-up with a trip. Non-cold start-ups shall not exceed the following limits: NO$_x$ 51.3 lbs, CO 59.9 lbs, and VOC 1.55 lbs.

Shut-downs shall not exceed 30 minutes. Shut-downs shall not exceed the following limits: NO$_x$ 4.5 lbs, CO 10.8 lbs, and VOC 0.71 lbs.

The number of startups shall not exceed two per day per turbine.

For verification of the above condition of certification, the CEC requires the MGS to submit a record of all startups and shutdowns including duration and date of occurrence on a quarterly basis as part of the quarterly emission report.

As demonstration of compliance, the startup and shutdown details are provided in Table 2-14. Additionally, quarterly excess emission reports from the DAHS are provided in Appendix B.
2.11 CONDITION OF CERTIFICATION AQ-8
The Condition of Certification Number AQ-8 has been deleted.

2.12 CONDITION OF CERTIFICATION AQ-9
As per the Condition of Certification Number AQ-9, the 2.0 ppmv oxides of nitrogen (NO\textsubscript{X}) emissions limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis, during the normal operation of the MGS combustion turbine generators.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

NO\textsubscript{X} emission for MGS Units 1 and 2 are measured using the CEMS. A review of CEMS NOx emission data indicated that the maximum corrected NOx emissions concentration for both MGS combustion turbines during normal operations was 2.1 ppmv, which is greater than the emission concentration limit of 2.0 ppmv. All CEMS data for MGS combustion turbines are stored electronically at MGS. The quarterly excess emission reports from the DAHS are provided in Appendix B.

2.13 CONDITION OF CERTIFICATION AQ-10
As per the Condition of Certification Number AQ-10 the 2.0 ppmv carbon monoxide (CO) emissions limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis, during the normal operation of the MGS combustion turbine generators.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

CO emission for MGS Units 1 and 2 are measured using the CEMS. A review of CEMS CO emission data indicated that maximum CO emission concentration for both MGS combustion turbines was 0.7 ppmv, which is lower than the emission concentration limit of 2.0 ppmv. All CEMS data for MGS combustion turbines are stored electronically at MGS. As demonstration of compliance, quarterly excess emission reports from the DAHS are provided in Appendix B.

2.14 CONDITION OF CERTIFICATION AQ-11
As per the Condition of Certification Number AQ-11, the 2.0 ppmv VOC emission limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.
2.15 CONDITION OF CERTIFICATION AQ-12

As per the Condition of Certification Number AQ-12, the 5 ppm ammonia (NH₃) emission limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis. MGS shall calculate and continuously record the ammonia slip concentration using the following:

\[ \text{NH}_3 \text{ (ppmv)} = \left[ a - \left( \frac{b \times c}{1,000,000} \right) \right] \times \left( \frac{1,000,000 \times d}{b} \right) \]

where

\[ a = \text{ammonia injection rate (lbs/hr)}/17 \text{ (lbs/lb-mole)} \]
\[ b = \text{dry exhaust gas flow rate (lbs/hr)}/29 \text{ (lbs/lb-mole)} \]
\[ c = \text{change in measured NO}_X \text{ across the SCR (ppmv dry basis)} \]
\[ d = \text{correction derived by comparing the measured and calculated NH}_3 \text{ slip concentrations during annual compliance testing.} \]

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

NH₃ emissions are calculated via the CEMS on an hourly basis but compliance with 5 ppm limit is demonstrated from source tests. The last NH₃ compliance source test, performed in March 2020, indicated compliance with the emission limits for both CT1 and for CT2.

2.16 CONDITION OF CERTIFICATION AQ-13

As per the Condition of Certification Number AQ-13, for the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both emission limits at the same time.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

Rule 475 limits emission of combustion contaminants from electric generating equipment to no more than 5 kilograms (11 pounds) per hour or 23 milligrams per cubic meter (0.01 gr/SCF) calculated at three percent oxygen on a dry basis averaged over 15 consecutive minutes or any other averaging time specified by the Executive Officer.

The results of the last compliance source tests performed in August 2019 indicated compliance with the particulate matter emission limits for both CT1 and CT2.

2.17 CONDITION OF CERTIFICATION AQ-14

As per the Condition of Certification Number AQ-14, MGS shall only use diesel fuel containing the following specified compounds:

- Sulfur less than or equal to 15 ppm by weight.

For verification of the above condition of certification, the CEC requires MGS to submit fuel purchase records to the CPM on a quarterly basis as part of the quarterly emissions report.

MGS uses CARB Ultra Low Sulfur Diesel for the diesel fire pump (D48). This is an ash less oil. As demonstration of compliance, detailed specifications of CARB Ultra Low Sulfur Diesel are provided in Appendix C.
2.18 CONDITION OF CERTIFICATION AQ-15
As per the condition of certification number AQ-15, MGS will limit the operating time to no more than 200 hours each in any one year.

Operations for maintenance and testing as defined in Rule 1470 shall not exceed 50 hours in any one calendar year. The total annual operating time includes all operations including maintenance and testing.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all testing times and results of the diesel fired emergency firewater pump in the quarterly emissions report.

As demonstration of compliance, the testing times for the diesel fired emergency firewater pump are provided in Table 2-5.

2.19 CONDITION OF CERTIFICATION NUMBER AQ-27
As per the Condition of Certification Number AQ-27, MGS shall limit the fuel usage of each turbine-duct burner pair to no more than 405 MM cubic feet per month.

For verification of the above condition of certification, the CEC requires MGS to submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

As demonstration of compliance, the fuel usage for the two turbine-duct burner pairs is provided in Table 2-15.
### Table 2-1

Malburg Generating Station  
Cooling Tower TDS Sampling Results  
Quarter 3, 2020

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Table 2-2

Malburg Generating Station
Cooling Tower Daily PM10 Emissions During Jul. 2020

PM₁₀ = A x B x C x D
PM₁₀ Limit is 6.2 lbs/day
A = Circulation Rate
B = TDS
C = Drift Factor
D = Correction Factor

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### Table 2-3

**Malburg Generating Station**  
**Cooling Tower Daily PM10 Emissions During Aug. 2020**

PM\(_{10}\) = A x B x C x D  
PM\(_{10}\) Limit is 6.2 lbs/day

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<th>TDS (ppm)</th>
<th>PM(_{10}) (lbs/day)</th>
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</tr>
<tr>
<td>16</td>
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<td>4700</td>
<td>1.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Circulation Rate (gal/day)</th>
<th>TDS (ppm)</th>
<th>PM(_{10}) (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>38,811,456</td>
<td>4700</td>
<td>1.52</td>
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<td>1.52</td>
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<tr>
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<td>1.46</td>
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<tr>
<td>30</td>
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<td>1.50</td>
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<tr>
<td>31</td>
<td>38,811,456</td>
<td>4650</td>
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</tr>
</tbody>
</table>
Table 2-4
Malburg Generating Station
Cooling Tower Daily PM10 Emissions During Sep. 2020

PM$_{10}$ = A x B x C x D  
A = Circulation Rate  
B = TDS  
C = Drift Factor  
D = Correction Factor

<table>
<thead>
<tr>
<th>Date</th>
<th>Circulation Rate (gal/day)</th>
<th>TDS (ppm)</th>
<th>PM$_{10}$ (lbs/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38,811,456</td>
<td>4650</td>
<td>1.50</td>
</tr>
<tr>
<td>2</td>
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<td>1.50</td>
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<tr>
<td>3</td>
<td>38,811,456</td>
<td>4650</td>
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<tr>
<td>4</td>
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<tr>
<td>6</td>
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<td>1.42</td>
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<tr>
<td>7</td>
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<td>1.42</td>
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<tr>
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<td>1.39</td>
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</tbody>
</table>

MGS CEC Table 2-4
# Table 2-5

Heorot Power Management  
Malburg Generating Station  
Diesel Fuel Fired Emergency Firewater Pump Testing Times  
During Quarter 3, 2020

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Main / Test Emerg.</th>
<th>Hours of Operation</th>
<th>Fuel Used (gals)</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul. 05, 2020</td>
<td>22:23</td>
<td>Testing</td>
<td>0.6</td>
<td>6.7</td>
<td>SCTFO</td>
</tr>
<tr>
<td>Jul. 12, 2020</td>
<td>21:18</td>
<td>Testing</td>
<td>0.6</td>
<td>6.7</td>
<td>JAFO</td>
</tr>
<tr>
<td>Jul. 19, 2020</td>
<td>20:09</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>STFO</td>
</tr>
<tr>
<td>Jul. 26, 2020</td>
<td>23:23</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>JPFO</td>
</tr>
<tr>
<td>Aug. 03, 2020</td>
<td>00:37</td>
<td>Testing</td>
<td>0.4</td>
<td>4.5</td>
<td>SCTFO</td>
</tr>
<tr>
<td>Aug. 09, 2020</td>
<td>19:42</td>
<td>Testing</td>
<td>0.6</td>
<td>6.7</td>
<td>JAFO</td>
</tr>
<tr>
<td>Aug. 16, 2020</td>
<td>20:33</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>STFO</td>
</tr>
<tr>
<td>Aug. 23, 2020</td>
<td>23:19</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>JPFO</td>
</tr>
<tr>
<td>Aug. 27, 2020</td>
<td>09:55</td>
<td>Testing</td>
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<td>JAFO</td>
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<td>09:13</td>
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<td>0.5</td>
<td>5.6</td>
<td>JAFO</td>
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<tr>
<td>Sep. 20, 2020</td>
<td>23:19</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>JPFO</td>
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<td>Sep. 28, 2020</td>
<td>01:02</td>
<td>Testing</td>
<td>0.5</td>
<td>5.6</td>
<td>SCTFO</td>
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</table>

Note: Event 'DNR' - Did Not Run
### Table 2-11

**Malburg Generating Station**  
**Total Monthly Emissions**  
**Jul-2020**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Gas Turbines (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO lbs</td>
<td>1,042</td>
</tr>
<tr>
<td>PM10 lbs</td>
<td>2,690</td>
</tr>
<tr>
<td>PM2.5 lbs</td>
<td>2,690</td>
</tr>
<tr>
<td>VOC lbs</td>
<td>689</td>
</tr>
<tr>
<td>SOx lbs</td>
<td>125</td>
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</table>

### Table 2-12

**Malburg Generating Station**  
**Total Monthly Emissions**  
**Aug-2020**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Gas Turbines (2)</th>
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</thead>
<tbody>
<tr>
<td>CO lbs</td>
<td>1,085</td>
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<tr>
<td>PM10 lbs</td>
<td>2,828</td>
</tr>
<tr>
<td>PM2.5 lbs</td>
<td>2,828</td>
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<tr>
<td>VOC lbs</td>
<td>724</td>
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<tr>
<td>SOx lbs</td>
<td>131</td>
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</table>

### Table 2-13

**Malburg Generating Station**  
**Total Monthly Emissions**  
**Sep-2020**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Gas Turbines (2)</th>
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<tr>
<td>CO lbs</td>
<td>974</td>
</tr>
<tr>
<td>PM10 lbs</td>
<td>2,641</td>
</tr>
<tr>
<td>PM2.5 lbs</td>
<td>2,641</td>
</tr>
<tr>
<td>VOC lbs</td>
<td>677</td>
</tr>
<tr>
<td>SOx lbs</td>
<td>123</td>
</tr>
<tr>
<td>Date</td>
<td>Event Type</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>07/03/2020</td>
<td>Shutdown/Trip</td>
</tr>
<tr>
<td>07/03/2020</td>
<td>Warm Startup</td>
</tr>
<tr>
<td>08/02/2020</td>
<td>Shutdown</td>
</tr>
<tr>
<td>08/02/2020</td>
<td>Warm Startup</td>
</tr>
<tr>
<td>08/29/2020</td>
<td>Shutdown/Trip</td>
</tr>
<tr>
<td>08/30/2020</td>
<td>Warm Startup</td>
</tr>
<tr>
<td>09/21/2020</td>
<td>Shutdown/Trip</td>
</tr>
<tr>
<td>09/21/2020</td>
<td>Warm Startup</td>
</tr>
</tbody>
</table>

**CT2**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Type</th>
<th>Event Start</th>
<th>Event End</th>
<th>Duration (hrs:min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/03/2020</td>
<td>Shutdown/Trip</td>
<td>16:25</td>
<td>16:25</td>
<td>0:00</td>
</tr>
<tr>
<td>07/03/2020</td>
<td>Warm Startup</td>
<td>19:41</td>
<td>20:37</td>
<td>0:56</td>
</tr>
<tr>
<td>07/26/2020</td>
<td>Shutdown</td>
<td>00:01</td>
<td>00:09</td>
<td>0:08</td>
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<tr>
<td>07/26/2020</td>
<td>Warm Startup</td>
<td>17:02</td>
<td>18:03</td>
<td>1:01</td>
</tr>
<tr>
<td>08/29/2020</td>
<td>Shutdown/Trip</td>
<td>22:09</td>
<td>22:09</td>
<td>0:00</td>
</tr>
<tr>
<td>08/30/2020</td>
<td>Warm Startup</td>
<td>08:23</td>
<td>09:28</td>
<td>1:05</td>
</tr>
<tr>
<td>09/21/2020</td>
<td>Shutdown/Trip</td>
<td>14:14</td>
<td>14:14</td>
<td>0:00</td>
</tr>
<tr>
<td>09/21/2020</td>
<td>Warm Startup</td>
<td>16:15</td>
<td>17:04</td>
<td>0:49</td>
</tr>
</tbody>
</table>
Table 2-15
Malburg Generating Station
Combustion Turbines and Duct Burner Gas Usage
During Quarter 3, 2020

<table>
<thead>
<tr>
<th>Month</th>
<th>CT-1 / DB-1 Gas Usage (mmscf)</th>
<th>CT-2 / DB-2 Gas Usage (mmscf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul-20</td>
<td>225.82</td>
<td>221.44</td>
</tr>
<tr>
<td>Aug-20</td>
<td>231.69</td>
<td>238.59</td>
</tr>
<tr>
<td>Sep-20</td>
<td>218.13</td>
<td>221.07</td>
</tr>
</tbody>
</table>
Appendix A

Cooling Tower Blowdown Reports
July 06, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058

Report No.: 2006303  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on June 29, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
Certificate of Analysis

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2006303-01) Sampled: 06/29/20 09:50 Received: 06/29/20 09:50

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4500</td>
<td>1</td>
<td>5.0</td>
<td>mg/l</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>07/01/20</td>
<td>07/02/20</td>
<td>dd</td>
</tr>
</tbody>
</table>

Quality Control Data

<table>
<thead>
<tr>
<th>Batch BG00238 --</th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td>Prepared: 07/01/20 Analyzed: 07/02/20</td>
<td>ND</td>
<td>5.0</td>
<td>mg/l</td>
<td>5.0</td>
<td>LCS</td>
<td>07/01/20</td>
<td>07/02/20</td>
<td>50.0</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>Prepared: 07/01/20 Analyzed: 07/02/20</td>
<td>49.0</td>
<td>5.0</td>
<td>mg/l</td>
<td>50.0</td>
<td>LCS</td>
<td>07/01/20</td>
<td>07/02/20</td>
<td>80-120</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>Source: 2006303-01 Prepared: 07/01/20 Analyzed: 07/02/20</td>
<td>4500</td>
<td>5.0</td>
<td>mg/l</td>
<td>4500</td>
<td>LCS</td>
<td>07/01/20</td>
<td>07/02/20</td>
<td>0.111</td>
</tr>
</tbody>
</table>

Notes and Definitions

NA Not Applicable
ND Analyte NOT DETECTED at or above the detection limit
NR Not Reported
MDL Method Detection Limit
PQL Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)
**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

CLIENT NAME: [Name]  
PROJECT NAME/NO: Malibu Corrosion Study Weekly

ADDRESS: [Address]

PROJECT MANAGER: [Name]  
PHONE NO:  
FAX NO:  

SAMPLER NAME: [Name]  
(Printed)  
(Signature)

TAT (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

CONTAINER TYPES: B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other

UST Project: Y N  
GLOBAL ID#  

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>DATE SAMPLED</th>
<th>TIME SAMPLED</th>
<th>SAMPLE DESCRIPTION</th>
<th>MATRIX</th>
<th>TAT</th>
<th>CONTAINER TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6/29/20</td>
<td>9:30</td>
<td>Leaning Tower Brandon</td>
<td>W</td>
<td>N</td>
<td>P</td>
</tr>
</tbody>
</table>

SAMPLE CONDITION/CONTAINER/COMMENTS:

SPECIAL INSTRUCTIONS:

PRESERVATIVE: 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

SAMPLE DISPOSITION:

1. Samples returned to client?  
   YES  
   NO

2. Samples will not be stored over 30 days, unless additional storage time is requested.

3. Storage time requested:  
   [Number of days]

By [Signature and Printed Name]  
Date:

LAB COPY
July 16, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2007092
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on July 10, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
## Certificate of Analysis

Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058  
Attn: Tom Barnhart  
Phone: (323) 476-3626  
FAX: (323) 476-3640  

**Project:** Malburg Generating Station Weekly  

**Sample ID:** Cooling Tower Blowdown Water (2007092-01)  
**Sampled:** 07/10/20 09:40  
**Received:** 07/10/20 09:40  

### Analyte Results Flag D.F. Units PQL Prep/Test Method Prepared Analyzed By Batch

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
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</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
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<td>mg/L</td>
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<td>07/13/20</td>
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### Quality Control Data

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### Notes and Definitions

- **NA** Not Applicable  
- **ND** Analyte NOT DETECTED at or above the detection limit  
- **NR** Not Reported  
- **MDL** Method Detection Limit  
- **PQL** Practical Quantitation Limit  

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138  

Authorized Signature(s)

[Signature]

File #: 74548  
Report Date: 07/16/20  
Submitted: 07/10/20  
PLS Report No.: 2007092
### Chain of Custody and Analysis Request

**Client Name:** CB

**Address:**

**Project Manager:** Tim Banhart

**Phone No.:**

**FAX No.:**

**Analyses Requested:**

**Cooler Temp.:** 1.9°C

**Preservative:**

**Remarks:**

**Container Types:**
- B = Brass
- E = Encore
- G = Glass
- P = Plastic
- V = VOA Vial
- O = Other

**UST Project:**
- Y = Yes
- N = No

### Sample Data

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<th>Sample Description</th>
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<td>1</td>
<td>7/10/20</td>
<td>0945</td>
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**Sample Disposition:**

1. Samples returned to client? **YES**

2. Samples will not be stored over 30 days, unless additional storage time is requested.

3. Storage time requested: ___________ days

**Special Instructions:**

By ____________________________ Date ____________________________

**Received By:** (Signature and Printed Name)

**Returned By:** (Signature and Printed Name)

**Date:** __/__/____

**Time:** __:__ __

**LOG BOOK NO.:** __________

**FILE NO.:** __________

**LAB NO.:** __________

**LAB COPY**
July 20, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058

Report No.: 2007109  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on July 13, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]

Project Manager
### Certificate of Analysis

**Project:** Malburg Generating Station Weekly

**Sample ID:** Cooling Tower Blowdown Water (2007109-01) Sampled: 07/13/20 08:35  Received: 07/13/20 08:35

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#### Quality Control Data

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#### Notes and Definitions

- **NA**: Not Applicable
- **ND**: Analyte NOT DETECTED at or above the detection limit
- **NR**: Not Reported
- **MDL**: Method Detection Limit
- **PQL**: Practical Quantitation Limit

---

**Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138**

**Authorized Signature(s)**
# Chain of Custody and Analysis Request

**Client Name:** CEM  
**Project Name/No.:** Monthly Genergy Sample Weekly  
**Log Book No.:**  
**File No.:**  
**Lab No.:**  
**Date:**  
**Page:** 1 of 7  
**Log Book No.:**  
**File No.:**  
**Lab No.:** 201109

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<td>0835</td>
<td>Leaving Tower 1/4-1/2</td>
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**Preservative:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

**Remarks:**

---

**Sample Disposition:**

1. Samples returned to client? **YES** NO
2. Samples will not be stored over 30 days, unless additional storage time is requested. Storage time requested: ______ days

---

**Special Instructions:**

---

**Signature and Printed Name:**

---

**Signature and Printed Name:**

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**Signature and Printed Name:**

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**Signature and Printed Name:**

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**Signature and Printed Name:**

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**Signature and Printed Name:**

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**Signature and Printed Name:**

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July 28, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2007199
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on July 21, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.
Certificate of Analysis

Sample ID: Cooling Tower Blowdown Water (2007199-01) Sampled: 07/21/20 10:05 Received: 07/21/20 10:05

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Quality Control Data

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Notes and Definitions

NA Not Applicable
ND Analyte NOT DETECTED at or above the detection limit
NR Not Reported
MDL Method Detection Limit
PQL Practical Quantitation Limit

Authorized Signature(s)

[Signature]

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138
# Chain of Custody and Analysis Request

**Client Name:** [Name]

**Address:**

**Project Name/No:** [Name]

**P.O. No.:** [Number]

**Log Book No.:** [Number]

**File No.:** [Number]

**Lab No.:** [Number]

**Date:** [Date]

**Page:** 1 of 1

---

**Analyses Requested:**

**Cooler Temp.:** [Temperature]

**Preservative:**

**Remarks:**

---

**Container Types:**

- B = Brass
- E = Encore
- G = Glass
- P = Plastic
- V = VOA Vial
- O = Other

**UST Project:** [Yes/No] - [Global ID#]

---

<table>
<thead>
<tr>
<th>Sample No.</th>
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<th>Time Sampled</th>
<th>Sample Description</th>
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---

**Sample Condition/Container/Comments:**

---

**Sample Disposition:**

1. Samples returned to client? **YES** **NO**

2. Samples will not be stored over 30 days, unless additional storage time is requested. **[Date]** **[Time]**

3. Storage time requested: **[Number]** days

---

**Special Instructions:**

**Preservative:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other
August 03, 2020

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on July 27, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]

Project Manager
**Certificate of Analysis**

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2007258-01) Sampled: 07/27/20 08:30 Received: 07/27/20 08:30

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**Notes and Definitions**

- NA : Not Applicable
- ND : Analyte NOT DETECTED at or above the detection limit
- NR : Not Reported
- MDL : Method Detection Limit
- PQL : Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

[Signature]

Authorized Signature(s)
**SAMPLE CONDITION/CONTAINER COMMENTS:**

**SPECIAL INSTRUCTIONS:**

**PRESERVATIVE:** 1-HNO₃, 2-H₂SO₄, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH₄ Buffer, 7-Other
August 10, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2008010
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 04, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
## Certificate of Analysis

**Project:** Malburg Generating Station Weekly

**Sample ID:** Cooling Tower Blowdown  Water (2008010-01)  
**Sampled:** 08/04/20 08:15  
**Received:** 08/04/20 08:15

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4380</td>
<td>1</td>
<td></td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>08/06/20</td>
<td>08/07/20</td>
<td>dd</td>
<td>BH00711</td>
</tr>
</tbody>
</table>

**Quality Control Data**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>PQL</th>
<th>Units</th>
<th>Spike Level</th>
<th>Source</th>
<th>%REC</th>
<th>RPD Limit</th>
<th>Qualifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td></td>
<td>5.0</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCS</td>
<td>48.0</td>
<td>5.0</td>
<td>mg/L</td>
<td>50.0</td>
<td></td>
<td>96.0</td>
<td>80-120</td>
<td></td>
</tr>
<tr>
<td>Duplicate Source: 2008010-01</td>
<td>4570</td>
<td>5.0</td>
<td>mg/L</td>
<td>4380</td>
<td>4.20</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes and Definitions**

- **NA**  Not Applicable
- **ND** Analyte NOT DETECTED at or above the detection limit
- **NR**  Not Reported
- **MDL** Method Detection Limit
- **PQL** Practical Quantitation Limit

[Authorized Signature(s)]

---

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138
### Chain of Custody and Analysis Request

**Client Name:** LCM

**Project Name/No.:** Weekly

**Analyses Requested:**

- **Cooler Temp:** 1.6°C

**Sample Date/Time Matrix**

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Date Sampled</th>
<th>Time Sampled</th>
<th>Sample Description</th>
<th>Matrix</th>
<th>TAT</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/4/10</td>
<td>08:15</td>
<td>Leading Power Blending</td>
<td>WATER</td>
<td>2</td>
<td>1 P</td>
</tr>
</tbody>
</table>

**Preservative:**

- 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

**Remarks:**

- Samples returned to client? **YES**
- Samples will not be stored over 30 days, unless additional storage time is requested.
- Storage time requested: _______ days

**Sample Disposition:**

1. Samples returned to client? **YES** **NO**
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: _______ days

**Special Instructions:**

- Date: ____
- Time: ____

**Sample Condition/Container/Comments:**

- **UST Project:** Y
- **Global ID:**

---

**Log Book No.:** ______

**File No.:** ______

**Lab No.:** ______

**Page 1 of 1**

---

**Lab Service Address:**

781 East Washington Blvd., Los Angeles, CA 90021

**Lab Service Phone:** (213) 745-5312

**Fax:** (213) 745-6372

**Lab Copy**
August 18, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2008110
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 12, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
# Certificate of Analysis

**Project:** Malburg Generating Station Weekly

---

**Sample ID:** Cooling Tower Blowdown Water (2008110-01) Sampled: 08/12/20 08:20 Received: 08/12/20 08:20

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4570</td>
<td>1</td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>08/13/20</td>
<td>08/14/20</td>
<td>dd</td>
<td>BH01713</td>
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</tbody>
</table>

**Quality Control Data**

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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
</table>

**Blank**

<table>
<thead>
<tr>
<th>Total Dissolved Solids</th>
<th>ND</th>
<th></th>
<th>mg/L</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

**LCS**

<table>
<thead>
<tr>
<th>Total Dissolved Solids</th>
<th>52.0</th>
<th>5.0</th>
<th>mg/L</th>
<th>50.00</th>
<th>104</th>
<th>80-120</th>
<th></th>
<th></th>
<th></th>
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**Duplicate Source: 2008114-09**

<table>
<thead>
<tr>
<th>Total Dissolved Solids</th>
<th>3770</th>
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<th>mg/L</th>
<th>3750</th>
<th>0.620</th>
<th>5</th>
<th></th>
<th></th>
<th></th>
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</table>

**Duplicate Source: 2008110-01**

<table>
<thead>
<tr>
<th>Total Dissolved Solids</th>
<th>4480</th>
<th>5.0</th>
<th>mg/L</th>
<th>4570</th>
<th>1.99</th>
<th>5</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

---

**Notes and Definitions**

- **NA** Not Applicable
- **ND** Analyte NOT DETECTED at or above the detection limit
- **NR** Not Reported
- **MDL** Method Detection Limit
- **PQL** Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)

[Signature]

---

**Report Date:** 08/18/20

**Submitted:** 08/12/20

**PLS Report No.: 2008110**

---

**File #: 74548**

781 East Washington Blvd., Los Angeles, CA 90021

(213) 745-5312 FAX (213) 745-6372
**Positive Lab Service**

**Chain of Custody and Analysis Request**

---

**Client Name:** CEM

**Address:**

**Project Name/No.:** Shady Generating Station - Weekly

**Airbill No.:**

**SAMPLER NAME:**

**PHONE NO.:**

**FAX NO.:**

**ANALYSES REQUESTED:**

**COOLER TEMP.:** 41.2

**CONTAINER TYPES:**
- B = Brass
- E = Encore
- G = Glass
- P = Plastic
- V = VOA Vial
- O = Other

**UST Project:**

**GLOBAL ID #:**

**Sample Date/Time Matrix**

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>DATE SAMPLED</th>
<th>TIME SAMPLED</th>
<th>SAMPLE DESCRIPTION</th>
<th>WATER</th>
<th>SOIL</th>
<th>SLUDGE</th>
<th>OTHER</th>
<th>TAT</th>
<th>CONTAINER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/12/20</td>
<td>08:20</td>
<td>Losing Time Island</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N</td>
<td>P</td>
</tr>
</tbody>
</table>

**Remarks:**

1. Samples returned to client? **YES**
2. Samples will not be stored over 30 days, unless additional storage time is requested. **N**
3. Storage time requested: ____________ days

**Preservative:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

---

**Guadalupe Tanaka**

**Special Instructions:**

**Lab Copy**
August 24, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058

Report No.: 2008164  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 18, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]

Project Manager
### Certificate of Analysis

**File #: 74548**  
**Report Date:** 08/24/20  
**Submitted:** 08/18/20  
**PLS Report No.: 2008164**

**Project:** Malburg Generating Station Weekly

**Sample ID:** Cooling Tower Blowdown Water (2008164-01)  
**Sampled:** 08/18/20 08:15  
**Received:** 08/18/20 08:15

#### Analyte Results

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4700</td>
<td></td>
<td></td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2546C</td>
<td>08/20/20</td>
<td>08/21/20</td>
<td>dd</td>
<td>BH02418</td>
</tr>
</tbody>
</table>

#### Quality Control Data

<table>
<thead>
<tr>
<th>Batch BH02418 - -</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank</td>
<td></td>
<td></td>
<td>5.0</td>
<td>mg/L</td>
<td></td>
<td>Prepared 08/20/20</td>
<td>Analyzed 08/21/20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCS</td>
<td></td>
<td></td>
<td>5.0</td>
<td>mg/L</td>
<td>50.00</td>
<td>Prepared 08/20/20</td>
<td>Analyzed 08/21/20</td>
<td>104</td>
<td>00-120</td>
<td></td>
</tr>
<tr>
<td>Duplicate Source: 2008164-01</td>
<td></td>
<td></td>
<td>5.0</td>
<td>mg/L</td>
<td>4700</td>
<td>Prepared 08/20/20</td>
<td>Analyzed 08/21/20</td>
<td>1.68</td>
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<td></td>
</tr>
</tbody>
</table>

#### Notes and Definitions

- **NA** Not Applicable  
- **ND** Analyte NOT DETECTED at or above the detection limit  
- **NR** Not Reported  
- **MDL** Method Detection Limit  
- **PQL** Practical Quantitation Limit

---

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138  

Authorized Signature(s)
## Chain of Custody and Analysis Request

### Client Information
- **Name:** [Name]
- **Address:** 781 East Washington Blvd., Los Angeles, CA 90021
- **Phone:** (213) 745-5312
- **Fax:** (213) 745-6372
- **Log Book No.:** [Log Book No.]
- **File No.:** [File No.]
- **Lab No.:** 2008104
- **Date:** 8/19/20
- **Page:** 1 of 1

### Project Information
- **Project Name/No.:** [Project Name/No.]
- **Client Name:** [Client Name]
- **P.O. No.:** [P.O. No.]

### Analyses Requested

<table>
<thead>
<tr>
<th>Analyses Requested</th>
<th>Cooler Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Value]</td>
<td>[Value]</td>
</tr>
</tbody>
</table>

### Preservative
- **Preservative:** [Preservative]

### Remarks
- **Remarks:** [Remarks]

### Container Types
- **Container Types:** [B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other]

### Matrix and Container
- **Matrix:** [W = Water, S = Soil, S = Sludge, O = Other]
- **Container:** [Value]

### Sample Information

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Date Sampled</th>
<th>Time Sampled</th>
<th>Sample Description</th>
<th>Matrix</th>
<th>Container Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/19/20</td>
<td>0815</td>
<td>Loading dock water</td>
<td>W</td>
<td>P</td>
</tr>
</tbody>
</table>

### Sample Disposition

<table>
<thead>
<tr>
<th>Sample Disposition</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>[Value]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Special Instructions
- **Preservative:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

### Client Signature
- **Relinquished By:** [Signature and Printed Name]
- **Received By:** [Signature and Printed Name]

### Additional Notes
- **Remarks:** [Remarks]
- **Sample Condition:** [Condition]

### Storage Time
- **Storage Time Requested:** [Days]

### Additional Information
- **Date:** [Date]
- **Time:** [Time]
August 28, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2008223
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 24, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.
Certificate of Analysis

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2008223-01) Sampled: 08/24/20 08:15 Received: 08/24/20 08:15

<table>
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<tr>
<th>Analyte</th>
<th>Result</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4520</td>
<td>I</td>
<td>1</td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>08/26/20</td>
<td>08/27/20</td>
</tr>
</tbody>
</table>

Quality Control Data

| Batch BH02734 - -             |        |      |      |       |     |                 |          |           |
| Blank                         | Prepared: 08/26/20 | Analyzed: 08/27/20 |
| Total Dissolved Solids        | ND      | 5.0  | mg/L |       |     |                 |          |           |

| LCS                           | Prepared: 08/26/20 | Analyzed: 08/27/20 |
| Total Dissolved Solids        | 50.0     | 5.0  | mg/L | 50.00 | 100 | 80-120          |          |           |

| Duplicate                     | Source: 2008223-01 | Prepared: 08/26/20 | Analyzed: 08/27/20 |
| Total Dissolved Solids        | 4450     | 5.0  | mg/L | 4520  | 1.60 | 5               |          |           |

Notes and Definitions

NA  Not Applicable
ND  Analyte NOT DETECTED at or above the detection limit
NR  Not Reported
MDL Method Detection Limit
PQL Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)
# Chain of Custody and Analysis Request

**Date:** 8/24/20

## Client Name:

**CM**

## Project Name:

**McKenzey Getting Stephen Weekly**

## Analyses Requested:

<table>
<thead>
<tr>
<th>No.</th>
<th>Date Sampled</th>
<th>Time Sampled</th>
<th>Sample Description</th>
<th>Matrix</th>
<th>TAT Type</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>8/24/10</td>
<td>08:15</td>
<td>Cooling Tower Branham</td>
<td>Water</td>
<td>N</td>
</tr>
</tbody>
</table>

## Cooler Temp:

-4

## Preservative:

-1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

## Remarks:

- Special Instructions:
- Samples returned to client? YES NO
- Samples will not be stored over 30 days, unless additional storage time is requested.
- Storage time requested: __________ days

## Signature and Printed Name:

- Relinquished By: __________________________
- Received By: __________________________
- Date: __________________________
- Time: __________________________

# Sample Disposition:

1. Samples returned to client? YES NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: __________ days

By __________________________

Date: __________________________
September 04, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058

Report No.: 2008264  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on August 31, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
Certificate of Analysis

File #:74548
Report Date: 09/04/20
Submitted: 08/31/20
PLS Report No.: 2008264

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2008264-01) Sampled: 08/31/20 07:50 Received: 08/31/20 07:50

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Units</th>
<th>PQL</th>
<th>Spike</th>
<th>Source</th>
<th>%REC</th>
<th>Limits</th>
<th>RPD</th>
<th>Limit</th>
<th>Qualifier</th>
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<tbody>
<tr>
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<td>4650</td>
<td>mg/L</td>
<td>5.0</td>
<td>-</td>
<td>SM 2540C</td>
<td>09/01/20</td>
<td>09/02/20</td>
<td>dd</td>
<td>BI00332</td>
<td></td>
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</tbody>
</table>

Quality Control Data

| Batch BI00332 - - |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|

Blank

Total Dissolved Solids

Prepared: 09/01/20 Analyzed: 09/02/20

ND

Total Dissolved Solids

Prepared: 09/01/20 Analyzed: 09/02/20

52.0

mg/L

LCS

Total Dissolved Solids

Prepared: 09/01/20 Analyzed: 09/02/20

50.00

mg/L

104

80-120

Duplicate Source: 2008264-01

Prepared: 09/01/20 Analyzed: 09/02/20

4630

mg/L

4650

0.359

5

Notes and Definitions

NA Not Applicable
ND Analyte NOT DETECTED at or above the detection limit
NR Not Reported
MDL Method Detection Limit
PQL Practical Quantitation Limit

Authorized Signature(s)

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138
**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

**DATE:** 03/20

**CLIENT NAME:** Gem

**PROJECT NAME/NO.:** Malibu Genie

**P.O. NO.:** Weekly

**PROJECT MANAGER:** Tom Barnett

**PHONE NO.:** (213) 745-5312

**FAX NO.:** (213) 745-6372

**ANALYSES REQUESTED:**

<table>
<thead>
<tr>
<th>ANALYSES REQUESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**COOLER TEMP:** 08°C

**CONTAINER TYPES:**

- **B = Brass**
- **E = Encore**
- **G = Glass**
- **P = Plastic**
- **V = VOA Vial**
- **O = Other**

**UST Project:** Y

**GLOBAL ID#:**

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>DATE SAMPLED</th>
<th>TIME SAMPLED</th>
<th>SAMPLE DESCRIPTION</th>
<th>MATRIX</th>
<th>TIME</th>
<th>CONTAINER</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>Cooling Tower Blending</td>
<td>WATER</td>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

**TAT (Analytical Turn Around Time):**

- **0 = Same Day**
- **1 = 1 Day**
- **2 = 2 Days**
- **3 = 3 Days**
- **N = Normal (5-7 Working Days)**

**SPECIAL INSTRUCTIONS:**

- **PRESERVATIVE:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

**SPECIAL INSTRUCTIONS:**

1. Samples returned to client? **YES**
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: ___________ days

**SAMPLE DISPOSITION:**

- **SAMPLE RETURNED TO CLIENT?:** YES NO

**REMARKS:**

**SAMPLE CONDITION/CONTAINER/COMMENTS:**

---

**CLIENT ADDRESS:**

781 East Washington Blvd., Los Angeles, CA 90021

**LAB COPY**
September 14, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2009108
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on September 09, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]
Project Manager
# Certificate of Analysis

**Project:** Malburg Generating Station Weekly

**Sample ID:** Cooling Tower Blowdown Water (2009108-01) Sampled: 09/09/20 07:50 Received: 09/09/20 07:50

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4400</td>
<td>1</td>
<td>mg/L</td>
<td>5.0</td>
<td>-</td>
<td>SM 2540C</td>
<td>09/10/20</td>
<td>09/11/20</td>
<td>B101421</td>
</tr>
</tbody>
</table>

## Quality Control Data

<table>
<thead>
<tr>
<th>Batch B101421 - -</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blank</strong></td>
</tr>
<tr>
<td>Prepared: 09/10/20 Analyzed: 09/11/20</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
</tr>
<tr>
<td><strong>LCS</strong></td>
</tr>
<tr>
<td>Prepared: 09/10/20 Analyzed: 09/11/20</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
</tr>
</tbody>
</table>

**Duplicate**

<table>
<thead>
<tr>
<th>Source: 2009108-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared: 09/10/20 Analyzed: 09/11/20</td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
</tr>
</tbody>
</table>

## Notes and Definitions

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>ND</td>
<td>Analyte NOT DETECTED at or above the detection limit</td>
</tr>
<tr>
<td>NR</td>
<td>Not Reported</td>
</tr>
<tr>
<td>MDL</td>
<td>Method Detection Limit</td>
</tr>
<tr>
<td>PQL</td>
<td>Practical Quantitation Limit</td>
</tr>
</tbody>
</table>

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)
**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

**DATE:** 9/9/20

**CLIENT NAME:** CEM

**PROJECT NAME/NO.:** Mulbug Generating Stn

**P.O. NO.:**

**LOG BOOK NO.:**

**FILE NO.:**

**LAB NO.:** 113114

**AIRBILL NO.:**

**COOLER TEMP.:** 1/2

**PRESERVATIVE:**

**REMARKS:**

**CONTAINER TYPES:**
- B = Brass
- E = Encore
- G = Glass
- P = Plastic
- V = VOA Vial
- O = Other

**UST PROJECT:** Y N

**GLOBAL ID#:**

**SAMPLE DATE TIME MATRIX**

<table>
<thead>
<tr>
<th>SAMPLE NO.</th>
<th>DATE SAMPLED</th>
<th>TIME SAMPLED</th>
<th>SAMPLE DESCRIPTION</th>
<th>WATER</th>
<th>SOIL</th>
<th>SLUDGE</th>
<th>OTHER</th>
<th>TAT</th>
<th>CONTAINER</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/26</td>
<td>07:00</td>
<td>Cooling Jones Branch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
</tr>
<tr>
<td>2</td>
<td></td>
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<td></td>
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<td>3</td>
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<td>4</td>
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<tr>
<td>9</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SAMPLE DISPOSITION:**

1. Samples returned to client? YES NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: _____ days

**SPECIAL INSTRUCTIONS:**

**PRESERVATIVE:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other
September 21, 2020

Tom Barnhart
Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Report No.: 2009177
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on September 14, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]

Project Manager
**Certificate of Analysis**

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2009177-01) Sampled: 09/14/20 08:30  Received: 09/14/20 08:30

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4140</td>
<td>1</td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>09/17/20</td>
<td>09/18/20</td>
<td>dd</td>
<td>BD2129</td>
<td></td>
</tr>
</tbody>
</table>

**Quality Control Data**

| Batch BD2129 - -                    |         |      |      |       |     |                  |           |           |      |         |
| Blank                               | Prepared: 09/17/20  Analyzed: 09/18/20 |
| Total Dissolved Solids              | ND      | 5.0  | mg/L |       |     |                  |           |           |      |         |
| LCS                                 | Prepared: 09/17/20  Analyzed: 09/18/20 |
| Total Dissolved Solids              | 46.0    | 5.0  | mg/L | 50.0  | 92.0 | 80-120           |           |           |      |         |
| Duplicate Source: 2009177-01       | Prepared: 09/17/20  Analyzed: 09/18/20 |
| Total Dissolved Solids              | 4300    | 5.0  | mg/L | 4140  | 3.67 | 5                |           |           |      |         |

**Notes and Definitions**

- NA: Not Applicable
- ND: Analyte NOT DETECTED at or above the detection limit
- NR: Not Reported
- MDL: Method Detection Limit
- PQL: Practical Quantitation Limit

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138

Authorized Signature(s)
**CHAIN OF CUSTODY AND ANALYSIS REQUEST**

**CLIENT NAME:** LEM  
**PROJECT NAME/NO.:** 
**ADDRESS:**  
**PROJECT MANAGER:** Tom Bamhart  
**PHONE NO.:**  
**FAX NO.:**  
**SAMPLER NAME:** (Printed)  
**(Signature)  
**TAT (Analytical Turn Around Time):** 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)  
**CONTAINER TYPES:** B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other  
**UST Project:** Y  
**Global ID#:**  

**SAMPLE NO.** | **DATE SAMPLED** | **TIME SAMPLED** | **SAMPLE DESCRIPTION** | **MATRIX** | **WATER** | **SOIL** | **SLUDGE** | **OTHER** | **TAT** | **CONTAINER** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/15/20</td>
<td>02:30</td>
<td>Cooling Tower Blending</td>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
</tr>
</tbody>
</table>

**SPECIAL INSTRUCTIONS:**  
**PRESERVATIVE:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other  

**SAMPLE DISPOSITION:**  
1. Samples returned to client? YES NO  
2. Samples will not be stored over 30 days, unless additional storage time is requested.  
3. Storage time requested: [_____] days  
   By: [_____] Date: [_____]  

**REMARKS:**  
**SPECIAL INSTRUCTIONS:**  
**PRESERVATIVE:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other  

**RELINQUISHED BY:** (Signature and Printed Name)  
**RECEIVED BY:** (Signature and Printed Name)  
**DATE:** 9/14/20  
**TIME:** 09:05
September 29, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058  

Report No.: 2009242  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on September 22, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]  
Project Manager
## Certificate of Analysis

File #:74548  
Report Date: 09/29/20  
Submitted: 09/22/20  
PLS Report No.: 2009242

**Project:** Malburg Generating Station Weekly  

### Analyte Results Flag D.F. Units PQL Prep/Test Method Prepared Analyzed By Batch

| Analyte               | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch  
|-----------------------|---------|------|------|-------|-----|------------------|----------|----------|----|--------
| Total Dissolved Solids| 4870    |      |      | mg/L  | 5.0 | SM 2540C         | 09/24/20 | 09/25/20 | dd | B102513

### Quality Control Data

| Analyte               | Result | PQL | Units | Spike | Source | %REC | RPD | Source %REC | RPD Limit | Qualifer  
|-----------------------|--------|-----|-------|-------|--------|------|-----|-------------|-----------|-----------
| Blank                 | 4870   | 1   | mg/L  | ND    | 5.0    | -    | -  | -           | 80-120    | -         
| LCS                   | 51.0   | 5.0 | mg/L  | 50.00 | 102    | 80-120 | 102 | 80-120      | 102       | -         
| Duplicate Source: 2009242-01 | 4870 | 1 | mg/L  | 4870  | 0.205 | 5    | 0.205 | 5          | -         | -         

### Notes and Definitions

- **NA** Not Applicable  
- **ND** Analyte NOT DETECTED at or above the detection limit  
- **NR** Not Reported  
- **MDL** Method Detection Limit  
- **PQL** Practical Quantitation Limit  

Environmental Laboratory Accreditation Program Certificate No. 1131, Mobile Lab No. 2534, LACSD No. 10138  

Authorized Signature(s)
# Chain of Custody and Analysis Request

**Client Name:** LEM  
**Project Name:** Melbug Community Center  
**Date:** 9/22/20

**Analyses Requested:**

**Preservative:**

**Remarks:**

**Sample Details:**

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Date Sampled</th>
<th>Time Sampled</th>
<th>Sample Description</th>
<th>Matrix</th>
<th>TAT</th>
<th>Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/22/20</td>
<td>07:30</td>
<td>Courtyard Bridge</td>
<td>0</td>
<td>N</td>
<td>P X</td>
</tr>
</tbody>
</table>

**Special Instructions:**

**Preservative:** 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

**Sample Disposition:**

1. Samples returned to client? **YES NO**
2. Samples will not be stored over 30 days, unless additional storage time is requested. **Sample Storage Requested:** ______ days
3. By __________________________ Date ________

**Signature and Printed Name:** Guadalupe Tanaka
October 05, 2020

Tom Barnhart  
Colorado Energy Management  
4963 Soto St.  
Vernon, CA 90058

Report No.: 2009349  
Project Name: Malburg Generating Station Weekly

Dear Tom Barnhart,

This report contains the analytical results for the sample(s) received under chain of custody(s) by Positive Lab Service on September 28, 2020.

The test results in this report are performed in compliance with ELAP accreditation requirements for the certified parameters. The laboratory report may not be produced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Preliminary data should not be used for regulatory purposes. Authorized signature(s) is provided on final report only.

If you have any questions in reference to this report, please contact your Positive Lab Service coordinator.

[Signature]

Project Manager
### Certificate of Analysis

**Project:** Malburg Generating Station Weekly

**Sample ID:** Cooling Tower Blowdown Water (2009349-01) Sampled: 09/28/20 07:20 Received: 09/28/20 07:20

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Results</th>
<th>Flag</th>
<th>D.F.</th>
<th>Units</th>
<th>PQL</th>
<th>Prep/Test Method</th>
<th>Prepared</th>
<th>Analyzed</th>
<th>By</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids</td>
<td>4290</td>
<td>1</td>
<td></td>
<td>mg/L</td>
<td>5.0</td>
<td>SM 2540C</td>
<td>10/01/20</td>
<td>10/02/20</td>
<td>dd</td>
<td>BJ00529</td>
</tr>
</tbody>
</table>

**Quality Control Data**

| Batch BJ00529 - -             |         |      |      |       |     |                  |          |          |    |         |
| Blank                         |         |      |      |       |     |                  |          |          |    |         |
| Total Dissolved Solids        |         |      |      |       |     |                  |          |          |    |         |
| Prepared: 10/01/20 Analyzed: 10/02/20 |
| LCS                           |         |      |      |       |     |                  |          |          |    |         |
| Total Dissolved Solids        | 48.0    | 5.0  | mg/L | 50.00 | 96.0| 80-120           |          |          |    |         |
| Prepared: 10/01/20 Analyzed: 10/02/20 |
| Duplicate                     | Source: 2009349-01 | Prepared: 10/01/20 Analyzed: 10/02/20 |
| Total Dissolved Solids        | 4300    | 5.0  | mg/L | 4290  | 0.233| 5                |          |          |    |         |

**Notes and Definitions**

- **NA** Not Applicable
- **ND** Analyte NOT DETECTED at or above the detection limit
- **NR** Not Reported
- **MDL** Method Detection Limit
- **PQL** Practical Quantitation Limit

---

[Signature]

Authorized Signature(s)
# Chain of Custody and Analysis Request

**Date:** 7-26-72  
**Page 1 of 1**

**Client Name:** 
**Project Name/No.:** Mulbury Sensing - weekly  
**P.O. No.:** 
**Airbill No.:** 

**Project Manager:** Tom Behnert  
**Phone No.:**  
**Fax No.:**

**Sampler Name:** 
(Printed) 
(Signature)

**TAT** (Analytical Turn Around Time): 0 = Same Day; 1 = 1 Day; 2 = 2 Days; 3 = 3 Days; N = Normal (5-7 Working Days)

**Container Types:**  
B = Brass, E = Encore, G = Glass, P = Plastic, V = VOA Vial, O = Other:

**UST Project:** Y N  
- Global ID# 

## Sample Data

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Date Sampled</th>
<th>Time Sampled</th>
<th>Sample Description</th>
<th>Water</th>
<th>Sol</th>
<th>Sludge</th>
<th>Other</th>
<th>TAT</th>
<th>Container Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/13/72</td>
<td>0722</td>
<td>Cooling Tower Drains 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Remarks:**

- **Preservative:**
  - 1-HNO3, 2-H2SO4, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-NH4 Buffer, 7-Other

**Sample Disposition:**

1. Samples returned to client? YES NO
2. Samples will not be stored over 30 days, unless additional storage time is requested.
3. Storage time requested: ________ days

**Special Instructions:**

**Guadalupe Tanaka**  
(Date: 7-26-72, Time: 0857)

**Relinquished By:** (Signature and Printed Name)  
**Received By:** (Signature and Printed Name)
Appendix B

Excess Emission Reports
No excess emissions were found in the reporting period.
No excess emissions were found in the reporting period.
Startup/Shutdown Excess Emissions Report
U1 VOC Startup/Shutdown

From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/12/2020 09:58  Location: Vernon, California
Tag Name: U1_VOC_LbPerHr_1M

Total Operating Time: 2,183.12 Hours
Non-Operating Time: 24.88 Hours  Report Time: 2,208.00 Hours

Unit Operation

<table>
<thead>
<tr>
<th>Event Period</th>
<th>Reason</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin/End</td>
<td>Duration in Minute(s)</td>
<td>Lb/Event</td>
</tr>
</tbody>
</table>

No excess emissions were found in the reporting period.
Excess Emission Report
Unit 1 - NOx ppmvdc 1-hour during Normal Operation

From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/12/2020 09:47  Location: Vernon, California

<table>
<thead>
<tr>
<th>Inc No</th>
<th>Start Time</th>
<th>End Time</th>
<th>Duration in Hour(s)</th>
<th>Average</th>
<th>Limit</th>
<th>Maximum</th>
<th>Reason Code</th>
<th>Action Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/21/20 15:00</td>
<td>08/21/20 15:59</td>
<td>1</td>
<td>2.1</td>
<td>2.0</td>
<td>2.1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Operating Time:</th>
<th>2,187.00 Hour(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Duration (Online only):</td>
<td>1.00 Hour(s)</td>
</tr>
<tr>
<td>Time in exceedance as a percentage of operating time:</td>
<td>0.05 %</td>
</tr>
<tr>
<td>Time in compliance as a percentage of operating time:</td>
<td>99.95 %</td>
</tr>
</tbody>
</table>
No incidents have been reported for this reporting period. Data is 100% in compliance.

<table>
<thead>
<tr>
<th>Total Operating Time:</th>
<th>2,187.00 Hour(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Duration (Online only):</td>
<td>0.00 Hour(s)</td>
</tr>
<tr>
<td>Time in exceedance as a percentage of operating time:</td>
<td>0.00 %</td>
</tr>
<tr>
<td>Time in compliance as a percentage of operating time:</td>
<td>100.00 %</td>
</tr>
</tbody>
</table>
No incidents have been reported for this reporting period. Data is 100% in compliance.

Tag Name: U1_CONormal_Ppmvdc_1H
Total Operating Time: 2,187.00 Hour(s)
No Exclusions Allowed

Non-Operating Time: 21.00 Hour(s) Report Time: 2,208.00 Hour(s)

<table>
<thead>
<tr>
<th>Total Operating Time:</th>
<th>2,187.00 Hour(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Duration (Online only):</td>
<td>0.00 Hour(s)</td>
</tr>
<tr>
<td>Time in exceedance as a percentage of operating time:</td>
<td>0.00 %</td>
</tr>
<tr>
<td>Time in compliance as a percentage of operating time:</td>
<td>100.00 %</td>
</tr>
</tbody>
</table>
Quad K Excess Emissions Report
U1 NOX 4-Hour Events
From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/12/2020 09:38  Location: Vernon, California

No incidents have been reported for this reporting period. Data is 100% in compliance.

<table>
<thead>
<tr>
<th>Tag Name:</th>
<th>U1_NOx4H_Ppmvdc_1H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Operating Time:</td>
<td>2,187.00 Hour(s)</td>
</tr>
<tr>
<td>Non-Operating Time:</td>
<td>21.00 Hour(s)</td>
</tr>
<tr>
<td>Report Time:</td>
<td>2,208.00 Hour(s)</td>
</tr>
</tbody>
</table>

No Exclusions Allowed

| Total Operating Time: | 2,187.00 Hour(s) |
| Total Duration (Online only): | 0.00 Hour(s) |
| Time in exceedance as a percentage of operating time: | 0.00 % |
| Time in compliance as a percentage of operating time: | 100.00 % |
Startup/Shutdown Event Report
U2 CO Startup/Shutdown Events

From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/13/2020 07:25  Location: Vernon, California
Tag Name: U2_CO_LbPerHr_1M

Total Operating Time: 2,175.58 Hours
Non-Operating Time: 32.42 Hours  Report Time: 2,208.00 Hours

Unit Operation

<table>
<thead>
<tr>
<th>Event Period</th>
<th>Duration in Minute(s)</th>
<th>Lb/Event</th>
<th>Limit</th>
<th>Code - Description</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>Begin/End</td>
<td>Begin/End</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07/03/2020 14:55</td>
<td>07/03/2020 15:24</td>
<td>30</td>
<td>27.4</td>
<td>*</td>
<td>1 - Startup/shutdown</td>
</tr>
<tr>
<td>Shutdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104 - Grid Disturbance caused unit to shutdown</td>
</tr>
</tbody>
</table>

Total Duration of Excess Emission 30 Minute(s)
Time of Excess Emission as a percentage of operating time 0.02 %
Time in compliance as percentage of operating time 99.98 %
# Startup/Shutdown Excess Emissions Report

**U2 NOx Startup/Shutdown**

**From:** 07/01/2020 00:00  **To:** 09/30/2020 23:59  **Facility Name:** Malburg Generating Station

**Generated:** 10/13/2020 07:27  **Location:** Vernon, California

**Tag Name:** U2_NOx_LbPerHr_1M

**Total Operating Time:** 2,175.58 Hours  
**Non-Operating Time:** 32.42 Hours  
**Report Time:** 2,208.00 Hours

## Unit Operation

<table>
<thead>
<tr>
<th>Event Period</th>
<th>Reason</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin/End</td>
<td>Duration in Minute(s)</td>
<td>Lb/Event</td>
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<tr>
<td>07/03/2020 14:55</td>
<td>30</td>
<td>8.3</td>
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<tr>
<td>07/03/2020 15:24 Shutdown</td>
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<td></td>
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</tbody>
</table>

**Total Duration of Excess Emission** 30 Minute(s)

**Time of Excess Emission as a percentage of operating time** 0.02 %

**Time in compliance as percentage of operating time** 99.98 %
Startup/Shutdown Event Report
U2 VOC Startup/Shutdown Events

From: 07/01/2020 00:00  To: 09/30/2020 23:59  
Generated: 10/12/2020 09:52  
Tag Name: U2_VOC_LbPerHr_1M

Total Operating Time: 2,175.58 Hours
Non-Operating Time: 32.42 Hours  
Report Time: 2,208.00 Hours

No excess emissions were found in the reporting period.
Excess Emission Report
Unit 2 - NOx ppmvdc 1-hour during Normal Operation

From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/12/2020 10:00  Location: Vernon, California

No incidents have been reported for this reporting period. Data is 100% in compliance.

Tag Name: U2_NOxNormal_Ppmvdc_1H
Total Operating Time: 2,180.00 Hour(s)
Non-Operating Time: 28.00 Hour(s)  Report Time: 2,208.00 Hour(s)

No Exclusions Allowed

Total Operating Time: 2,180.00 Hour(s)
Total Duration (Online only): 0.00 Hour(s)
Time in exceedance as a percentage of operating time: 0.00 %
Time in compliance as a percentage of operating time: 100.00 %
No incidents have been reported for this reporting period. Data is 100% in compliance.

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<tr>
<th>Tag Name: U2_VOCNormal_Ppmvdc_1H</th>
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<tbody>
<tr>
<td>Total Operating Time: 2,180.00 Hour(s)</td>
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<tr>
<td>Non-Operating Time: 28.00 Hour(s)</td>
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<tr>
<td>Report Time: 2,208.00 Hour(s)</td>
</tr>
<tr>
<td>No Exclusions Allowed</td>
</tr>
</tbody>
</table>

### Summary
- **Total Operating Time:** 2,180.00 Hour(s)
- **Total Duration (Online only):** 0.00 Hour(s)
- **Time in exceedance as a percentage of operating time:** 0.00%
- **Time in compliance as a percentage of operating time:** 100.00%
**Excess Emission Report**

Unit 2 - CO ppmvdc 1-hour during Normal Operation

<table>
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<th>07/01/2020 00:00</th>
<th>To:</th>
<th>09/30/2020 23:59</th>
<th>Facility Name:</th>
<th>Malburg Generating Station</th>
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<tbody>
<tr>
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<td>10/12/2020 10:03</td>
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Tags:

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<tbody>
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<tr>
<td>Non-Operating Time:</td>
<td>28.00 Hour(s)</td>
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<tr>
<td>Report Time:</td>
<td>2,208.00 Hour(s)</td>
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</tbody>
</table>

No Exclusions Allowed

No incidents have been reported for this reporting period. Data is 100% in compliance.

<table>
<thead>
<tr>
<th>Total Operating Time:</th>
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<td>Total Duration (Online only):</td>
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<tr>
<td>Time in exceedance as a percentage of operating time:</td>
<td>0.00 %</td>
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<tr>
<td>Time in compliance as a percentage of operating time:</td>
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</tbody>
</table>
Quad K Excess Emissions Report

U2 NOX 4-Hour Events

From: 07/01/2020 00:00  To: 09/30/2020 23:59  Facility Name: Malburg Generating Station
Generated: 10/12/2020 10:04  Location: Vernon, California

No incidents have been reported for this reporting period. Data is 100% in compliance.

<table>
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<tr>
<td>Time in exceedance as a percentage of operating time:</td>
<td>0.00 %</td>
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<tr>
<td>Time in compliance as a percentage of operating time:</td>
<td>100.00 %</td>
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</tbody>
</table>
Appendix C

Diesel Fuel Oil Specifications
**Invoice**

**SC Commercial LLC DBA SC Fuels**
1800 West Katella Ave, Suite 400, P.O. Box 4159, Orange, CA 92863-4159

**PLEASE REMIT ALL PAYMENTS TO:**
P.O. BOX 14237
ORANGE, CA 92863-1237

**SHIP TO:**
1L CUST NO: 01-0001

**PLEASE REMIT ALL PAYMENTS TO:**
P.O. BOX 14237
ORANGE, CA 92863-1237

**Phone:** (800) 659-5823  Credit Inquiries: (888) SCFUELS Ext.6017

**COLORADO ENERGY MANAGEMENT LLC**
ATTN: ACCOUNTS PAYABLE
4963 S. SOTO STREET
VERNON, CA 90058

**COLORADO EN E RGY MGMT-VERNON**
4963 SOTO STREET
VERNON, CA 90058

**INVOICE DUE DATE**
15Q2 103

**INVOICE DATE**
2/26/2020

**SHIP DATE**
2/26/2020

**ORDER DATE**
2/19/2020

**CUSTOMER PO**
MGS18808

**TERMS**
N30

**SALESMAN**
Todd Cripps

**CREDIT NUMBER**
01-0001084

**INVOICE #**
I/CCT 01-0001084

**INVOICE DUE DATE**
15Q2 1 03

**INVOICE DATE**
2/26/2020

**SHIP DATE**
2/26/2020

**ORDER DATE**
2/19/2020

**CUSTOMER PO**
MGS18808

**TERMS**
N30

**SALESMAN**
Todd Cripps

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<td>55 GAL DRUM</td>
<td>110.00</td>
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<td></td>
<td>UN1202, DIESEL FUEL, 3, PG III</td>
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<td></td>
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</tbody>
</table>

**Save time, pay online! View invoices, make payments and more.**
Sign up for the Customer Portal today. Email: creditinquires@scfuels.com or Call 888-SCFuels Ext. 6017 or login to Customer Portal: https://customerportal.scfuels.com
24-hour Emergency Response Call CHEMTREC: 800-424-9300

- In the event that the above charges are not paid when due, SC Commercial, LLC & SC Fuels reserves the right to refuse further charges to the account. A service charge of 1.5% per month (P.R. 18%) will apply to all past due invoices.
- Errors in price, extension, and addition subject to correction.
- It is the purchaser's responsibility to verify that all applicable taxes are being charged in accordance with federal and state laws.
- Prices shown on this invoice reflect discounts received for Payment by Cash, Check, or Electronic Funds Transfer (EFT). Payment by other means will result in an additional 2% charge to the account.

**Net Invoice:** 531.29
**Less Discount:** 0.00
**Freight:** 0.00
**Sales Tax:** 48.57
**Invoice Total:** 579.86

www.scfuels.com
## DELIVERY TICKET

**SOLD TO:** 01-0001084  
COLORADO ENERGY MANAGEMENT LLC  
ATTN: ACCOUNTS PAYABLE  
4963 S. SOTO STREET  
VERNON, CA 90058  
(323) 476-3622

**SHIP TO:** 1L  
COLORADO ENERGY MGMT-VERNON  
4963 SOTO STREET  
VERNON, CA 90058  
(323) 476-3632

**Confirm To:** ASHLEY HURD  
Customer PO: MGS18808  
Ship Via:  
Whse: 101

**Terms:** N30

<table>
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<th>Ext Qty Ordered</th>
<th>Qty Delivered</th>
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<th>Extended Amount</th>
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<tbody>
<tr>
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<td>55 GAL DRM (DYED CARB ULS DIESEL (RED))</td>
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**Sales Person:** 0177 - Todd Cripps

**SHIP TO:**  
COLORADO ENERGY MGMT-VERNON  
4963 SOTO STREET  
VERNON, CA 90058  
(323) 476-3632

**Rec'd by:** Ethan Slater  
**Date:** 2/26/2020

**Print Name:** M. Gordon  
**Date:** 2/26/2020

**ARRIVED LOAD POINT:**  
**AM** | **DATE** | **PM** | **DATE**
---|---|---|---

**ARRIVED DESTINATION:**  
**AM** | **DATE** | **PM** | **DATE**
---|---|---|---

**END TANK:**  
**GAS** | **DIESEL** | **OTHER** | **WATER DETECTED?** | **GRAVITY**
---|---|---|---|---

**BEGINNING TANK:**  
**GAS** | **DIESEL** | **OTHER** | **DRUM DEPOSIT** | **DRUM CREDIT**
---|---|---|---|---

**FOR CHEMICAL EMERGENCY:**  
Spill, Leak, Fire Exposure or Accident  
CALL CHEMTREC - DAY OR NIGHT  
800-424-9300
CHEVRON GST® OILS
ISO 32, 46, 68, 100

CUSTOMER BENEFITS
Chevron GST Oils deliver value through:

• **Superior oxidation stability** for long service life at elevated temperatures.
• **Rust and corrosion protection**
• **High viscosity index** assures minimum viscosity change when variations in temperature occur.
• **Minimum foam** prevents sump overflow or erratic governor operation.
• **Fast air release** minimizes possibility of pump cavitation in systems with high circulation rates and small reservoirs.
• **Superior thermal stability** minimizes deposit formation.
• **Rapid water separation** keeps water in oil to a minimum.
• **Hydraulic fluid service** — Chevron GST Oils ISO 32, 46, and 68 are excellent hydraulic fluids in low pressure systems up to 1000 psi.
• **Air compressor** lubricant when OEM recommends R&O type oil.
• **Environmental benefits** — All grades are ashless. This facilitates reclaiming and recycling of the used oils. Chevron GST Oils are not expected to be harmful to aquatic organisms.

FEATURES
Chevron GST Oils are designed to meet the critical demands of:

• gas, steam, and hydroelectric turbine bearing lubrication
• reduction gear lubrication in marine operations

They are an excellent recommendation for many other industrial applications including air compression.

Chevron GST Oils are formulated with ISOSYN® base stocks.

Higher temperatures in advanced gas and steam turbines require a circulating system oil with exceptional high temperature stability. Chevron GST Oils have outstanding **thermal and oxidation stability**.

Nonvolatile **oxidation inhibition** minimizes the evaporative loss of the inhibitors, a common problem with turbine oils where bearing temperatures are high and system capacities are limited. With retained oxidation resistance for long periods under high temperature conditions, Chevron GST Oils have proven they will provide longer oil service life and reduced turbine down time.

**Corrosion inhibition** protects costly turbine shafts and gears from corrosion and rusting.

Chevron GST Oils have excellent demulsibility characteristics which allow these oils to maintain a high film strength coating on critical wear points of bearings and gear reducers and assure fast removal of water contamination.

**Foam inhibition** prevents sump overflow and erratic governor operation.
APPLICATIONS

Chevron GST Oils are recommended for use in turbines of all types including gas, steam, and hydroelectric turbines, and marine gear turbine sets.

The following viscosity grades are formulated to meet the specified OEM requirements:

**Chevron GST Oil ISO 32**
- meets and exceeds
  - General Electric GEK-32568f, GEK 28143A, GEK-46506D, GEK-27070
  - Ingersoll Rand specification for Centac Centrifugal Compressors
  - Solar ES 9 224 requirements for gas turbine oils
  - ASTM D4304, British Standard 489, and DIN 51515 standard organization requirements for new lubricants used in gas and steam turbines and auxiliary equipment
- is approved by
  - Cincinnati Machine P-38
  - Alstom Power HTGD 90117
  - Siemens Westinghouse M spec 55125Z3
  - Siemens TLV 901304

**Chevron GST Oil ISO 46**
- meets
  - Siemens TLV 901304
  - Solar ES 9 224 requirements for gas turbine oils
  - ASTM D4304, British Standard 489, and DIN 51515 standard organization requirements for new lubricants used in gas and steam turbines and auxiliary equipment
- is approved by
  - Cincinnati Machine P 55
  - Alstom Power HTGD 90117

**Chevron GST Oil ISO 68**
- meets
  - General Electric, Alstom, Westinghouse, and other OEM requirements for hydroelectric turbines, land and marine steam turbines, and associated reduction gears
  - ASTM D4304, British Standard 489, and DIN 51515 standard organization requirements for new lubricants used in gas and steam turbines and auxiliary equipment
- is approved by
  - Cincinnati Machine P-54

**Chevron GST Oil ISO 100**
- meets
  - General Electric, Alstom, Westinghouse, and other OEM requirements for hydroelectric turbines, land and marine steam turbines, and associated reduction gears
  - ASTM D4304, British Standard 489, and DIN 51515 standard organization requirements for new lubricants used in gas and steam turbines and auxiliary equipment

Chevron GST Oils ISO 32, 46, 68, and 100 are registered with NSF and are acceptable as lubricants where there is no possibility of food contact (H2) in and around food processing areas. The NSF Nonfood Compounds Registration Program is a continuation of the USDA product approval and listing program, which is based on meeting regulatory requirements of appropriate use, ingredient review and labeling verification.

Do not use in high pressure systems in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Do not use in breathing air apparatus or medical equipment.
### Typical Test Data

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<tr>
<td>ASTM D 943¹</td>
<td>17,000</td>
<td>12,000</td>
<td>11,000</td>
<td>11,000</td>
</tr>
<tr>
<td>ASTM D 2272²</td>
<td>1700</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
</tr>
<tr>
<td>FZG, Pass stage, DIN 51354</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Typical test data are average values only. Minor variations which do not affect product performance are to be expected in normal manufacturing.

1. Hours to 2.0 mg KOH/g acid number modified D943
2. Minutes to 25 psi pressure drop
Appendix D

Cooling Tower PM10 Guidance
COOLING TOWER DRIFT MASS DISTRIBUTION
Excel Drift Eliminators

The following table represents the predicted mass distribution of drift particle size for cooling tower drift dispersed from Marley TU10 and TU12 Excel Drift Eliminators properly installed in a cooling tower.

<table>
<thead>
<tr>
<th>Mass in Particles (%)</th>
<th>Droplet Size (Microns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>Larger Than 525</td>
</tr>
<tr>
<td>1.0</td>
<td>Larger Than 375</td>
</tr>
<tr>
<td>5.0</td>
<td>Larger Than 230</td>
</tr>
<tr>
<td>10.0</td>
<td>Larger Than 170</td>
</tr>
<tr>
<td>20.0</td>
<td>Larger Than 115</td>
</tr>
<tr>
<td>40.0</td>
<td>Larger Than 65</td>
</tr>
<tr>
<td>60.0</td>
<td>Larger Than 35</td>
</tr>
<tr>
<td>80.0</td>
<td>Larger Than 15</td>
</tr>
<tr>
<td>88.0</td>
<td>Larger Than 10</td>
</tr>
</tbody>
</table>

How to read table: Example – 0.2% of the drift will have particle sizes larger than 525 microns.

Marley guarantees the data above for properly installed, undamaged drift eliminators in ‘like-new’ condition.
PREFERRED COOLING TOWER WATER CONDITION LIMITS

NOTE: Biological treatment and control of Legionella and other potentially health-threatening bacteria is essential. Consult a competent water treatment expert or service company.

- **pH**: 6.5 to 9.0 (special materials may be required beyond these limits)
- **Temperature**: 125°F (51.7°C) typical maximum; higher temperatures possible with special materials
- **Langelier Saturation Index**: 0.0 to 1.0 recommended; higher allowed if scale is controllable.
- **M-Alkalinity**: 100 to 500 ppm as CaCO₃
- **Silica**: 150 ppm as SiO₂ maximum (scale formation)
- **Iron**: 3 ppm maximum (staining and scale contributor)
- **Manganese**: 0.1 ppm maximum (staining and scale contributor)
- **Sulfides**: Greater than 1 ppm can be corrosive to copper alloys, iron, steel, and galvanized steel. See table below for limits with film fill.
- **Ammonia**: 50 ppm maximum if copper alloys present; lower limits apply for film fill - see table.
- **Chlorine / bromine**: 1 ppm free residual intermittently (shock), or 0.4 ppm continuously maximum. Excess can attack sealants, accelerate corrosion, increase drift, and embrittle PVC.
- **Organic solvents**: These can attack plastics and promote bio-growth. Trace amounts may be acceptable, depending on the solvent.
- **TDS**: Over 5000 ppm may require thermal performance derate.

### Individual Ions:

<table>
<thead>
<tr>
<th>Cations</th>
<th>MAXIMUM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>800 ppm as CaCO₃ preferred, (300 ppm with MX fills in arid climate).</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Depends on pH and silica level (for magnesium silicate scale).</td>
</tr>
<tr>
<td>Sodium</td>
<td>No limit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorides</td>
<td>450 ppm as Cl⁻ (300 for galvanized towers).</td>
</tr>
<tr>
<td>Sulfates</td>
<td>800 ppm as CaCO₃ preferred if calcium is also high (CaSO₄ scale).</td>
</tr>
<tr>
<td>Nitrates</td>
<td>300 ppm as NO₃⁻ (bacteria nutrient).</td>
</tr>
<tr>
<td>Carbonates/Bicarbonates</td>
<td>300 ppm as CaCO₃ preferred for wood or galvanized steel tower.</td>
</tr>
</tbody>
</table>

### Fouling Contaminant Limits - based on fouling load of 2.5 pounds per cubic foot

Bacteria counts listed below relate to maintaining fill thermal efficiency only. Biocidal treatment is required for all cooling tower installations. (see NOTE above).

<table>
<thead>
<tr>
<th>Fill Type</th>
<th>Aerobic Bacteria Heterotrophic Plate Count</th>
<th>Total Suspended Solids (TSS)</th>
<th>Oil and Grease</th>
<th>Sulfides</th>
<th>Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC75, MC120</td>
<td>10,000 CFU/ml</td>
<td>50 ppm</td>
<td>1 ppm</td>
<td>0.5 ppm</td>
<td>10 ppm</td>
</tr>
<tr>
<td>FB20, MX75 and MX625 (crossflow)</td>
<td>100,000 CFU/ml with TSS up to 50 ppm, or 10,000 CFU/ml with TSS up to 150 ppm</td>
<td>1 ppm</td>
<td>1 ppm</td>
<td>1.0 ppm</td>
<td>15 ppm</td>
</tr>
<tr>
<td>DF254, MCR16</td>
<td>100,000 CFU/ml</td>
<td>150 ppm</td>
<td>5 ppm</td>
<td>1.5 ppm</td>
<td>25 ppm</td>
</tr>
<tr>
<td>DF381 with 1’ MC75 overlay</td>
<td>1,000,000 CFU/ml with TSS up to 50 ppm, or 100,000 CFU/ml with TSS up to 150 ppm</td>
<td>5 ppm</td>
<td>1.5 ppm</td>
<td>25 ppm</td>
<td></td>
</tr>
<tr>
<td>DF381, MVC20, AAFNCS ('Cleanflow') MCR12, Trickleblock</td>
<td>1,000,000 CFU/ml</td>
<td>250 ppm</td>
<td>10 ppm</td>
<td>2.0 ppm</td>
<td>25 ppm</td>
</tr>
<tr>
<td>Splash bar or grid fill</td>
<td>1,000,000 CFU/ml target</td>
<td>No specific limit</td>
<td>10 ppm</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note: Any amount of oil or grease is likely to adversely affect thermal performance. Sulfides and ammonia promote bacterial growth which can cause fill fouling; conformance to the limits above will assist in controlling bacteria to the recommended levels.

### Drift Effects:

Certain contaminants or treatment chemicals such as surfactants, glycols, biodispersants and anti-foams may increase drift rate. When minimizing drift is vital, the circulating water shall have a surface tension of at least 65 dynes/cm and a total organic carbon (TOC) level below 25 ppm. Reclaim or re-use waters in particular may contain contaminants which increase drift rate either directly or by necessitating the use of treatment chemicals which increase drift rate.

### Miscellaneous Solids and Nutrients

- Avoid high efficiency fill (MC75) with water containing bacteria nutrients such as alcohols, nitrates, ammonia, fats, glycols, phosphates, black liquor, or TOC greater than 50 ppm. Clag-resistant fills may be considered for contaminated water, case by case. For all film fills, avoid fibrous, oily, greasy, fatty, or tarry contaminants, which can plug fill.
- In general, do not use film fill in Steel Plants, Pulp & Paper Mills, Food Processing Operations, or similar applications unless leaks and contamination by airborne or waterborne particulates, oil, or fibers are extremely unlikely. If film fill is used, biological-growth control must be stringent and diligent.