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MALBURG GENERATING STATION

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**QUARTERLY COMPLIANCE REPORT
(Second Quarter 2021)**

**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 (PM₁₀) emissions from the cooling tower shall not exceed 6.2 lb/day.

Compliance with the PM₁₀ daily emission limit shall be demonstrated as follows:

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

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 PM₁₀ 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 PM₁₀ 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_x, SO_x, CO, PM₁₀ 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_x, SO_x, CO, PM₁₀ 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 March 29, 2021.

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 March 29, 2021.

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
- PM₁₀ 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, PM₁₀, 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:- PM₁₀, PM_{2.5}: 6.014 lb/mmcsf, VOC: 1.54 lb/mmcsf & SO_x: 0.28lb/mmcsf.

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_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_x emission for MGS Units 1 and 2 are measured using the CEMS. A review of CEMS NO_x emission data indicated that the maximum corrected NO_x emissions concentration for both MGS combustion turbines during normal operations was 1.9 ppmv, which is less than or equal to 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.

2.13 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 0.9 ppmv, which is lower than or equal to 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:

$$\text{NH}_3 \text{ (ppmv)} = [a - (b \cdot c / 1,000,000)] \cdot (1,000,000 \cdot d / b) \text{ where}$$

a = ammonia injection rate (lbs/hr)/17 (lbs/lb-mole)

b = dry exhaust gas flow rate (lbs/hr)/29 (lbs/lb-mole)

c = change in measured NO_x across the SCR (ppmv dry basis)

d = correction derived by comparing the measured and calculated NH₃ 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 2021, 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.

Appendix A

Cooling Tower Blowdown Reports

Table 2-1

**Malburg Generating Station
Cooling Tower TDS Sampling Results
Quarter 2, 2021**

Starting	Ending	TDS (ppm)
4/4/2021	4/10/2021	3990
4/11/2021	4/17/2021	4130
4/18/2021	4/24/2021	4420
4/25/2021	5/1/2021	4360
5/2/2021	5/8/2021	4220
5/9/2021	5/15/2021	4420
5/16/2021	5/22/2021	4340
5/23/2021	5/29/2021	4560
5/30/2021	6/5/2021	4440
6/6/2021	6/12/2021	4400
6/13/2021	6/19/2021	4840
6/20/2021	6/26/2021	4730
6/27/2021	7/3/2021	4800

Table 2-2

Malburg Generating Station				Cooling Tower Daily PM10 Emissions During Apr. 2021			
PM₁₀ = A x B x C x D		A = Circulation Rate		B = TDS		D = Correction Factor	
PM₁₀ Limit is 6.2 lbs/day		C = Drift Factor					
Date	Circulation Rate (gal/day)	TDS (ppm)	PM ₁₀ (lbs/day)	Date	Circulation Rate (gal/day)	TDS (ppm)	PM ₁₀ (lbs/day)
1	38,811,456	4650	1.50	17	38,811,456	4130	1.34
2	0	0	0.00	18	38,811,456	4420	1.43
3	0	0	0.00	19	38,811,456	4420	1.43
4	0	3990	0.00	20	38,811,456	4420	1.43
5	38,811,456	3990	1.29	21	38,811,456	4420	1.43
6	38,811,456	3990	1.29	22	38,811,456	4420	1.43
7	38,811,456	3990	1.29	23	38,811,456	4420	1.43
8	38,811,456	3990	1.29	24	38,811,456	4420	1.43
9	38,811,456	3990	1.29	25	38,811,456	4360	1.41
10	38,811,456	3990	1.29	26	38,811,456	4360	1.41
11	38,811,456	4130	1.34	27	38,811,456	4360	1.41
12	38,811,456	4130	1.34	28	38,811,456	4360	1.41
13	38,811,456	4130	1.34	29	38,811,456	4360	1.41
14	38,811,456	4130	1.34	30	38,811,456	4360	1.41
15	38,811,456	4130	1.34				
16	38,811,456	4130	1.34				

Table 2-3

Malburg Generating Station Cooling Tower Daily PM10 Emissions During May. 2021							
PM₁₀ = A x B x C x D PM₁₀ Limit is 6.2 lbs/day				A = Circulation Rate C = Drift Factor		B = TDS D = Correction Factor	
Date	Circulation Rate (gal/day)	TDS (ppm)	PM₁₀ (lbs/day)	Date	Circulation Rate (gal/day)	TDS (ppm)	PM₁₀ (lbs/day)
1	38,811,456	4360	1.41	17	38,811,456	4340	1.40
2	38,811,456	4220	1.36	18	38,811,456	4340	1.40
3	38,811,456	4220	1.36	19	38,811,456	4340	1.40
4	38,811,456	4220	1.36	20	38,811,456	4340	1.40
5	38,811,456	4220	1.36	21	38,811,456	4340	1.40
6	38,811,456	4220	1.36	22	38,811,456	4340	1.40
7	38,811,456	4220	1.36	23	38,811,456	4560	1.47
8	38,811,456	4220	1.36	24	38,811,456	4560	1.47
9	38,811,456	4420	1.43	25	38,811,456	4560	1.47
10	38,811,456	4420	1.43	26	38,811,456	4560	1.47
11	38,811,456	4420	1.43	27	38,811,456	4560	1.47
12	38,811,456	4420	1.43	28	38,811,456	4560	1.47
13	38,811,456	4420	1.43	29	38,811,456	4560	1.47
14	38,811,456	4420	1.43	30	38,811,456	4440	1.44
15	38,811,456	4420	1.43	31	38,811,456	4440	1.44
16	38,811,456	4340	1.40				

Table 2-4

Malburg Generating Station Cooling Tower Daily PM10 Emissions During Jun. 2021							
PM₁₀ = A x B x C x D PM₁₀ Limit is 6.2 lbs/day				A = Circulation Rate C = Drift Factor		B = TDS D = Correction Factor	
Date	Circulation Rate (gal/day)	TDS (ppm)	PM ₁₀ (lbs/day)	Date	Circulation Rate (gal/day)	TDS (ppm)	PM ₁₀ (lbs/day)
1	38,811,456	4440	1.44	17	38,811,456	4840	1.57
2	38,811,456	4440	1.44	18	38,811,456	4840	1.57
3	38,811,456	4440	1.44	19	38,811,456	4840	1.57
4	38,811,456	4440	1.44	20	38,811,456	4730	1.53
5	38,811,456	4440	1.44	21	38,811,456	4730	1.53
6	38,811,456	4400	1.42	22	38,811,456	4730	1.53
7	38,811,456	4400	1.42	23	38,811,456	4730	1.53
8	38,811,456	4400	1.42	24	38,811,456	4730	1.53
9	38,811,456	4400	1.42	25	38,811,456	4730	1.53
10	38,811,456	4400	1.42	26	38,811,456	4730	1.53
11	38,811,456	4400	1.42	27	38,811,456	4800	1.55
12	38,811,456	4400	1.42	28	38,811,456	4800	1.55
13	38,811,456	4840	1.57	29	38,811,456	4800	1.55
14	38,811,456	4840	1.57	30	38,811,456	4800	1.55
15	38,811,456	4840	1.57				
16	38,811,456	4840	1.57				

Table 2-5

**Heorot Power Management
Malburg Generating Station
Diesel Fuel Fired Emergency Firewater Pump Testing Times
During Quarter 2, 2021**

Date	Time	Main / Test Emerg.	Hours of Operation	Fuel Used (gals)	Initials
Apr. 04, 2021	22:21	Testing	0.5	5.6	ARFO
Apr. 11, 2021	22:25	Testing	0.6	6.7	ESFO
Apr. 18, 2021	22:23	Testing	0.5	5.6	JAFO
Apr. 25, 2021	22:23	Testing	0.5	5.6	RRFO
May. 02, 2021	22:53	Testing	0.5	5.6	ESFO
May. 10, 2021	23:28	Testing	0.6	6.7	ESFO
May. 16, 2021	22:28	Testing	0.5	5.6	JAFO
May. 23, 2021	23:20	Testing	0.5	5.6	RRFO
Jun. 02, 2021	22:17	Testing	0.5	5.6	ESFO
Jun. 07, 2021	00:16	Testing	0.4	4.5	RRFO
Jun. 14, 2021	23:46	Testing	0.5	5.6	ACFO
Jun. 20, 2021	21:26	Testing	0.5	5.6	JAFO
Jun. 27, 2021	23:29	Testing	0.6	6.7	ESFO

Note: Event 'DNR' - Did Not Run

Table 2-11

Malburg Generating Station Total Monthly Emissions Apr-2021	
Contaminant	Gas Turbines (2)
CO lbs	970
PM10 lbs	2,241
PM2.5 lbs	2,241
VOC lbs	574
SOx lbs	105

Table 2-12

Malburg Generating Station Total Monthly Emissions May-2021	
Contaminant	Gas Turbines (2)
CO lbs	953
PM10 lbs	2,609
PM2.5 lbs	2,609
VOC lbs	669
SOx lbs	122

Table 2-13

Malburg Generating Station Total Monthly Emissions Jun-2021	
Contaminant	Gas Turbines (2)
CO lbs	1,020
PM10 lbs	2,675
PM2.5 lbs	2,675
VOC lbs	685
SOx lbs	125

Table 2-14

**Malburg Generating Station
Combustion Turbines Startup and Shutdown Events
During Quarter 2, 2021**

CT1

Date	Event Type	Event Start	Event End	Duration (hrs:min)
04/07/2021	Cold Start/Trip	05:42	06:56	1:14
04/07/2021	Warm Start	12:27	13:48	1:21
04/08/2021	Warm Start	16:43	17:51	1:08
05/30/2021	Shutdown	01:00	01:13	0:13
06/01/2021	Warm Start	17:33	18:48	1:15

CT2

Date	Event Type	Event Start	Event End	Duration (hrs:min)
4/1/2021	Cold Start	18:38	20:12	1:34
4/2/2021	Shutdown	00:06	00:15	0:09
4/5/2021	Cold Start	14:53	16:50	1:57
5/30/2021	Shutdown	00:03	00:11	0:08
5/30/2021	Warm Start	15:38	17:01	1:23
6/13/2021	Shutdown	00:01	00:09	0:08
6/13/2021	Warm Start	15:49	16:53	1:04

Table 2-15

**Malburg Generating Station
Combustion Turbines and Duct Burner Gas Usage
During Quarter 2,2021**

Month	CT-1 / DB-1 Gas Usage (mmscf)	CT-2 / DB-2 Gas Usage (mmscf)
Apr-21	170.53	202.19
May-21	209.48	224.32
Jun-21	221.08	223.66



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April 19, 2021

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

Report No.: 2104110
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 April 13, 2021.

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.



Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 04/19/21

Submitted: 04/13/21

PLS Report No.: 2104110

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2104110-01) Sampled: 04/13/21 08:30 Received: 04/13/21 08:30

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4130		1	mg/L	5.0	SM 2540C	04/14/21	04/15/21	dd	BD11522

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BD11522 - -										
Blank										
Prepared: 04/14/21 Analyzed: 04/15/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS										
Prepared: 04/14/21 Analyzed: 04/15/21										
Total Dissolved Solids	50.0	5.0	mg/L	50.00		100	80-120			
Duplicate										
Source: 2104110-01 Prepared: 04/14/21 Analyzed: 04/15/21										
Total Dissolved Solids	4090	5.0	mg/L		4130			1.05	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)

114640


POSITIVE
LAB SERVICE
CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

 DATE: 4/3/21 PAGE 1 OF 1
 LOG BOOK NO. _____ FILE NO. _____ LAB NO. 21041101

 CLIENT NAME: Cam Project Name/No. Malibu Greening Station Weekly P.O. NO. _____ AIRBILL NO: _____

 ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: 4°C

 PROJECT MANAGER: Tom Baint PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

 SAMPLER NAME: Tom Baint (Printed) TF (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	4/3/21	0830	Leading Tunnel Blunder	X				N	1	P	705
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name)

Tom Baint

Received By: (Signature and Printed Name)

Guadalupe Tanaka

 Date: 4/3/21 Time: 1300

Date: _____ Time: _____

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

SPECIAL INSTRUCTIONS:

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 _____

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

LAB COPY



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

April 28, 2021

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

Report No.: 2104175
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 April 21, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

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

File #: 74548
Report Date: 04/28/21
Submitted: 04/21/21
PLS Report No.: 2104175

Sample ID: Cooling Tower Blowdown Water (2104175-01) Sampled: 04/21/21 08:30 Received: 04/21/21 08:30											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4420		1	mg/L	5.0	- SM 2540C	04/26/21	04/27/21	dd	BD12721	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Qualifier
Batch BD12721 - -									
Blank Prepared: 04/26/21 Analyzed: 04/27/21									
Total Dissolved Solids	ND	5.0	mg/L						
LCS Prepared: 04/26/21 Analyzed: 04/27/21									
Total Dissolved Solids	48.0	5.0	mg/L	50.00		96.0 80-120			
Duplicate Source: 2104175-01 Prepared: 04/26/21 Analyzed: 04/27/21									
Total Dissolved Solids	4480	5.0	mg/L		4420		1.24	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)

114832



CHAIN OF CUSTODY AND ANALYSIS REQUEST

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372DATE: 4/2/21 PAGE 1 OF 1LOG BOOK NO. _____ FILE NO. _____ LAB NO. 210415

CLIENT NAME: <u>LEM</u>		Project Name/No. <u>Malibey Generating Station</u>		P.O. NO. _____		AIRBILL NO: _____					
ADDRESS: _____				ANALYSES REQUESTED:		COOLER TEMP: <u>1-8°C</u>					
PROJECT MANAGER: <u>Tom Barnhart</u>		PHONE NO: _____		FAX NO: _____		PRESERVATIVE: _____					
SAMPLER NAME: <u>Jon Bane</u> (Printed) <u>[Signature]</u> (Signature)						REMARKS:					
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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	<u>4/2/21</u>	<u>0830</u>	<u>Loosy Tower Blower</u>	<u>X</u>				<u>2</u>	<u>P</u>	<u>2</u>	
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name) <u>[Signature]</u> <u>Tom Barnhart</u>	Received By: (Signature and Printed Name) <u>[Signature]</u> <u>Guadalupe Tanaka</u>	Date: <u>4/2/21</u>	Time: <u>1:00</u>	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 _____
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	

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



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

May 03, 2021

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

Report No.: 2104207
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 April 26, 2021.

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.

A handwritten signature in blue ink, consisting of a large, stylized 'P' followed by several loops and a long horizontal stroke, is written over a solid horizontal line.

Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

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

File #: 74548
Report Date: 05/03/21
Submitted: 04/26/21
PLS Report No.: 2104207

Sample ID: Cooling Tower Blowdown Water (2104207-01) Sampled: 04/26/21 08:15 Received: 04/26/21 08:15											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4360		1	mg/L	5.0	- SM 2540C	04/26/21	04/27/21	dd	BD12721	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BD12721 --										
Blank Prepared: 04/26/21 Analyzed: 04/27/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS Prepared: 04/26/21 Analyzed: 04/27/21										
Total Dissolved Solids	48.0	5.0	mg/L	50.00		96.0	80-120			
Duplicate Source: 2104175-01 Prepared: 04/26/21 Analyzed: 04/27/21										
Total Dissolved Solids	4480	5.0	mg/L		4420			1.24	5	

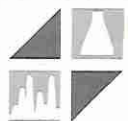
Notes and Definitions

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)

114838


POSITIVE
LAB SERVICE
CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

 DATE: 4/26/21 PAGE 1 OF 1
 LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2104207

 CLIENT NAME: CBM Project Name/No. Malibu Generating Station P.O. NO. _____ AIRBILL NO: _____

 ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: 1.2°C

 PROJECT MANAGER: Tom Barnhart PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

 SAMPLER NAME: John Bare (Printed) [Signature] (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	4/26/21	0815	Cooling Tower Blowdown	X				N	1	P	X
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name) <u>[Signature]</u> <u>John Bare</u>	Received By: (Signature and Printed Name) <u>[Signature]</u> <u>Guadalupe Tanaka</u>	Date: <u>4-20-21</u> Time: <u>1005</u>	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 _____
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date: _____ Time: _____	
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date: _____ Time: _____	

SPECIAL INSTRUCTIONS:

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

LAB COPY



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

May 11, 2021

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

Report No.: 2105011
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 May 04, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

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

File #:74548
Report Date: 05/11/21
Submitted: 05/04/21
PLS Report No.: 2105011

Sample ID: Cooling Tower Blowdown Water (2105011-01) Sampled: 05/04/21 08:45 Received: 05/04/21 08:45											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4220		1	mg/L	5.0	- SM 2540C	05/04/21	05/05/21	dd	BE10635	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BE10635 - -										
Blank Prepared: 05/04/21 Analyzed: 05/05/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS Prepared: 05/04/21 Analyzed: 05/05/21										
Total Dissolved Solids	49.0	5.0	mg/L	50.00		98.0	80-120			
Duplicate Source: 2105011-01 Prepared: 05/04/21 Analyzed: 05/05/21										
Total Dissolved Solids	4170	5.0	mg/L		4220			0.994	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)

114853


POSITIVE
LAB SERVICE

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

CHAIN OF CUSTODY AND ANALYSIS REQUEST

 DATE: 5-4-4 PAGE 1 OF 1

 LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2105011

 CLIENT NAME: LCM Project Name/No. Ma / Dring Gerding station Weekly P.O. NO. _____ AIRBILL NO: _____

 ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: 1.5°C

 PROJECT MANAGER: Tom Bernhart PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

 SAMPLER NAME: Tom Bernhart (Printed) [Signature] (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	5-4-4	0845	Cooling Tower Blowdown	X				N	1	P	
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name) <u>[Signature]</u> <u>John Bernhart</u>	Received By: (Signature and Printed Name) <u>[Signature]</u> <u>Guadalupe Tanaka</u>	Date: <u>5-4-4</u>	Time: <u>11:0</u>	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 _____
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	

SPECIAL INSTRUCTIONS:

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

LAB COPY



781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

May 17, 2021

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

Report No.: 2105070
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 May 10, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 05/17/21

Submitted: 05/10/21

PLS Report No.: 2105070

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2105070-01) Sampled: 05/10/21 08:40 Received: 05/10/21 08:40											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4420		1	mg/L	5.0	- SM 2540C	05/13/21	05/14/21	dd	BE11728	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BE11728 - -										
Blank										
Total Dissolved Solids	ND	5.0	mg/L							
LCS										
Total Dissolved Solids	49.0	5.0	mg/L	50.00		98.0	80-120			
Duplicate Source: 2105070-01										
Total Dissolved Solids	4410	5.0	mg/L		4420			0.264	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

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372DATE: 5/10/21 PAGE 1 OF 1
LOG BOOK NO. FILE NO. LAB NO. 2105070

CLIENT NAME: LCM

Project Name/No. Malibu Generating Station Weekly

P.O. NO.

AIRBILL NO:

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 0.9°C

PROJECT MANAGER: Tom Bernhart

PHONE NO:

FAX NO:

PRESERVATIVE:

SAMPLER NAME: John Bare

(Printed)

(Signature)

REMARKS:

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER	
				WATER	SOIL	SLUDGE	OTHER		#	TYPE

SAMPLE CONDITION/
CONTAINER /COMMENTS:1
2
3
4
5
6
7
8
9
10

5/10/21

0845

Coastal Biondium

✓

N

1 P

X

705

Relinquished By: (Signature and Printed Name)

Tom Bernhart

Received By: (Signature and Printed Name)

Guadalupe Tanaka

Date:

Time:

5/10/21

10:00

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date:

Time:

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

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

SPECIAL INSTRUCTIONS:

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

114863

LAB COPY



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

May 24, 2021

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

Report No.: 2105179
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 May 18, 2021.

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.

A handwritten signature in blue ink, appearing to read "D. Sanchez", is written over a horizontal line. Below the line, the text "Project Manager" is printed.

Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 05/24/21

Submitted: 05/18/21

PLS Report No.: 2105179

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2105179-01) Sampled: 05/18/21 08:25 Received: 05/18/21 08:25

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4340		1	mg/L	5.0	- SM 2540C	05/19/21	05/20/21	dd	BE12028

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BE12028 - -										
Blank										
Total Dissolved Solids	ND	5.0	mg/L							
LCS										
Total Dissolved Solids	48.0	5.0	mg/L	50.00		96.0	80-120			
Duplicate										
Source: 2105131-01										
Total Dissolved Solids	648	5.0	mg/L		647			0.0772	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

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

DATE: 5/28/24

PAGE

1 OF 1

LOG BOOK NO.

FILE NO.

LAB NO.

2105179

CLIENT NAME: Cam

Project Name/No.

malkusg Generating Station Weekly

P.O. NO.

AIRBILL NO:

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 1.20C

PROJECT MANAGER: Tom Barnhart

PHONE NO:

FAX NO:

PRESERVATIVE:

SAMPLER NAME: John Baric

(Printed)

L

(Signature)

REMARKS:

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER	
				WATER	SOIL	SLUDGE	OTHER		#	TYPE

SAMPLE CONDITION/
CONTAINER /COMMENTS:1
2
3
4
5
6
7
8
9
10

5/28/24

0825

Locking Tower Blowdown

X

N

1

P

S

Relinquished By: (Signature and Printed Name)

Relinquished By: (Signature and Printed Name)

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date:

5/28/24

Time:

0940

Date:

Time:

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 _____

SPECIAL INSTRUCTIONS:

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

114927

LAB COPY



781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

June 01, 2021

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

Report No.: 2105221
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 May 24, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548
Report Date: 06/01/21
Submitted: 05/24/21
PLS Report No.: 2105221

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2105221-01) Sampled: 05/24/21 08:15 Received: 05/24/21 08:15										
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4560		1	mg/L	5.0	SM 2540C	05/27/21	05/28/21	dd	BE12801

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BE12801 - -										
Blank Prepared: 05/27/21 Analyzed: 05/28/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS Prepared: 05/27/21 Analyzed: 05/28/21										
Total Dissolved Solids	49.0	5.0	mg/L	50.00		98.0	80-120			
Duplicate Source: 2105221-01 Prepared: 05/27/21 Analyzed: 05/28/21										
Total Dissolved Solids	4570	5.0	mg/L		4560			0.182	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)

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2105221

AIRBILL NO: _____

COOLER TEMP: 10⁰⁰

PRESERVATIVE:

REMARKS:

**SAMPLE CONDITION/
CONTAINER /COMMENTS:**

UST Project: Y N - Global ID#

725

[illegible]

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 _____

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June 09, 2021

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

Report No.: 2106013
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 02, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 06/09/21

Submitted: 06/02/21

PLS Report No.: 2106013

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2106013-01) Sampled: 06/02/21 08:25 Received: 06/02/21 08:25

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4440		1	mg/L	5.0	- SM 2540C	06/07/21	06/08/21	dd	BF10822

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BF10822 - -										
Blank										
Total Dissolved Solids	ND	5.0	mg/L							
LCS										
Total Dissolved Solids	47.0	5.0	mg/L	50.00		94.0	80-120			
Duplicate										
Source: 2106013-01										
Total Dissolved Solids	4310	5.0	mg/L		4440			3.01	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)



POSITIVE
LAB SERVICE

CHAIN OF CUSTODY AND ANALYSIS REQUEST

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(213) 745-5312 FAX (213) 745-6372

DATE: 6-2-21 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2106003

CLIENT NAME: Cem Project Name/No. Mulholy Generating Station weekly P.O. NO. _____ AIRBILL NO: _____

ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: 10.6°C

PROJECT MANAGER: Jon Benhart PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

SAMPLER NAME: John Bane (Printed) [Signature] (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	6-2-21	0825	Leaking Tank Bioradon	X				N1	P	X	
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

SPECIAL INSTRUCTIONS:

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 _____

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

114957

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781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

June 10, 2021

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

Report No.: 2106090
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 07, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

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

File #: 74548
Report Date: 06/10/21
Submitted: 06/07/21
PLS Report No.: 2106090

Sample ID: Cooling Tower Blowdown Water (2106090-01) Sampled: 06/07/21 08:35 Received: 06/07/21 08:35											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4400		1	mg/L	5.0	SM 2540C	06/07/21	06/08/21	dd	BF10822	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Batch BF10822 --										
Blank Prepared: 06/07/21 Analyzed: 06/08/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS Prepared: 06/07/21 Analyzed: 06/08/21										
Total Dissolved Solids	47.0	5.0	mg/L	50.00		94.0	80-120			
Duplicate Source: 2106013-01 Prepared: 06/07/21 Analyzed: 06/08/21										
Total Dissolved Solids	4310	5.0	mg/L		4440			3.01	5	

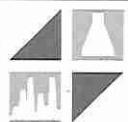
Notes and Definitions

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)

115349


POSITIVE
LAB SERVICE
CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

 DATE: 6-22-1 PAGE 1 OF 1

 LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2106090

 CLIENT NAME: CEM Project Name/No. Malbury Generating Station - Weekly P.O. NO. _____ AIRBILL NO: _____

 ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: 0.9°C

 PROJECT MANAGER: Tom Barnhart PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

 SAMPLER NAME: Tom Barnhart (Printed) [Signature] (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	6-22-1	0835	Cooling Tower Blowdown	X				121	P	S	
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

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 _____

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: _____ Time: _____

SPECIAL INSTRUCTIONS:

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

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June 21, 2021

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

Report No.: 2106197
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 15, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 06/21/21

Submitted: 06/15/21

PLS Report No.: 2106197

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2106197-01) Sampled: 06/15/21 08:45 Received: 06/15/21 08:45

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4840		1	mg/L	5.0	- SM 2540C	06/17/21	06/18/21	dd	BF11723

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Qualifier
Batch BF11723 - -									
Blank Prepared: 06/17/21 Analyzed: 06/18/21									
Total Dissolved Solids	ND	5.0	mg/L						
LCS Prepared: 06/17/21 Analyzed: 06/18/21									
Total Dissolved Solids	52.0	5.0	mg/L	50.00		104 80-120			
Duplicate Source: 2106198-01 Prepared: 06/17/21 Analyzed: 06/18/21									
Total Dissolved Solids	4960	5.0	mg/L		4840		2.45	5	
Duplicate Source: 2106216-01 Prepared: 06/17/21 Analyzed: 06/18/21									
Total Dissolved Solids	3170	5.0	mg/L		3060		3.26	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)

115364



CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

DATE: 6/5/01 PAGE 1 OF 1

LOG BOOK NO. FILE NO. LAB NO. 2106197

CLIENT NAME: GEM Project Name/No. Molbury Generating Station Weekly P.O. NO. AIRBILL NO:

ADDRESS: ANALYSES REQUESTED: COOLER TEMP: 1.5°C

PROJECT MANAGER: Tom Reinhart PHONE NO: FAX NO: PRESERVATIVE:

SAMPLER NAME: John Boie (Printed) (Signature) REMARKS:

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	6/5/01	0845	Cooling Tower Blowdown	X				N	1	P	X
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 6/5/01 Time: 12:00
 Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Date: Time:
 Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Date: Time:

SPECIAL INSTRUCTIONS: 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 _____

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

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781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

June 30, 2021

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

Report No.: 2106271

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 23, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
[213] 745-5312 FAX [213] 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548

Report Date: 06/30/21

Submitted: 06/23/21

PLS Report No.: 2106271

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2106271-01) Sampled: 06/23/21 08:50 Received: 06/23/21 08:50

Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Total Dissolved Solids	4730		1	mg/L	5.0	- SM 2540C	06/28/21	06/29/21	dd	BF12916

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch BF12916 - -										
Blank										
Prepared: 06/28/21 Analyzed: 06/29/21										
Total Dissolved Solids	ND	5.0	mg/L							
LCS										
Prepared: 06/28/21 Analyzed: 06/29/21										
Total Dissolved Solids	48.0	5.0	mg/L	50.00		96.0	80-120			
Duplicate										
Source: 2106271-01 Prepared: 06/28/21 Analyzed: 06/29/21										
Total Dissolved Solids	4750	5.0	mg/L		4730			0.492	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)

115417



CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

DATE: 6/23/21 PAGE 1 of 1

LOG BOOK NO. FILE NO. LAB NO. 210211

CLIENT NAME: Cam Project Name/No. Melbury Generating Station Weekly P.O. NO. AIRBILL NO:

ADDRESS: ANALYSES REQUESTED: COOLER TEMP: 1.8^a

PROJECT MANAGER: Tom Bamberg PHONE NO: FAX NO: PRESERVATIVE:

SAMPLER NAME: Tom Bamberg (Printed) (Signature) REMARKS:

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	6/23/21	850	Cooling Tower Blowdown					1	1	P	
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: 6/23/21 Time: 12:30

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: Time:

Relinquished By: (Signature and Printed Name)

Received By: (Signature and Printed Name)

Date: Time:

SPECIAL INSTRUCTIONS:

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

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

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781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

July 06, 2021

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

Report No.: 2106309
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 28, 2021.

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.


Project Manager



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

Certificate of Analysis

Page 2 of 2

Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart

Phone: (323) 476-3626 FAX: (323) 476-3640

File #: 74548
Report Date: 07/06/21
Submitted: 06/28/21
PLS Report No.: 2106309

Project: Malburg Generating Station Weekly

Sample ID: Cooling Tower Blowdown Water (2106309-01) Sampled: 06/28/21 08:20 Received: 06/28/21 08:20											
Analyte	Results	Flag	D.F.	Units	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch	
Total Dissolved Solids	4800		1	mg/L	5.0	SM 2540C	06/28/21	06/29/21	dd	BF12916	

Quality Control Data

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Qualifier
Batch BF12916 - -									
Blank Prepared: 06/28/21 Analyzed: 06/29/21									
Total Dissolved Solids	ND	5.0	mg/L						
LCS Prepared: 06/28/21 Analyzed: 06/29/21									
Total Dissolved Solids	48.0	5.0	mg/L	50.00		96.0 80-120			
Duplicate Source: 2106271-01 Prepared: 06/28/21 Analyzed: 06/29/21									
Total Dissolved Solids	4750	5.0	mg/L		4730		0.492	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)

115426


POSITIVE
LAB SERVICE
CHAIN OF CUSTODY AND ANALYSIS REQUEST

 781 East Washington Blvd., Los Angeles, CA 90021
 (213) 745-5312 FAX (213) 745-6372

 DATE: 6-28-21 PAGE 1 OF 1

 LOG BOOK NO. _____ FILE NO. _____ LAB NO. 21003009

 CLIENT NAME: CEM Project Name/No. Malibu Generating Station Weekly P.O. NO. _____ AIRBILL NO: _____

 ADDRESS: _____ ANALYSES REQUESTED: _____ COOLER TEMP: Low

 PROJECT MANAGER: Tom Balnhat PHONE NO: _____ FAX NO: _____ PRESERVATIVE: _____

 SAMPLER NAME: John Bane (Printed) [Signature] (Signature) REMARKS: _____

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 NO.	DATE SAMPLED	TIME SAMPLED	SAMPLE DESCRIPTION	MATRIX				TAT	CONTAINER		SAMPLE CONDITION/CONTAINER /COMMENTS:
				WATER	SOIL	SLUDGE	OTHER		#	TYPE	
1	6-28-21	0800	Coating Tower Discharge	X				2	1	P	X
2											
3											
4											
5											
6											
7											
8											
9											
10											

Relinquished By: (Signature and Printed Name) <u>[Signature]</u> <u>John Bane</u>	Received By: (Signature and Printed Name) <u>[Signature]</u> <u>Guadalupe Tanaka</u>	Date: <u>6-28-21</u>	Time: <u>1:00</u>	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 _____
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	
Relinquished By: (Signature and Printed Name)	Received By: (Signature and Printed Name)	Date:	Time:	

SPECIAL INSTRUCTIONS:

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

LAB COPY

Appendix B

Excess Emission Reports

Startup/Shutdown Excess Emissions Report

U1 CO Startup/Shutdown



From: 04/01/2021 00:00 **To:** 06/30/2021 23:59 **Facility Name:** Malburg Generating Station
Generated: 07/08/2021 05:45 **Location:** Vernon, California
Tag Name: U1_CO_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 1,941.95 Hours
Non-Operating Time: 242.05 Hours **Report Time:** 2,184.00 Hours

Unit Operation					
----------------	--	--	--	--	--

Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Excess Emission Report

Unit 1 - NOx ppmvdc 1-hour during Normal Operation

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:40 Location: Vernon, California



Tag Name: U1_NOxNormal_Ppmvdc_1H
Total Operating Time: 1,946.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 238.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	1,946.00 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 1 - VOC ppmvdc 1-hour during Normal Operation

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:41 Location: Vernon, California



Tag Name: U1_VOCNormal_Ppmvdc_1H
Total Operating Time: 1,946.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 238.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	1,946.00 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 1 - CO ppmvdc 1-hour during Normal Operation

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:42 Location: Vernon, California



Tag Name: U1_CONormal_Ppmvdc_1H
Total Operating Time: 1,946.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 238.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	1,946.00 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 %

Quad K Excess Emissions Report

U1 NOX 4-Hour Events

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:43 Location: Vernon, California



Tag Name: U1_NOx4H_Ppmvdc_1H
Total Operating Time: 1,946.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 238.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	1,946.00 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 Excess Emissions Report

U1 NOx Startup/Shutdown

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station

Generated: 07/08/2021 05:44 Location: Vernon, California

Tag Name: U1_NOxRECLM_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 1,941.95 Hours
Non-Operating Time: 242.05 Hours Report Time: 2,184.00 Hours



Unit Operation					
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Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Startup/Shutdown Excess Emissions Report

U1 VOC Startup/Shutdown



From: 04/01/2021 00:00 **To:** 06/30/2021 23:59 **Facility Name:** Malburg Generating Station
Generated: 07/08/2021 05:50 **Location:** Vernon, California
Tag Name: U1_VOC_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 1,941.95 Hours
Non-Operating Time: 242.05 Hours **Report Time:** 2,184.00 Hours

Unit Operation					
----------------	--	--	--	--	--

Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Startup/Shutdown Event Report

U2 CO Startup/Shutdown Events



From: 04/01/2021 00:00 **To:** 06/30/2021 23:59 **Facility Name:** Malburg Generating Station
Generated: 07/08/2021 05:51 **Location:** Vernon, California
Tag Name: U2_CO_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 2,048.63 Hours
Non-Operating Time: 135.37 Hours **Report Time:** 2,184.00 Hours

Unit Operation					
----------------	--	--	--	--	--

Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Excess Emission Report

Unit 2 - NOx ppmvdc 1-hour during Normal Operation

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:52 Location: Vernon, California



Tag Name: U2_NOxNormal_Ppmvdc_1H
Total Operating Time: 2,054.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 130.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	2,054.00 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 - VOC ppmvdc 1-hour during Normal Operation

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:55 Location: Vernon, California



Tag Name: U2_VOCNormal_Ppmvdc_1H
Total Operating Time: 2,054.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 130.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	2,054.00 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

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:56 Location: Vernon, California



Tag Name: U2_CONormal_Ppmvdc_1H
Total Operating Time: 2,054.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 130.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	2,054.00 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 %

Quad K Excess Emissions Report

U2 NOX 4-Hour Events

From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station
Generated: 07/08/2021 05:57 Location: Vernon, California



Tag Name: U2_NOx4H_Ppmvdc_1H
Total Operating Time: 2,054.00 Hour(s) No Exclusions Allowed
Non-Operating Time: 130.00 Hour(s) Report Time: 2,184.00 Hour(s)

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

Total Operating Time:	2,054.00 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 Excess Emissions Report

U2 NOx Startup/Shutdown



From: 04/01/2021 00:00 To: 06/30/2021 23:59 Facility Name: Malburg Generating Station

Generated: 07/08/2021 05:57 Location: Vernon, California

Tag Name: U2_NOxRECLM_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 2,048.63 Hours
Non-Operating Time: 135.37 Hours Report Time: 2,184.00 Hours

Unit Operation					
----------------	--	--	--	--	--

Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Startup/Shutdown Event Report

U2 VOC Startup/Shutdown Events



From: 04/01/2021 00:00 **To:** 06/30/2021 23:59 **Facility Name:** Malburg Generating Station
Generated: 07/08/2021 05:58 **Location:** Vernon, California
Tag Name: U2_VOC_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

Total Operating Time: 2,048.63 Hours
Non-Operating Time: 135.37 Hours Report Time: 2,184.00 Hours

Unit Operation					
----------------	--	--	--	--	--

Event Period				Reason	Action
Begin/End	Duration in Minute(s)	Lb/Event	Limit	Code - Description	Code - Description

No excess emissions were found in the reporting period.

Appendix C

Diesel Fuel Oil Specifications

Invoice

Page 1 of 1



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

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

INVOICE: 1837355-IN

INVOICE DATE: 3/29/2021

DUE DATE: 4/28/2021

SHIP DATE: 3/29/2021

SHIP VIA: 924

ORDER DATE: 3/24/2021

ORDER NUMBER: 1837355

CUSTOMER PO: MGS21780

TERMS: N30

SALEPERSON: Todd Cripps
714-938-5714

ACCT NO (Bill-to): 01-0001084

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

ACCT NO (Ship-to): 01-0001084 1L

COLORADO ENERGY MGMT-VERNON
4963 SOTO STREET
VERNON, CA 90058

ITEM CODE	ITEM DESCRIPTION	QUANTITY ORDERED	QUANTITY DELIVERED	PACKAGE DESCRIPTION	EXTENDED QTY	UNIT PRICE	EXT PRICE
CH253090981D055	CH GST 2300 ISO 32 253090981	2	2.00	55 G DR	110.00	18.58000	2,043.80
	Whse: 101						
422D055	DYED CARB ULS DIESEL NON TAXABLE USE ONLY - PENALTY FOR TAXABLE USE 15 PPM OR LESS SULFUR - MAY CONTAIN UP TO 5% BIODIESEL	2	2.00	55 G DR	110.00	3.95000	434.50
	Whse: 101						
Federal Lust						0.00100	0.11
Federal Oil Spill						0.00214	0.24
CA - AB 32 - DSL						0.00828	0.91
						3.96142	435.76
DRUMDEPOSITC 001	DRUM DEPOSIT FEE	4	4.00	MISC CHRG	4.00	25.00000	100.00
	Whse: 101						
/FUELCHLUBE	FUEL SURCHARGE LUBES						9.92
/RCFLUBE	REG COMPLIANCE FEE LUBES						12.95
MSRTNDRMC001	RETURN DRUM	0	-4.00	MISC CHRG	4.00-	15.00000	60.00-
	Whse: 101						

Save time, pay online! View invoices, make payments and more.
Sign up for the Customer Portal today. Email: creditinquiries@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

Net Invoice: 2,542.43
Less Discount: 0.00
Freight: 0.00
Sales Tax: 256.52
Invoice Total: 2,798.95

- IN THE EVENT THAT THE ABOVE CHARGES ARE NOT PAID WHEN DUE, SC COMMERCIAL, LLC, DBA SC FUELS RESERVES THE RIGHT TO REFUSE FURTHER
- CHARGES TO THE ACCOUNT. A SERVICE CHARGE OF 1.5% PER MONTH(A.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 is subject to a 3% surcharge.



SC Commercial, LLC, DBA SC Fuels
1800 West Katella Ave., Suite 400
P.O. Box 14237, Orange, CA 92863-4159

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

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

SALES ORDER / DELIVERY TICKET

ORDER NUMBER: 1837355

DATE: 3/24/2021

TERMS: N30
SALES REP: Todd Cripps
PHONE: 714-938-5714

PO#: MGS21780

SHIP DATE: 3/29/2021

ROM:

SHIP VIA:

WHSE: 101

ACCT NO (Bill-to): 01-0001084

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

ACCT NO (Ship-to) 01-0001084 1L

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

HM	ITEM CODE	ITEM DESCRIPTION	QTY ORDERED	QTY DEL	PACKAGE DESC	EXTENDED QTY
	CH253090981D055	CH GST 2300 ISO 32 253090981	2.00	2	55 G DR	110.00 GALS
X	NA1993, DIESEL FUEL, 3 PG III / CARGO TANK					
	422D055	DYED CARB ULS DIESEL NON TAXABLE USE ONLY - PENALTY FOR TAXABLE USE 15 PPM OR LESS SULFUR - MAY CONTAIN UP TO 5% BIODIESEL	2.00	2	55 G DR	110.00 GALS
	DRUMDEPOSITC001	DRUM DEPOSIT FEE	4.00	4	MISC CHRG	4.00 EACH
	/FUELCHLUBE	FUEL SURCHARGE LUBES				
	/RCFLUBE	REG COMPLIANCE FEE LUBES				

4 empty Drums

Rec'd by

Date

3-29-21

Print Name

Ethan Soter

Driver's Signature

Todd Cripps

Received in INFOR
3/29/21
M. Gordon

ARRIVED DESTINATION	10 32	AM	DATE	3/29/21
COMPLETED UNLOADING		AM	DATE	3/29/21

DRUM CREDIT

TRUCK #	B/L #	FOR COMPANY USE ONLY
221		RT <input type="checkbox"/> TF <input type="checkbox"/> OP <input type="checkbox"/>
D.O.T. HAZARDOUS MATERIALS PLACARD PROVIDED		
BY SHIPPER <input type="checkbox"/> CARRIER <input type="checkbox"/>		
THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.		

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.

Mass in Particles (%)		Droplet Size (Microns)
0.2	Larger Than	525
1.0	Larger Than	375
5.0	Larger Than	230
10.0	Larger Than	170
20.0	Larger Than	115
40.0	Larger Than	65
60.0	Larger Than	35
80.0	Larger Than	15
88.0	Larger Than	10

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.

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 CaCO ₃
Silica	150 ppm as SiO ₂ 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:

Cations:	Calcium	MAXIMUM: 800 ppm as CaCO ₃ preferred, (300 ppm with MX fills in arid climate).
	Magnesium	Depends on pH and silica level (for magnesium silicate scale).
	Sodium	No limit.
Anions:	Chlorides	450 ppm as Cl ⁻ (300 for galvanized towers). upgrades are required for higher chloride levels.
	Sulfates	800 ppm as CaCO ₃ preferred if calcium is also high (CaSO ₄ scale).
	Nitrates	300 ppm as NO ₃ (bacteria nutrient).
	Carbonates/Bicarbonates	300 ppm as CaCO ₃ preferred for wood or galvanized steel tower.

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).

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

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 antifoams 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. Clog-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.