| DOCKETED | |
|---|---|
| **Docket Number:** | 01-AFC-25C |
| **Project Title:** | Malburg Generating Station-Compliance |
| **TN #:** | 234028 |
| **Document Title:** | Malburg Generating Station Quarterly Compliance Report Q2 2020 |
| **Description:** | Searchable |
| **Filer:** | Kyle McCormack |
| **Organization:** | Heorot Power Management |
| **Submitter Role:** | Applicant |
| **Submission Date:** | 7/28/2020 3:21:40 PM |
| **Docketed Date:** | 7/28/2020 |

**MALBURG GENERATING STATION**
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28 July 2020

Mr. Anwar Ali
Compliance Project Manager
California Energy Commission
Energy Facilities Siting Division
1516 9th Street, MS 2000
Sacramento, CA 95814-5512

Subject: Malburg Generating Station
2020 Q2 Compliance Report

Dear Mr. Ali:

On behalf of the owner of the Malburg Generating Station, Bicent (California) Malburg LLC, Colorado Energy has compiled the attached Quarterly Compliance Report per the California Energy Commission's Decision 01-AFC-25C – Petition to Amend.

Please contact me at (303) 607-5590 or kmccormack@coloradoenergy.com if you have any questions or need additional information.

Sincerely,

Kyle McCormack
Environmental Manager

*Attachments:*
*MGS 2020 Q2 CEC Report*

**MALBURG GENERATING STATION**
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# QUARTERLY COMPLIANCE REPORT
# (Second 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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# Contents

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## LIST OF TABLES



## LIST OF APPENDICES

# 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:

$PM_{10}$ 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 $PM_{10}$ 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, $NO_X$, $SO_X$, CO, $PM_{10}$ 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, $NO_X$, $SO_X$, CO, $PM_{10}$ 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 SOx 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 & SOx: 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: NOx 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: NOx 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: NOx 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 NOx emission data indicated that the maximum corrected NOx 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 1.2 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 ($NH_3$) 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:

$NH_3$ (ppmv) = [a-(b*c/1,000,000)]*(1,000,000*d/b) 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.

$NH_3$ 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 2, 2020**

| Starting | Ending | TDS (ppm) |
|---|---|---|
| 4/5/2020 | 4/11/2020 | 4870 |
| 4/12/2020 | 4/18/2020 | 4480 |
| 4/19/2020 | 4/25/2020 | 4280 |
| 4/26/2020 | 5/2/2020 | 4420 |
| 5/3/2020 | 5/9/2020 | 4400 |
| 5/10/2020 | 5/16/2020 | 4420 |
| 5/17/2020 | 5/23/2020 | 4410 |
| 5/24/2020 | 5/30/2020 | 5160 |
| 5/31/2020 | 6/6/2020 | 4510 |
| 6/7/2020 | 6/13/2020 | 4340 |
| 6/14/2020 | 6/20/2020 | 4330 |
| 6/21/2020 | 6/27/2020 | 4540 |
| 6/28/2020 | 7/4/2020 | 4500 |

**Table 2-2**

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

**$PM_{10}$ = A x B x C x D** **A = Circulation Rate** **B = TDS**
**$PM_{10}$ Limit is 6.2 lbs/day** **C = Drift Factor** **D = Correction Factor**

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| 1 | 38,811,456 | 4380 | **1.42** |
| 2 | 38,811,456 | 4380 | **1.42** |
| 3 | 38,811,456 | 4380 | **1.42** |
| 4 | 38,811,456 | 4380 | **1.42** |
| 5 | 38,811,456 | 4870 | **1.58** |
| 6 | 38,811,456 | 4870 | **1.58** |
| 7 | 38,811,456 | 4870 | **1.58** |
| 8 | 38,811,456 | 4870 | **1.58** |
| 9 | 38,811,456 | 4870 | **1.58** |
| 10 | 38,811,456 | 4870 | **1.58** |
| 11 | 38,811,456 | 4870 | **1.58** |
| 12 | 38,811,456 | 4480 | **1.45** |
| 13 | 38,811,456 | 4480 | **1.45** |
| 14 | 38,811,456 | 4480 | **1.45** |
| 15 | 38,811,456 | 4480 | **1.45** |
| 16 | 38,811,456 | 4480 | **1.45** |

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| 17 | 38,811,456 | 4480 | **1.45** |
| 18 | 38,811,456 | 4480 | **1.45** |
| 19 | 38,811,456 | 4280 | **1.38** |
| 20 | 38,811,456 | 4280 | **1.38** |
| 21 | 38,811,456 | 4280 | **1.38** |
| 22 | 38,811,456 | 4280 | **1.38** |
| 23 | 38,811,456 | 4280 | **1.38** |
| 24 | 38,811,456 | 4280 | **1.38** |
| 25 | 38,811,456 | 4280 | **1.38** |
| 26 | 38,811,456 | 4420 | **1.43** |
| 27 | 38,811,456 | 4420 | **1.43** |
| 28 | 38,811,456 | 4420 | **1.43** |
| 29 | 38,811,456 | 4420 | **1.43** |
| 30 | 38,811,456 | 4420 | **1.43** |
| | | | |
| | | | |

**Table 2-3**

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

**$PM_{10}$ = A x B x C x D** **A = Circulation Rate** **B = TDS**
**$PM_{10}$ Limit is 6.2 lbs/day** **C = Drift Factor** **D = Correction Factor**

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| **1** | 38,811,456 | 4420 | **1.43** |
| **2** | 38,811,456 | 4420 | **1.43** |
| **3** | 38,811,456 | 4400 | **1.42** |
| **4** | 38,811,456 | 4400 | **1.42** |
| **5** | 38,811,456 | 4400 | **1.42** |
| **6** | 38,811,456 | 4400 | **1.42** |
| **7** | 38,811,456 | 4400 | **1.42** |
| **8** | 38,811,456 | 4400 | **1.42** |
| **9** | 38,811,456 | 4400 | **1.42** |
| **10** | 38,811,456 | 4420 | **1.43** |
| **11** | 38,811,456 | 4420 | **1.43** |
| **12** | 38,811,456 | 4420 | **1.43** |
| **13** | 38,811,456 | 4420 | **1.43** |
| **14** | 38,811,456 | 4420 | **1.43** |
| **15** | 38,811,456 | 4420 | **1.43** |
| **16** | 38,811,456 | 4420 | **1.43** |

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| **17** | 38,811,456 | 4410 | **1.43** |
| **18** | 38,811,456 | 4410 | **1.43** |
| **19** | 38,811,456 | 4410 | **1.43** |
| **20** | 38,811,456 | 4410 | **1.43** |
| **21** | 38,811,456 | 4410 | **1.43** |
| **22** | 38,811,456 | 4410 | **1.43** |
| **23** | 38,811,456 | 4410 | **1.43** |
| **24** | 38,811,456 | 5160 | **1.67** |
| **25** | 38,811,456 | 5160 | **1.67** |
| **26** | 38,811,456 | 5160 | **1.67** |
| **27** | 38,811,456 | 5160 | **1.67** |
| **28** | 38,811,456 | 5160 | **1.67** |
| **29** | 38,811,456 | 5160 | **1.67** |
| **30** | 38,811,456 | 5160 | **1.67** |
| **31** | 38,811,456 | 4510 | **1.46** |
| | | | |

**Table 2-4**

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

**$PM_{10}$ = A x B x C x D** **A = Circulation Rate** **B = TDS**
**$PM_{10}$ Limit is 6.2 lbs/day** **C = Drift Factor** **D = Correction Factor**

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| **1** | 38,811,456 | 4510 | **1.46** |
| **2** | 38,811,456 | 4510 | **1.46** |
| **3** | 38,811,456 | 4510 | **1.46** |
| **4** | 38,811,456 | 4510 | **1.46** |
| **5** | 38,811,456 | 4510 | **1.46** |
| **6** | 38,811,456 | 4510 | **1.46** |
| **7** | 38,811,456 | 4340 | **1.40** |
| **8** | 38,811,456 | 4340 | **1.40** |
| **9** | 38,811,456 | 4340 | **1.40** |
| **10** | 38,811,456 | 4340 | **1.40** |
| **11** | 38,811,456 | 4340 | **1.40** |
| **12** | 38,811,456 | 4340 | **1.40** |
| **13** | 38,811,456 | 4340 | **1.40** |
| **14** | 38,811,456 | 4330 | **1.40** |
| **15** | 38,811,456 | 4330 | **1.40** |
| **16** | 38,811,456 | 4330 | **1.40** |

| Date | Circulation Rate (gal/day) | TDS (ppm) | $PM_{10}$ (lbs/day) |
|---|---|---|---|
| **17** | 38,811,456 | 4330 | **1.40** |
| **18** | 38,811,456 | 4330 | **1.40** |
| **19** | 38,811,456 | 4330 | **1.40** |
| **20** | 38,811,456 | 4330 | **1.40** |
| **21** | 38,811,456 | 4540 | **1.47** |
| **22** | 38,811,456 | 4540 | **1.47** |
| **23** | 38,811,456 | 4540 | **1.47** |
| **24** | 38,811,456 | 4540 | **1.47** |
| **25** | 38,811,456 | 4540 | **1.47** |
| **26** | 38,811,456 | 4540 | **1.47** |
| **27** | 38,811,456 | 4540 | **1.47** |
| **28** | 38,811,456 | 4540 | **1.47** |
| **29** | 38,811,456 | 4540 | **1.47** |
| **30** | 38,811,456 | 4540 | **1.47** |
| | | | |
| | | | |

**Table 2-5**

**Heorot Power Management**
**Malburg Generating Station**
**Diesel Fuel Fired Emergency Firewater Pump Testing Times**
**During Quarter 2, 2020**

| Date | Time | Main / Test Emerg. | Hours of Operation | Fuel Used (gals) | Initials |
|---|---|---|---|---|---|
| **Apr. 05, 2020** | 22:07 | Testing | 0.5 | 5.6 | SCTFO |
| **Apr. 12, 2020** | 19:11 | Testing | 0.5 | 5.6 | JAFO |
| **Apr. 19, 2020** | 19:22 | Testing | 0.5 | 5.6 | VFFO |
| **Apr. 26, 2020** | 02:24 | Testing | 0.5 | 5.6 | ARFO |
| **May. 10, 2020** | 20:09 | Testing | 0.6 | 6.7 | JAFO |
| **May. 17, 2020** | 20:17 | Testing | 0.6 | 6.7 | JAFO |
| **May. 24, 2020** | 18:37 | Testing | 0.5 | 5.6 | STFO |
| **May. 31, 2020** | 22:02 | Testing | 0.5 | 5.6 | JPFO |
| **Jun. 07, 2020** | 22:31 | Testing | 0.4 | 4.5 | SCTFO |
| **Jun. 14, 2020** | 20:29 | Testing | 0.5 | 5.6 | JAFO |
| **Jun. 21, 2020** | 18:45 | Testing | 0.5 | 5.6 | STFO |
| **Jun. 28, 2020** | 23:23 | Testing | 0.6 | 6.7 | ARCRO |

Note: Event 'DNR' - Did Not Run

**Table 2-11**

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

| Contaminant | Gas Turbines (2) |
|---|---|
| CO lbs | 946 |
| PM10 lbs | 2,466 |
| PM2.5 lbs | 2,466 |
| VOC lbs | 631 |
| SOx lbs | 115 |

**Table 2-12**

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

| Contaminant | Gas Turbines (2) |
|---|---|
| CO lbs | 1,093 |
| PM10 lbs | 2,447 |
| PM2.5 lbs | 2,447 |
| VOC lbs | 627 |
| SOx lbs | 114 |

**Table 2-13**

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

| Contaminant | Gas Turbines (2) |
|---|---|
| CO lbs | 962 |
| PM10 lbs | 2,590 |
| PM2.5 lbs | 2,590 |
| VOC lbs | 663 |
| SOx lbs | 120 |

**Table 2-14**

**Malburg Generating Station**
**Combustion Turbines Startup and Shutdown Events**
**During Quarter 2, 2020**

## CT1

| Date | Event Type | Event Start | Event End | Duration (hrs:min) | |
|---|---|---|---|---|---|
| 04/04/2020 | Shutdown | 08:17 | 08:18 | 0:01 | |
| 04/04/2020 | Warm Startup | 18:23 | 19:26 | 1:03 | |
| 05/02/2020 | Shutdown | 00:19 | 00:21 | 0:02 | |
| 05/04/2020 | Cold Startup | 06:46 | 08:23 | 1:37 | |
| 05/07/2020 | Shutdown/Trip | 00:24 | 00:24 | 0:00 | |
| 05/07/2020 | Warm Startup | 04:40 | 05:33 | 0:53 | |
| 05/23/2020 | Shutdown/Trip | 08:47 | 08:47 | 0:00 | |
| 05/23/2020 | Warm Startup | 12:04 | 12:58 | 0:54 | |

## CT2

| | | | | | |
|---|---|---|---|---|---|
| 04/04/2020 | Shutdown | 08:17 | 08:18 | 0:01 | |
| 04/04/2020 | Warm Startup | 16:28 | 17:46 | 1:18 | |
| 05/02/2020 | Shutdown | 00:19 | 00:21 | 0:02 | |
| 05/04/2020 | Cold Startup | 04:03 | 05:41 | 1:38 | |
| 05/21/2020 | Shutdown/Trip | 22:21 | 22:21 | 0:00 | |
| 05/22/2020 | Warm Startup | 02:22 | 03:14 | 0:52 | |
| 05/23/2020 | Shutdown/Trip | 08:39 | 08:39 | 0:00 | |
| 05/23/2020 | Warm Startup | 13:36 | 13:40 | 0:04 | * |
| 05/23/2020 | Warm Startup | 14:08 | 15:00 | 0:52 | |

*Failed Startup

**Table 2-15**

**Malburg Generating Station**
**Combustion Turbines and Duct Burner Gas Usage**
**During Quarter 2,2020**

| Month | CT-1 / DB-1 Gas Usage (mmscf) | CT-2 / DB-2 Gas Usage (mmscf) |
|---|---|---|
| Apr-20 | 203.66 | 206.37 |
| May-20 | 202.30 | 204.63 |
| Jun-20 | 214.06 | 216.53 |

# Appendix A

## Cooling Tower Blowdown Reports

POSITIVE
LAB SERVICE

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

April 07, 2020

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

Report No.: 2004092
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 March 30, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 04/07/20
Submitted: 03/30/20
**PLS Report No.: 2004092**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2004092-01) Sampled: 03/30/20 08:50 Received: 03/30/20 08:50**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4380** | | 1 | mg/L | 5.0 | - SM 2540C | 04/02/20 | 04/03/20 | dd | BD00354 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD00354 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 04/02/20 Analyzed: 04/03/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 04/02/20 Analyzed: 04/03/20** | | | | | | | | | |
| Total Dissolved Solids | 46.0 | 5.0 | mg/L | 50.00 | | 92.0 | 80-120 | | | |
| **Duplicate** **Source: 2004092-01** | **Prepared: 04/02/20 Analyzed: 04/03/20** | | | | | | | | | |
| Total Dissolved Solids | 4430 | 5.0 | mg/L | | 4380 | | | 1.17 | 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)

112234

# 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: 3-30-20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. ~~100535~~ 100602

CLIENT NAME: GEM Project Name/No. Mal Bay Generating Station P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 0.8 c

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: John Bade (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TDS | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 3-30-20 | 0950 | 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: 3-30-20 Time: 0950

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

April 14, 2020

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

Report No.: 2004354
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 07, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 04/14/20
Submitted: 04/07/20
**PLS Report No.: 2004354**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2004354-01) Sampled: 04/07/20 09:00 Received: 04/07/20 09:00**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4570** | | 1 | mg/L | 5.0 | - SM 2540C | 04/09/20 | 04/10/20 | dd | BD01424 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD01424 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 04/09/20 Analyzed: 04/10/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 04/09/20 Analyzed: 04/10/20** | | | | | | | | | |
| Total Dissolved Solids | 52.0 | 5.0 | mg/L | 50.00 | | 104 | 80-120 | | | |
| **Duplicate** **Source: 2004354-01** | **Prepared: 04/09/20 Analyzed: 04/10/20** | | | | | | | | | |
| Total Dissolved Solids | 4530 | 5.0 | mg/L | | 4570 | | | 0.806 | 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)

112252

# 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: 4-7-20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 20042254

CLIENT NAME: CEM Project Name/No. Malburg Generating station P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 0.7°C

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: Tom Barnhart (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | FIV | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 4-7-20 | 0900 | Cooling Tower Blowdown | X | | | | N | 1 | P | X | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Barnhart — Received By: (Signature and Printed Name) Guadalupe Tanaka — Date: 4-7-20 — Time: 0930

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

April 20, 2020

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

Report No.: 2004457
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 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 04/20/20
Submitted: 04/14/20
**PLS Report No.: 2004457**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2004457-01) Sampled: 04/14/20 08:50 Received: 04/14/20 08:50**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4480** | | 1 | mg/L | 5.0 | - SM 2540C | 04/16/20 | 04/17/20 | dd | BD01710 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD01710 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 04/16/20 Analyzed: 04/17/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 04/16/20 Analyzed: 04/17/20** | | | | | | | | | |
| Total Dissolved Solids | 48.0 | 5.0 | mg/L | 50.00 | | 96.0 | 80-120 | | | |
| **Duplicate** **Source: 2004457-01** | **Prepared: 04/16/20 Analyzed: 04/17/20** | | | | | | | | | |
| Total Dissolved Solids | 4490 | 5.0 | mg/L | | 4480 | | | 0.260 | 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)

112493

# 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: 4.14.20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 112493

CLIENT NAME: CEM

Project Name/No. Malburg Generating Station Weekly

P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 6.0°C

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: Tom Barnhart (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 4.14.20 | 0850 | Cooling Tower Blowdown | X | | | | 2 | 1 | P | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Barnhart — Received By: (Signature and Printed Name) Guadalupe Tanaka — Date: 4.14.20 — Time: 0950

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

April 27, 2020

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

Report No.: 2004518
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, 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.

D Sanchez

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 04/27/20
Submitted: 04/21/20
**PLS Report No.: 2004518**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2004518-01) Sampled: 04/21/20 08:25 Received: 04/21/20 08:25**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4280** | | 1 | mg/L | 5.0 | - SM 2540C | 04/23/20 | 04/24/20 | dd | BD02727 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BD02727 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 04/23/20 Analyzed: 04/24/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 04/23/20 Analyzed: 04/24/20** | | | | | | | | | |
| Total Dissolved Solids | 48.0 | 5.0 | mg/L | 50.00 | | 96.0 | 80-120 | | | |
| **Duplicate** **Source: 2004518-01** | **Prepared: 04/23/20 Analyzed: 04/24/20** | | | | | | | | | |
| Total Dissolved Solids | 4240 | 5.0 | mg/L | | 4280 | | | 0.939 | 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)

112501

# 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: 4/2/20 PAGE 1 OF 1
LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2004518

CLIENT NAME: CEM Project Name/No. Malburg Generating Station P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 2.3°C

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: Tom Barnhart (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TDS | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 4/2/20 | 0825 | 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) Date: Time:

Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 4/2/20 Time: 1150

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

May 01, 2020

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

Report No.: 2004544
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 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.

D Sanchez

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 05/01/20
Submitted: 04/27/20
**PLS Report No.: 2004544**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2004544-01) Sampled: 04/27/20 08:10 Received: 04/27/20 08:10**

| 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 | 04/30/20 | 05/01/20 | dd | BE00110 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE00110 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 04/30/20 Analyzed: 05/01/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 04/30/20 Analyzed: 05/01/20** | | | | | | | | | |
| Total Dissolved Solids | 48.0 | 5.0 | mg/L | 50.00 | | 96.0 | 80-120 | | | |
| **Duplicate** **Source: 2004544-01** | **Prepared: 04/30/20 Analyzed: 05/01/20** | | | | | | | | | |
| Total Dissolved Solids | 4550 | 5.0 | mg/L | | 4420 | | | 2.83 | 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)

112512

# 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: 4/27/20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 200544

CLIENT NAME: CPM

Project Name/No. Moorpark Generating Station

P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 2.9c

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: Tom Barnhart (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | ATS | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 4/27/20 | 0830 | Cooling Tower Blowdown | X | | | | N | 1 | P | Y | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Barnhart — Received By: (Signature and Printed Name) Guadalupe Tanaka — Date: 4/27/20 — Time: 0935

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE
LAB SERVICE

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

May 12, 2020

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

Report No.: 2005042
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 06, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 05/12/20
Submitted: 05/06/20
**PLS Report No.: 2005042**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2005042-01) Sampled: 05/06/20 08:20 Received: 05/06/20 08:20**

| 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 | 05/07/20 | 05/08/20 | dd | BE01128 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE01128 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 05/07/20 Analyzed: 05/08/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 05/07/20 Analyzed: 05/08/20** | | | | | | | | | |
| Total Dissolved Solids | 46.0 | 5.0 | mg/L | 50.00 | | 92.0 | 80-120 | | | |
| **Duplicate** **Source: 2005042-01** | **Prepared: 05/07/20 Analyzed: 05/08/20** | | | | | | | | | |
| Total Dissolved Solids | 4350 | 5.0 | mg/L | | 4400 | | | 1.33 | 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)

112644

# 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: 5620 PAGE 1 OF ____

LOG BOOK NO. ____ FILE NO. ____ LAB NO. 1005042

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Barnhart (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# ____ ____ ____ ____ ____ ____ ____ ____ ____ ____

**AIRBILL NO:** ____

**COOLER TEMP:** 1.6°c

**PRESERVATIVE:**

**REMARKS:**

**ANALYSES REQUESTED:** TPH

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 5620 | 0820 | Loading Tower Blowdown | X | | | | N | 1 | P | X |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Barnhart Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 5620 Time: 0930

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

May 18, 2020

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

Report No.: 2005073
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 11, 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.

D Sanchez
Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 05/18/20
Submitted: 05/11/20
**PLS Report No.: 2005073**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2005073-01) Sampled: 05/11/20 08:15 Received: 05/11/20 08:15**

| 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 | 05/14/20 | 05/15/20 | vc | BE01512 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE01512 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 05/14/20 Analyzed: 05/15/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 05/14/20 Analyzed: 05/15/20** | | | | | | | | | |
| Total Dissolved Solids | 47.0 | 5.0 | mg/L | 50.00 | | 94.0 | 80-120 | | | |
| **Duplicate** **Source: 2005073-01** | **Prepared: 05/14/20 Analyzed: 05/15/20** | | | | | | | | | |
| Total Dissolved Solids | 4280 | 5.0 | mg/L | | 4420 | | | 3.11 | 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)

112653

# 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: 5/1/20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2005073

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Barnhart (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# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

**AIRBILL NO:** _____

**COOLER TEMP:** 0.8°C

**PRESERVATIVE:**

**REMARKS:**

**ANALYSES REQUESTED:**

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TPH | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 5/1/20 | 0825 | Cooling Tower Blowdown | b | | | | N | 1 | P | b | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 5-1-20 Time: 0945

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

May 26, 2020

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

Report No.: 2005149
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 20, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

File #:74548
Report Date: 05/26/20
Submitted: 05/20/20
**PLS Report No.: 2005149**

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2005149-01) Sampled: 05/20/20 08:50 Received: 05/20/20 08:50**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4410** | | 1 | mg/L | 5.0 | - SM 2540C | 05/21/20 | 05/22/20 | dd | BE02640 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE02640 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 05/21/20 Analyzed: 05/22/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 05/21/20 Analyzed: 05/22/20** | | | | | | | | | |
| Total Dissolved Solids | 52.0 | 5.0 | mg/L | 50.00 | | 104 | 80-120 | | | |
| **Duplicate** **Source: 2005137-01** | **Prepared: 05/21/20 Analyzed: 05/22/20** | | | | | | | | | |
| Total Dissolved Solids | 1140 | 5.0 | mg/L | | 1140 | | | 0.438 | 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)

112665

# 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: 5.20.20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 205449

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

AIRBILL NO: _____

ADDRESS:

ANALYSES REQUESTED:

COOLER TEMP: 1.7°

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

PRESERVATIVE:

SAMPLER NAME: Tom Barnhart (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: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TRS | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 5.20.20 | 0950 | Cooling Tower Boundary | X | | | | N | 1 | P | X | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Barnhart Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 5.20.20 Time: 1205

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

June 01, 2020

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

Report No.: 2005169
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 26, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

File #:74548
Report Date: 06/01/20
Submitted: 05/26/20
**PLS Report No.: 2005169**

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2005169-01) Sampled: 05/26/20 08:10 Received: 05/26/20 08:10**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **5160** | | 1 | mg/L | 5.0 | - SM 2540C | 05/28/20 | 05/29/20 | dd | BE02906 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BE02906 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 05/28/20 Analyzed: 05/29/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 05/28/20 Analyzed: 05/29/20** | | | | | | | | | |
| Total Dissolved Solids | 52.0 | 5.0 | mg/L | 50.00 | | 104 | 80-120 | | | |
| **Duplicate** **Source: 2005169-01** | **Prepared: 05/28/20 Analyzed: 05/29/20** | | | | | | | | | |
| Total Dissolved Solids | 5220 | 5.0 | mg/L | | 5160 | | | 1.06 | 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)

112674

# 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: 5-26-20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 112674

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Barnhart (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# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

AIRBILL NO: _____

COOLER TEMP: 1.0°c

PRESERVATIVE:

REMARKS:

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | ANALYSES REQUESTED: TAT | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 5-26-20 | 08:10 | Cooling Tower Blowdown | X | | | | 1 | 1 | 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: |
|---|---|---|---|
| Tom Barnhart | Guadalupe Tanaka | 5-26-20 | 09:20 |
| 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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

POSITIVE LAB SERVICE

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

June 08, 2020

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

Report No.: 2006018
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, 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.

Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

File #:74548
Report Date: 06/08/20
Submitted: 06/02/20
**PLS Report No.: 2006018**

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2006018-01) Sampled: 06/02/20 08:40 Received: 06/02/20 08:40**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4510** | | 1 | mg/L | 5.0 | - SM 2540C | 06/03/20 | 06/04/20 | dd | BF00431 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BF00431 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 06/03/20 Analyzed: 06/04/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 06/03/20 Analyzed: 06/04/20** | | | | | | | | | |
| Total Dissolved Solids | 51.0 | 5.0 | mg/L | 50.00 | | 102 | 80-120 | | | |
| **Duplicate** **Source: 2006018-01** | **Prepared: 06/03/20 Analyzed: 06/04/20** | | | | | | | | | |
| Total Dissolved Solids | 4570 | 5.0 | mg/L | | 4510 | | | 1.39 | 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)

112681

# 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: 6-2-20 PAGE 1 OF 1
LOG BOOK NO. _____ FILE NO. _____ LAB NO. 2006018

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Barnhart (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# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

AIRBILL NO: _____

COOLER TEMP: 1.6°C

PRESERVATIVE:

REMARKS:

ANALYSES REQUESTED:

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TDS | | | | | | | | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6/2/20 | 0846 | 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) _____ Date: 6/2/20 Time: 1036

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

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LAB SERVICE

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

June 12, 2020

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

Report No.: 2006073
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 08, 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.

John Schmidt
Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 06/12/20
Submitted: 06/08/20
**PLS Report No.: 2006073**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2006073-01) Sampled: 06/08/20 10:05 Received: 06/08/20 10:05**

| 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 | 06/08/20 | 06/09/20 | dd | BF00942 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BF00942 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 06/08/20 Analyzed: 06/09/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 06/08/20 Analyzed: 06/09/20** | | | | | | | | | |
| Total Dissolved Solids | 53.0 | 5.0 | mg/L | 50.00 | | 106 | 80-120 | | | |
| **Duplicate** **Source: 2006040-01** | **Prepared: 06/08/20 Analyzed: 06/09/20** | | | | | | | | | |
| Total Dissolved Solids | 1860 | 5.0 | mg/L | | 1900 | | | 1.86 | 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)

112698

# 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: 6820 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 20060573

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Barnhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Barnhart (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# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

AIRBILL NO: _____

COOLER TEMP: 13°C

PRESERVATIVE:

REMARKS:

ANALYSES REQUESTED:

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | TDS | SAMPLE CONDITION/ CONTAINER /COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6820 | 1005 | 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) J. Gutierrez Date: 6/8/20 Time: 1045

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

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LAB SERVICE

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

June 23, 2020

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

Report No.: 2006154
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, 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.

D Sanchez
Project Manager

POSITIVE LAB SERVICE

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

# Certificate of Analysis



Colorado Energy Management
4963 Soto St.
Vernon, CA 90058

Attn: Tom Barnhart Phone: (323) 476-3626 FAX:(323) 476-3640

File #:74548
Report Date: 06/23/20
Submitted: 06/15/20
**PLS Report No.: 2006154**

**Project:** Malburg Generating Station Weekly

**Sample ID: Cooling Tower Blowdown Water (2006154-01) Sampled: 06/15/20 09:00 Received: 06/15/20 09:00**

| Analyte | Results | Flag | D.F. | Units | PQL | Prep/Test Method | Prepared | Analyzed | By | Batch |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Dissolved Solids** | **4330** | | 1 | mg/L | 5.0 | - SM 2540C | 06/18/20 | 06/19/20 | dd | BF01903 |

## Quality Control Data

| Analyte | Result | PQL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch BF01903 - -** | | | | | | | | | | |
| **Blank** | **Prepared: 06/18/20 Analyzed: 06/19/20** | | | | | | | | | |
| Total Dissolved Solids | ND | 5.0 | mg/L | | | | | | | |
| **LCS** | **Prepared: 06/18/20 Analyzed: 06/19/20** | | | | | | | | | |
| Total Dissolved Solids | 51.0 | 5.0 | mg/L | 50.00 | | 102 | 80-120 | | | |
| **Duplicate Source: 2006154-01** | **Prepared: 06/18/20 Analyzed: 06/19/20** | | | | | | | | | |
| Total Dissolved Solids | 4470 | 5.0 | mg/L | | 4330 | | | 3.26 | 5 | |
| **Duplicate Source: 2006167-01** | **Prepared: 06/18/20 Analyzed: 06/19/20** | | | | | | | | | |
| Total Dissolved Solids | 2130 | 5.0 | mg/L | | 2140 | | | 0.468 | 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)

112777

# 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: 6-15-20 PAGE 1 OF 1

LOG BOOK NO. _____ FILE NO. _____ LAB NO. 200615-54

CLIENT NAME: CEM Project Name/No. Malburg Generating Station Weekly P.O. NO.

ADDRESS:

PROJECT MANAGER: Tom Bamhart PHONE NO: FAX NO:

SAMPLER NAME: Tom Bahe (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# ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

AIRBILL NO: _____

COOLER TEMP: 1.1°C

PRESERVATIVE:

REMARKS:

SAMPLE CONDITION/ CONTAINER /COMMENTS:

ANALYSES REQUESTED: 8260

| | SAMPLE NO. | DATE SAMPLED | TIME SAMPLED | SAMPLE DESCRIPTION | MATRIX: WATER | SOIL | SLUDGE | OTHER | TAT | CONTAINER: # | TYPE | ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6-15-20 | 0900 | Cooling Tower Blowdown | X | | | | N | 1 | P | X |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |

Relinquished By: (Signature and Printed Name) Tom Bahe Received By: (Signature and Printed Name) Guadalupe Tanaka Date: 6-15-20 Time: 1030

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-$HNO_3$, 2-$H_2SO_4$, 3-HCL, 4-Zinc Acetate, 5-NaOH, 6-$NH_4$ Buffer, 7-Other

LAB COPY

# Appendix B

## Excess Emission Reports

# Startup/Shutdown Excess Emissions Report

## U1 CO Startup/Shutdown

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station

**Generated:** 07/13/2020 11:37 **Location:** Vernon, California

**Tag Name:** U1_CO_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,112.02 Hours

Non-Operating Time: 71.98 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 Excess Emissions Report

## U1 NOx Startup/Shutdown

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station

**Generated:** 07/13/2020 11:45 **Location:** Vernon, California

**Tag Name:** U1_NOx_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,112.02 Hours

Non-Operating Time: 71.98 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 Excess Emissions Report

## U1 VOC Startup/Shutdown

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station

**Generated:** 07/13/2020 11:46 **Location:** Vernon, California

**Tag Name:** U1_VOC_LbPerHr_1M SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,112.02 Hours

Non-Operating Time: 71.98 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 - CO ppmvdc 1-hour during Normal Operation

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/13/2020 11:40 **Location:** Vernon, California

**Tag Name:** U1_CONormal_Ppmvdc_1H
**Total Operating Time:** 2,116.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 68.00 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:** | **2,116.00 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 - NOx ppmvdc 1-hour during Normal Operation

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/13/2020 11:40 **Location:** Vernon, California

---

**Tag Name:** U1_NOxNormal_Ppmvdc_1H
**Total Operating Time:** 2,116.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 68.00 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:** | **2,116.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/13/2020 11:41 **Location:** Vernon, California

---

**Tag Name:** U1_VOCNormal_Ppmvdc_1H
**Total Operating Time:** 2,116.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 68.00 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:** | **2,116.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/13/2020 11:42 **Location:** Vernon, California

**Tag Name:** U1_NOx4H_Ppmvdc_1H
**Total Operating Time:** 2,116.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 68.00 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:** | **2,116.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 05:57 **Location:** Vernon, California
**Tag Name:** U2_CO_LbPerHr_1M
SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,113.95 Hours
Non-Operating Time: 70.05 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 Excess Emissions Report

## U2 NOx Startup/Shutdown

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station

**Generated:** 07/15/2020 05:49 **Location:** Vernon, California

**Tag Name:** U2_NOx_LbPerHr_1M

SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,113.95 Hours

Non-Operating Time: 70.05 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 VOC Startup/Shutdown Events

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 06:06 **Location:** Vernon, California
**Tag Name:** U2_VOC_LbPerHr_1M
SI = SampleInvalid, * = Excess Emission

**Total Operating Time:** 2,113.95 Hours
Non-Operating Time: 70.05 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 2 - NOx ppmvdc 1-hour during Normal Operation

**From:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 05:51 **Location:** Vernon, California

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**Tag Name:** U2_NOxNormal_Ppmvdc_1H
**Total Operating Time:** 2,119.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 65.00 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:** | **2,119.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 06:01 **Location:** Vernon, California

**Tag Name:** U2_VOCNormal_Ppmvdc_1H
**Total Operating Time:** 2,119.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 65.00 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:** | **2,119.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 05:51 **Location:** Vernon, California

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**Tag Name:** U2_CONormal_Ppmvdc_1H
**Total Operating Time:** 2,119.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 65.00 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:** | **2,119.00 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:** 04/01/2020 00:00 **To:** 06/30/2020 23:59 **Facility Name:** Malburg Generating Station
**Generated:** 07/15/2020 05:58 **Location:** Vernon, California

**Tag Name:** U2_NOx4H_Ppmvdc_1H
**Total Operating Time:** 2,119.00 Hour(s) **No Exclusions Allowed**
Non-Operating Time: 65.00 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:** | **2,119.00 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 %** |

# Appendix C

## Diesel Fuel Oil Specifications

3b

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

**SHIP TO: 1L** **CUST NO: 01-0001084**
COLORADO ENERGY MGMT-VERNON
4963 SOTO STREET
VERNON, CA 90058

| | |
|---|---|
| **INVOICE** 1592103-IN | **DUE DATE** 3/27/2020 |
| **INVOICE DATE** 2/26/2020 | **SHIP DATE** 2/26/2020 |
| **ORDER DATE** 2/19/2020 | **SHIP VIA** 826 |
| **CUSTOMER PO** MGS18808 | **ORDER NUMBER** 1592103 |
| **TERMS** N30 | **SALESMAN** 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

| ITEM CODE | ITEM DESCRIPTION | QUANTITY ORDERED | QUANTITY DELIVERED | PACKAGE DESCRIPTION | EXTENDED QTY | UNIT PRICE | EXT PRICE |
|---|---|---|---|---|---|---|---|
| 422D055 | DYED CARB ULS DIESEL (RED) | 2 | 2.00 | 55 GAL DRM | 110.00 | 4.43000 | 487.30 |
| | **Whse:** 101 | | | | | | |
| | UN1202, DIESEL FUEL, 3, PG III - NONTAXABLE USE ONLY, PENALITY FOR TAXABLE USE | | | | | | |
| | Federal Lust | | | | | 0.00100 | 0.11 |
| | Federal Oil Spill | | | | | 0.00214 | 0.24 |
| | CA - AB 32 - DSL | | | | | 0.00704 | 0.77 |
| | | | | | | 4.44018 | 488.42 |
| DRUMDEPOSITC001 | DRUM FEE | 2 | 2.00 | MISC CHRG | 2.00 | 25.00000 | 50.00 |
| | **Whse:** 101 | | | | | | |
| /FUELCH | FUEL SURCHARGE | | | | | | 9.92 |
| /RCF | REGULATORY COMPLIANCE FEE | | | | | | 12.95 |
| MSRTNDRMC001 | RETURN DRUM | 0 | -2.00 | MISC CHRG | 2.00- | 15.00000 | 30.00- |
| | **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: | 531.29 |
| Less Discount: | 0.00 |
| Freight: | 0.00 |
| Sales Tax: | 48.57 |
| **Invoice Total:** | 579.86 |

- IN THE EVENT THAT THE ABOVE CHARGES ARE NOT PAID WHEN DUE, SC COMMERCIAL, LLC d.b.a 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 fedral and state laws.
- Prices shown on this invoice reflect discounts received for Payment by Cash, Check, or Electronic Funds Transfer(EFT). Payment by other

3C

ox 14237
nge, CA 92863-1237
el: 800-659-5823
Fax: 714-992-7377
Credit Inquiries: 888-364-0121

SC FUELS®

# DELIVERY TICKET

Order#: 1592103
Order Date: 2/19/2020
Delv Req Date: 2/26/2020
Sales Person: 0177 - Todd Cripps

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

| HM | Product Code / Desc / Svc Type | Qty Ordered / Package Desc | Ext Qty Ordered | Qty Delivered | Unit Price | Extended Amoun |
|---|---|---|---|---|---|---|
| X | UN1202, DIESEL FUEL, 3, PG III - NONTAXABLE USE ONLY, PENALITY FOR TAXABLE USE | | | | | |
| | 422D055 30<br>DYED CARB ULS DIESEL (RED) | 2.00 55 GAL DRM | 110.00 GALS | 2 Drums | | |
| | DRUMDEPOSITC001 30<br>DRUM FEE | 2.00 MISC CHRG | 2.00 EACH | 2 Drums | | |
| | /FUELCH 30<br>FUEL SURCHARGE | | 0.00 | | | |
| | /RCF 30<br>REGULATORY COMPLIANCE FEE | | 0.00 | | | |

Rec'd by [signature] Date 2/26/2020
Print Name Ethan Sluter
Driver's Signature [signature]

Received in INFOR
2/26/20
M. Gordon

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ARRIVED LOAD POINT | AM PM | DATE | | COMPLETED LOADING | AM PM | DATE | TRUCK # 826 | B/L # | FOR COMPANY USE ONLY RT ☐ TF ☐ OP ☐ |
| ARRIVED DESTINATION 840 | AM PM | DATE 2/26/2020 | | COMPLETED UNLOADING | AM PM | DATE 2/26/2020 | D.O.T. HAZARDOUS MATERIALS PLACARD PROVIDED BY SHIPPER ☐ CARRIER ☐ | | |
| END TANK | GAS | DIESEL | OTHER | WATER DETECTED ? ☐ YES ☐ NO | | GRAVITY | THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIEI DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FO TRANSPORTATION ACCORDING TO APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION. | | |
| BEGINNING TANK | GAS | DIESEL | OTHER | DRUM DEPOSIT 2 Drums | | DRUM CREDIT | IN THE EVENT OF A HAZARDOUS MATERIALS INCIDENT - CALL 1-800-424-9300 | | |

**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
  - — **General Electric** and **Westinghouse** requirements for marine gas turbine system oils. Recommended by Siemens Westinghouse for reactor coolant pump motor bearings.
  - — **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
  - — 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
  - — 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

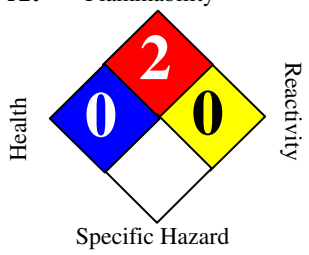
| ISO Grade | 32 | 46 | 68 | 100 |
|---|---|---|---|---|
| *CPS Number* | *253026* | *253027* | *253028* | *253029* |
| *MSDS Number* | *6710* | *6710* | *6710* | *6710* |
| AGMA Grade | — | 1 | 2 | 3 |
| API Gravity | 32.7 | 32.0 | 31.7 | 31.4 |
| Viscosity, Kinematic<br>cSt at 40°C<br>cSt at 100°C | <br>30.4<br>5.2 | <br>43.7<br>6.6 | <br>64.6<br>8.5 | <br>95.0<br>11.0 |
| Viscosity, Saybolt<br>SUS at 100°F<br>SUS at 210°F | <br>157<br>43.8 | <br>225<br>48.2 | <br>334<br>54.8 | <br>495<br>63.9 |
| Viscosity Index | 102 | 101 | 102 | 100 |
| Flash Point,°C(°F) | 222(432) | 224(435) | 245(473) | 262(504) |
| Pour Point, °C(°F) | -36(-33) | -36(-33) | -33(-27) | -30(-22) |
| Oxidation Stability<br>ASTM D 943[1]<br>ASTM D 2272[2] | <br>17,000<br>1700 | <br>12,000<br>1400 | <br>11,000<br>1400 | <br>11,000<br>1400 |
| FZG, Pass stage, DIN 51354 | — | — | — | — |

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

# Material Safety Data Sheet
# Diesel Low Sulfur (LSD) and Ultra Low Sulfur Diesel (ULSD)

**NFPA:**




TESORO

**HMIS III:**

| | |
|---|---|
| HEALTH | 1 |
| FLAMMABILITY | 2 |
| PHYSICAL | 0 |

0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

| | | | | |
|---|---|---|---|---|
| **Product name** | : | Diesel Low Sulfur (LSD) and Ultra Low Sulfur Diesel (ULSD) | | |
| **Synonyms** | : | CARB Diesel, 888100004478 | | |
| **MSDS Number** | : | 888100004478 | **Version** | : 2.10 |
| **Product Use Description** | : | Fuel | | |
| **Company** | : | For: Tesoro Refining & Marketing Co.<br>19100 Ridgewood Parkway, San Antonio, TX 78259 | | |
| **Tesoro Call Center** | : | (877) 783-7676 | **Chemtrec (Emergency Contact)** | : (800) 424-9300 |

## SECTION 2. HAZARDS IDENTIFICATION

### Emergency Overview

**Regulatory status** : This material is considered hazardous by the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

**Signal Word** : WARNING

**Hazard Summary** : Toxic. Combustible Liquid

### Potential Health Effects

**Eyes** : Eye irritation may result from contact with liquid, mists, and/or vapors.

**Inhalation** : Vapors or mists from this material can irritate the nose, throat, and lungs, and can cause signs and symptoms of central nervous system depression, depending on the concentration and duration of exposure.

**Skin** : Skin irritation leading to dermatitis may occur upon prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed. Long-term, repeated skin contact may cause skin cancer

**Ingestion** : Harmful or fatal if swallowed. Do NOT induce vomiting. This material can irritate the mouth, throat, stomach, and cause nausea, vomiting, diarrhea and restlessness Aspiration hazard if liquid is inhaled into lungs, particularly from vomiting after ingestion. Aspiration may result in chemical pneumonia, severe lung damage, respiratory failure and even death.

**Target Organs** : Central nervous system, Eyes, Skin, Kidney, Liver

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Weight % |
|---|---|---|
| **Fuels, diesel, No 2; Gasoil - unspecified** | 68476-34-6 | 100% |
| **Nonane** | 111-84-2 | 0 - 5% |
| **Naphthalene** | 91-20-3 | 0 - 1% |
| **1,2,4-Trimethylbenzene** | 95-63-6 | 0 - 2% |
| **Xylene** | 1330-20-7 | 0 - 2% |
| **Sulfur** | 7704-34-9 | 15 ppm maximum |

## SECTION 4. FIRST AID MEASURES

**Inhalation** : Move to fresh air. Give oxygen. If breathing is irregular or stopped, administer artificial respiration. Seek medical attention immediately.

**Skin contact** : Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. Wash contaminated clothing before re-use. If skin irritation persists, seek medical attention immediately.

**Eye contact** : Remove contact lenses. Rinse thoroughly with plenty of water for at least 15 minutes. If symptoms persist, seek medical attention.

**Ingestion** : Do not induce vomiting without medical advice. If a person vomits when lying on his back, place him in the recovery position. Seek medical attention immediately.

**Notes to physician** : Symptoms: Dizziness, Discomfort, Headache, Nausea, Disorder, Vomiting, Lung edema, Aspiration may cause pulmonary edema and pneumonitis, Liver disorders, Kidney disorders.

## SECTION 5. FIRE-FIGHTING MEASURES

**Form** : Liquid

**Flash point** : 38℃ Minimum for #1 Diesel, 52℃ Minimum for #2 Diesel

**Auto Ignition temperature** : 257 ℃ (495 ℉)

**Lower explosive limit** : 0.6 %(V)

**Upper explosive limit** : 4.7 %(V)

**Suitable extinguishing media** : Carbon dioxide (CO2), Water spray, Dry chemical, Foam, Keep containers and surroundings cool with water spray.

**Specific hazards during fire fighting** : Fire Hazard Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.

**Special protective equipment** : Wear self-contained breathing apparatus and protective suit. Use personal

| | | |
|---|---|---|
| **for fire-fighters** | | protective equipment. |
| **Further information** | : | Exposure to decomposition products may be a hazard to health. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam. |

## SECTION 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| **Personal precautions** | : | Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to contain spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact. Ensure adequate ventilation. Use personal protective equipment. |
| **Environmental precautions** | : | Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection. Discharge into the environment must be avoided. If the product contaminates rivers and lakes or drains inform respective authorities. |
| **Methods for cleaning up** | : | Take up with sand or oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8). |

**CERCLA Hazardous substances and corresponding RQs** :

| | | |
|---|---|---|
| Xylene | 1330-20-7 | 100 lbs |
| Naphthalene | 91-20-3 | 100 lbs |
| Nonane | 111-84-2 | 100 lbs |

## SECTION 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| **Handling** | : | Keep away from fire, sparks and heated surfaces. No smoking near areas where material is stored or handled. The product should only be stored and handled in areas with intrinsically safe electrical classification. |
| **Advice on protection against fire and explosion** | : | Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulators), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static-initated fire or explosion during transfer, storage or handling, include but are not limited to these examples:<br>(1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquids and vapors that are static accumulators.<br>(2) Special slow load procedures for "switch loading" must be followed to |

avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such gasoline or naphtha).

(3) Storage tank level floats must be effectively bonded.

For more information on precautions to prevent static-initated fire or explosion, see NFPA 77, Recommended Practice on Static Electricity (2007), and API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents (2008).

**Dust explosion class** : Not applicable

**Requirements for storage areas and containers** : Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

**Other data** : Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

**Advice on common storage** Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure Guidelines

| List | Components | CAS-No. | Type: | Value |
|---|---|---|---|---|
| **OSHA Z1** | Xylene | 1330-20-7 | PEL | 100 ppm 435 mg/m3 |
| | Naphthalene | 91-20-3 | PEL | 10 ppm 50 mg/m3 |
| **ACGIH** | Diesel Fuel | 68476-30-2 | TWA | 100 mg/m3 |
| | Xylene | 1330-20-7 | TWA | 100 ppm |
| | | 1330-20-7 | STEL | 150 ppm |
| | Naphthalene | 91-20-3 | TWA | 10 ppm |
| | | 91-20-3 | STEL | 15 ppm |
| | Nonane | 111-84-2 | TWA | 200 ppm |

**Engineering measures** : Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use only intrinsically safe electrical equipment approved for use in classified areas.

**Eye protection** : Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

**Hand protection** : Gloves constructed of nitrile, neoprene, or PVC are recommended. Consult manufacturer specifications for further information.

| | | |
|---|---|---|
| **Skin and body protection** | : | If needed to prevent skin contact, chemical protective clothing such as of DuPont TyChem®, Saranex or equivalent recommended based on degree of exposure. The resistance of specific material may vary from product to product as well as with degree of exposure. |
| **Respiratory protection** | : | A NIOSH/ MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection. Use a NIOSH/ MSHA-approved positive-pressure supplied-air respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection. |
| **Work / Hygiene practices** | : | Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| **Form** | : | Liquid |
| **Appearance** | : | Clear, straw colored |
| **Odor** | : | Characteristic petroleum (kerosene) odor |
| **Flash point - typical** | : | 38°C Minimum for #1 Diesel, 52°C Minimum for #2 Diesel |
| **Auto Ignition temperature** | : | 257 °C (495 °F) |
| **Thermal decomposition** | : | No decomposition if stored and applied as directed. |
| **Lower explosive limit** | : | 0.6 %(V) |
| **Upper explosive limit** | : | 4.7 %(V) |
| **pH** | : | Not applicable |
| **Freezing point** | : | No data available |
| **Boiling point** | : | 148 - 372 °C(298 - 702 °F) |
| **Vapor Pressure** | : | < 2 mm Hg at 20 °C |
| **Density** | : | **0.86** g/cm3 |
| **Water solubility** | : | Negligible |
| **Viscosity, dynamic** | : | 1.7 - 40 mPa.s<br>at 37.8 °C (100.0 °F) |

| | | |
|---|---|---|
| **Percent Volatiles** | : | 100 % |
| **Conductivity (conductivity can be reduced by environmental factors such as a decrease in temperature** | | Diesel Fuel Oils at terminal load rack: At least 25 pS/m<br>Ultra Low Sulfur Diesel (ULSD) without conductivity additive: 0 pS/m to 5 pS/m<br>ULSD at terminal load rack with conductivity additive: At least 50 pS/m but conductivity may decrease from environmental factors such as temperature drop.<br>JP-8 at terminal load rack: 150 pS/m to 600 pS/m |

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| **Conditions to avoid** | : | Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers. Viton ® ; Fluorel ® |
| **Materials to avoid** | : | Strong oxidizing agents. Peroxides |
| **Hazardous decomposition products** | : | Carbon monoxide, carbon dioxide and noncombusted hydrocarbons (smoke). Diesel exhaust particulates may be a lung hazard - see Section 11. |
| **Thermal decomposition** | : | No decomposition if stored and applied as directed. |
| **Hazardous reactions** | : | Keep away from oxidizing agents, and acidic or alkaline products. |

## SECTION 11. TOXICOLOGICAL INFORMATION

**Carcinogenicity**

| | | |
|---|---|---|
| **NTP** | : | Naphthalene (CAS-No.: 91-20-3) |
| **IARC** | : | Naphthalene (CAS-No.: 91-20-3) |
| **OSHA** | : | No component of this product which is present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by OSHA. |
| **CA Prop 65** | : | WARNING! This product contains a chemical known to the State of California to cause cancer.<br>naphthalene (CAS-No.: 91-20-3) |
| **Skin irritation** | : | Irritating to skin. |
| **Eye irritation** | : | Irritating to eyes. |
| **Further information** | : | Studies have shown that similar products produce skin cancer or skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.<br>Positive mutagenicity results have been reported.<br>Repeated over-exposure may cause liver and kidney injury<br>IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans. |

**Component**:

| | | |
|---|---|---|
| **Fuels, diesel, No 2; Gasoil - unspecified** | 68476-34-6 | Acute oral toxicity: LD50 rat<br>Dose: 5,001 mg/kg<br><br>Acute dermal toxicity: LD50 rabbit |

| | | |
|---|---|---|
| | | Dose: 2,001 mg/kg<br><br>Acute inhalation toxicity: LC50 rat<br>Dose: 7.64 mg/l<br>Exposure time: 4 h<br><br>Skin irritation: Classification: Irritating to skin.<br>Result: Severe skin irritation<br><br>Eye irritation: Classification: Irritating to eyes.<br>Result: Mild eye irritation |
| **Nonane** | 111-84-2 | Acute oral toxicity: LD50 mouse<br>Dose: 218 mg/kg<br><br>Acute inhalation toxicity: LC50 rat<br>Exposure time: 4 h |
| **Naphthalene** | 91-20-3 | Acute oral toxicity: LD50 rat<br>Dose: 2,001 mg/kg<br><br>Acute dermal toxicity: LD50 rat<br>Dose: 2,501 mg/kg<br><br>Acute inhalation toxicity: LC50 rat<br>Dose: 101 mg/l<br>Exposure time: 4 h<br><br>Skin irritation: Classification: Irritating to skin.<br>Result: Mild skin irritation<br><br>Eye irritation: Classification: Irritating to eyes.<br>Result: Mild eye irritation<br><br>Carcinogenicity: N11.00422130 |
| **1,2,4-Trimethylbenzene** | 95-63-6 | Acute inhalation toxicity: LC50 rat<br>Dose: 18 mg/l<br>Exposure time: 4 h<br><br>Skin irritation: Classification: Irritating to skin.<br>Result: Skin irritation<br><br>Eye irritation: Classification: Irritating to eyes.<br>Result: Eye irritation |
| **Xylene** | 1330-20-7 | Acute oral toxicity: LD50 rat<br>Dose: 2,840 mg/kg<br><br>Acute dermal toxicity: LD50 rabbit<br>Dose: ca. 4,500 mg/kg<br><br>Acute inhalation toxicity: LC50 rat<br>Dose: 6,350 mg/l<br>Exposure time: 4 h<br><br>Skin irritation: Classification: Irritating to skin.<br>Result: Mild skin irritation<br>Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.<br>Eye irritation: Classification: Irritating to eyes.<br>Result: Mild eye irritation |

## SECTION 12. ECOLOGICAL INFORMATION

**Additional ecological** : Keep out of sewers, drainage areas, and waterways. Report spills and releases, as

**information** applicable, under Federal and State regulations.

**Component:**

| | | |
|---|---|---|
| **Naphthalene** | 91-20-3 | Toxicity to algae:<br>EC50<br>Species:<br>Dose: 33 mg/l<br>Exposure time: 24 h |
| **1,2,4-Trimethylbenzene** | 95-63-6 | Toxicity to fish:<br>LC50<br>Species: Pimephales promelas (fathead minnow)<br>Dose: 7.72 mg/l<br>Exposure time: 96 h<br><br>Acute and prolonged toxicity for aquatic invertebrates:<br>EC50<br>Species: Daphnia<br>Dose: 3.6 mg/l<br>Exposure time: 48 h |

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal** : In accordance with local and national regulations.

## SECTION 14. TRANSPORT INFORMATION

**CFR**

| | |
|---|---|
| Proper shipping name | : DIESEL FUEL |
| UN-No. | : UN1202 (NA 1993) |
| Class | : 3 |
| Packing group | : III |

**TDG**

| | |
|---|---|
| Proper shipping name | : DIESEL FUEL |
| UN-No. | : UN1202 (NA 1993) |
| Class | : 3 |
| Packing group | : III |

**IATA Cargo Transport**

| | |
|---|---|
| UN UN-No. | : UN1202 (NA 1993) |
| Description of the goods | : DIESEL FUEL |
| Class | : 3 |
| Packaging group | : III |
| ICAO-Labels | : 3 |
| Packing instruction (cargo aircraft) | : 310 |
| Packing instruction (cargo aircraft) | : Y309 |

**IATA Passenger Transport**

| | |
|---|---|
| UN UN-No. | : UN1202 (NA 1993) |
| Description of the goods | : DIESEL FUEL |
| Class | : 3 |
| Packaging group | : III |

| | | |
|---|---|---|
| | ICAO-Labels | : 3 |
| | Packing instruction (passenger aircraft) | : 309 |
| | Packing instruction (passenger aircraft) | : Y309 |
| **IMDG-Code** | | |
| | UN-No. | : UN 1202 (NA 1993) |
| | Description of the goods | : DIESEL FUEL |
| | Class | : 3 |
| | Packaging group | : III |
| | IMDG-Labels | : 3 |
| | EmS Number | : F-E S-E |
| | Marine pollutant | : No |

## SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Combustible Liquid
Moderate skin irritant
Moderate eye irritant
Toxic by ingestion
POSSIBLE CANCER HAZARD

TSCA Status : On TSCA Inventory

DSL Status : All components of this product are on the Canadian DSL list.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA III — US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

| Components | CAS-No. |
|---|---|
| **Xylene** | 1330-20-7 |
| **1,2,4-Trimethylbenzene** | 95-63-6 |
| **Naphthalene** | 91-20-3 |

PENN RTK — US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

| Components | CAS-No. |
|---|---|
| **Nonane** | 111-84-2 |
| **Naphthalene** | 91-20-3 |
| **1,2,4-Trimethylbenzene** | 95-63-6 |
| **xylene** | 1330-20-7 |
| **Fuels, diesel, No 2; Gasoil - unspecified** | 68476-34-6 |

MASS RTK — US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

| Components | CAS-No. |
|---|---|

| | |
|---|---|
| **Xylene** | 1330-20-7 |
| **1,2,4-Trimethylbenzene** | 95-63-6 |
| **Naphthalene** | 91-20-3 |
| **Nonane** | 111-84-2 |

NJ RTK — US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

| **Components** | CAS-No. |
|---|---|
| **Nonane** | 111-84-2 |
| **Naphthalene** | 91-20-3 |
| **1,2,4-Trimethylbenzene** | 95-63-6 |
| **Xylene** | 1330-20-7 |
| **Fuels, diesel, No 2; Gasoil - unspecified** | 68476-34-6 |

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause cancer.

Naphthalene 91-20-3

## SECTION 16. OTHER INFORMATION

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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10/15/2009

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# Appendix D

## Cooling Tower PM10 Guidance

SPX Cooling Technologies

Balcke | Hamon Dry Cooling | Marley

# COOLING TOWER DRIFT MASS DISTRIBUTION
## Excel Drift Eliminators

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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.*

SPX COOLING TECHNOLOGIES

# 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 $CaCO_3$ |
| **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: | | MAXIMUM: |
|---|---|---|
| Cations: | **Calcium** | 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.