VENTURA REGIONAL SANITATION DISTRICT
1001 PARTRIDGE DRIVE, SUITE 150 ▪ VENTURA, CA 93003-0704

A Public Waste Management Agency

February 16, 2016



Mr. Dan Searcy
Manager, Compliance Division
Ventura County Air Pollution Control District
669 County Square Drive
Ventura, CA 93003

**SUBJECT: TITLE V COMPLIANCE REPORTS FOR THE OXNARD LANDFILLS**

Dear Mr. Searcy:

The Ventura Regional Sanitation District (VRSD) is submitting the attached Title V compliance reports for the Oxnard Landfills (Bailard, Coastal, and Santa Clara Landfills), Title V Permit Number 01399). A copy of this letter has also been submitted to the Air Quality Division of the United States Environmental Protection Agency, Region IX.

This submittal includes the following attachments:

1. Annual Compliance Certification Report for Calendar Year 2015;
2. Semi-Annual Startup, Shutdown and Malfunction (SSM) Plan Report for July 1, 2015 to December 31, 2015;
3. Report of New Wells Added Between July 1, 2015 to December 31, 2015 (no new wells were installed during this reporting period); and
4. Supplemental information historically submitted with Title V Compliance Report for July 1, 2015 to December 31, 2015.

The Annual Compliance Certification Signature Cover Form addresses the certification requirements for the Annual Compliance Certification Report and the Semi-Annual Monitoring Report. A separate Responsible Official's Certification Form is included with the SSM Plan Report.

The Semi-Annual Monitoring Report requirements are satisfied by inclusion of the report of deviations in Attachment 1, the SSM Plan Report in Attachment 2, and a report of new wells in Attachment 3.

This submittal is being made in accordance with Title 40 Code of Federal Regulations (CFR) Part 70.5, State Operating Permit Programs. The attached reports satisfy the requirements under the Oxnard Landfills' Title V Permit, VCAPCD Rule 74.17.1, the New Source Performance Standards (NSPS) for municipal solid waste landfills (40 CFR Part 60, Subpart WWW), and the National Emission Standards for Hazardous Air Pollutants for municipal solid waste landfills (40 CFR Part 63, Subpart AAAA).

The SSM Plan Report also satisfies the requirements under the 40 CFR 63.10(d)(5). The actions taken at the facility during all SSM events, for the reporting period, were consistent with the procedures listed in the SSM Plan at the facility. There were no instances where the SSM Plan was not adequate for the situation.

Attachment 4 includes supplemental information that has been historically provided to VCAPCD; the supplemental information is not specifically required for the Annual Compliance Certification Report or the Semi-Annual Monitoring Report.

If you have any questions or require additional information, please contact me at (805) 658-4675 or David Thomas at (805) 658-4672.

Sincerely,

Frank Kiesler
Director of Operations
Ventura Regional Sanitation District

Attachments

1. Annual Compliance Certification Report for Calendar Year 2015
2. Semi-Annual Startup, Shutdown and Malfunction Plan Report for July 1, 2015 to December 31, 2015
3. Report of New Wells Added Between July 1, 2015 to December 31, 2015
4. Supplemental Information Historically Submitted with Title V Compliance Reports

Copy: United States Environmental Protection Agency, Region IX

**ATTACHMENT 1**

**ANNUAL COMPLIANCE CERTIFICATION REPORT FOR CALENDAR YEAR 2015**

Ventura County
Air Pollution
Control District

# ANNUAL COMPLIANCE CERTIFICATION
# SIGNATURE COVER FORM

A copy of each Annual Compliance Certification shall be submitted to EPA, Region 9, at the following address:

Mr. Gerardo Rios, Chief
Permits Office (AIR-3)
Office of Air Division
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

**Confidentiality**

All information in a Part 70 permit compliance certification is public information. The Part 70 permit is also public information.

**Certification by Responsible Official**

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this compliance certification are true, accurate, and complete.

| Signature and Title of Responsible Official: | Date: 2/16/16 |
|---|---|
| Title: DIRECTOR OF OPERATIONS | |

Time Period Covered by Compliance Certification

01 / 01 / 15 (MM/DD/YY) to 12 / 31 / 15 (MM/DD/YY)

## I.c. PERIODIC MONITORING SUMMARY

This periodic monitoring summary is intended to aid the permittee in quickly identifying key monitoring, recordkeeping, and reporting requirements. It is not intended to be used as a "stand alone" monitoring guidance document that completely satisfies the requirements specifically applicable to this facility. The following tables are included in the periodic monitoring summary:

- Table I.c.1 - Specific Applicable Requirements
- Table I.c.2 - Permit-Specific Conditions
- Table I.c.3 - General Applicable Requirements
- Table I.c.4 - General Requirements for Short-Term Activities

### I.c.1. Specific Applicable Requirements

The Specific Applicable Requirements Table includes a summary of the monitoring requirements, recordkeeping requirements, reporting requirements, and test methods associated with the attachments contained in Section No. 6 of this permit.

| Attachment No./ Condition No. | Applicable Rule or Requirement | Monitoring | Recordkeeping | Semi-annual Reports | Test Methods | Comments |
|---|---|---|---|---|---|---|
| 74.17.1N3 | Rule 74.17.1 | •Annual compliance certification<br>•Monitor flare gas flow rate and flare temperature<br>•Monitor wells and collection header (temperature, pressure, nitrogen, oxygen)<br>•Monitor methane concentration at the surface of the landfill<br>•Source test flare every 2 years (NMOC, NOx, and CO) | •Records of waste in place and annual waste acceptance rate<br>•Records of flare testing<br>•Records of flare temperature and landfill gas flow to the flare<br>•Records of existing wells, newly installed wells, and planned wells<br>•Records of methane concentration at the landfill surface<br>•Records of asbestos-containing or non-degradable waste<br>•Records of exceedances | •Reports of exceedances<br>•Reports of new wells | •NMOC-EPA Test Method 25 or 18<br>•NOx – EPA Method 7<br>•CO – EPA Method 10<br>•Calorific value –ASTM Method D1826-77<br>•O2 – EPA Method 3A<br>•Exhaust Flow – F Factor EPA Method 19<br>•Surface Methane – EPA Method 21 | |
| 40CFR63AAAA | 40 CFR Part 63, Subpart AAAA | •Annual compliance certification<br>•Comply with 40 CFR Part 60, Subpart Cc<br>•Develop a startup, shutdown, malfunction (SSM) plan | •Records of SSM plan | •SSM plan reports | | |
| CARB CH4from MSW | Title 17, CCR, Sections 95460 to 95476, Methane Emissions From MSW Landfills | •Annual compliance certification<br>•Annual source testing to demonstrate compliance with methane destruction efficiency<br>•Quarterly landfill surface monitoring | •Pursuant to Section 95470 | None | •Pursuant to Section 95471(c) | |

I.c.2. Permit-Specific Conditions

The Permit-Specific Conditions Table includes a summary of the monitoring requirements, recordkeeping requirements, reporting requirements, and test methods associated with the attachments contained in Section No. 7 of this permit.

| Attachment No./ Condition No. | Applicable Rule or Requirement | Monitoring | Recordkeeping | Semi-annual Reports | Test Methods | Comments |
|---|---|---|---|---|---|---|
| PO1399PC1 - Condition No. 1 | Rule 26 General Recordkeeping | •Annual compliance certification<br>•Monthly records of throughput and consumption | •Monthly records of throughput and consumption | None | None | |
| PO1399PC1 - Condition No. 2 | Rule 29 Solvent Recordkeeping | •Annual compliance certification | •Maintain a list of exempt solvents | None | None | |
| PO1399PC2 - Condition No. 1 | Rule 26 Annual Flare Combustion Limit | •Annual compliance certification<br>•Landfill gas flow rate and heating value | •Landfill gas flow rate and heating value | None | None | |
| PO1399PC2 – Condition No. 2 | Rule 29 Flare Out of Service | •Annual compliance certification | None | None | None | |
| PO1399PC2 - Condition No. 3 | Rule 26 Flare BACT Limits | •Annual compliance certification<br>•Flare temperature<br>•Testing every 2 years (ROC,NOx) | •Records of flare temperature<br>•Records of source tests | None | • ROC-EPA Test Method 25 or 18<br>•NOx – EPA Method 7 | |
| PO1399PC2 - Condition No. 4 | Rule 54 | •Annual compliance certification<br>•Source test every 4 years<br>•Modeling upon request | •Records of source tests | None | •Sulfur Compounds - EPA Test Method 6, 6A, 6C, 8, 15, 16A,16B, or SCAQMD Method 307-94, as appropriate | |
| PO1399PC2 - Condition No. 5 | Rule 57.1 | •Annual compliance certification | •None | None | None | Not required based on District EPA emission factor analysis |
| PO1399PC2 - Condition No. 6 | Rule 26 Flare Equipment Requirements | •Annual compliance certification | •None | None | None | |

1.c.2. Permit-Specific Conditions (Continued)

| | | | | | | |
|---|---|---|---|---|---|---|
| PO1399PC2 - Condition No. 7 | Rule 26 Calibration Requirements | •Annual compliance certification<br>•Calibration records | •Records of calibration and function checks | None | None | |
| PO1399PC2 - Condition No. 8 | Rule 26 Landfill Gas Control Requirements During Maintenance | •Annual compliance certification<br>•Written notification requirements<br>•Reporting requirements | •Records of maintenance activities | None | None | |
| PO1399PC2 - Condition Nos. 9 and 10 | Rule 51 Toxics Testing and HRA Requirements | •Source testing | •Records of source tests | None | APCD approved test protocol | District enforceable only |

## 1.c.2. General Applicable Requirements

The General Applicable Requirements Table includes a summary of the monitoring requirements, recordkeeping requirements, reporting requirements, and test methods associated with the attachments contained in Section No. 8 of this permit.

| Attachment No./ Condition No. | Applicable Rule or Requirement | Monitoring | Recordkeeping | Semi-annual Reports | Test Methods | Comments |
|---|---|---|---|---|---|---|
| 50 | Rule 50 | •Routine surveillance<br>•Visual inspections<br>•Annual compliance certification, including a formal survey<br>•Opacity readings upon request<br>•Notification required for uncorrectable visible emissions | •All occurrences of visible emissions for periods>3min in any one hour<br>•Annual formal survey of all emissions units | None | •Opacity - EPA Method 9 | |
| 54.B.1 | Rule 54.B.1 | •Annual compliance certification<br>•Follow monitoring requirements under Rule 64<br>•Upon request, source test for sulfur compounds at point of discharge | None | None | •Sulfur Compounds - EPA Test Method 6, 6A, 6C, 8, 15, 16A,16B, or SCAQMD Method 307-94, as appropriate | •Compliance with Rule 64 ensures compliance with this rule based on District analysis |
| 54.B.2 | Rule 54.B.2 | •Annual compliance certification<br>•Determine ground or sea level concentrations of $SO_2$, upon request | •Representative fuel analysis or exhaust analysis and compliance demonstration | None | •$SO_2$ - BAAQMD Manual of Procedures, Vol.VI, Section 1, Ground Level Monitoring for $H_2S$ and $SO_2$ | |
| 57.1 | Rule 57.1 | •Annual compliance certification | None | None | None | •Not required based on District analysis |
| 64.B.1 | Rule 64.B.1 | •Annual compliance certification<br>•None for PUC-quality gas, propane, or butane<br>•Annual test if gas is other than PUC-quality gas, propane, or butane (submit with annual compliance certification) | •Annual fuel gas analysis if gas is other than PUC-quality gas, propane, or butane | None | •SCAQMD Method 307-94 | |

1.c.3. General Applicable Requirements (Continued)

| Attachment No./ Condition No. | Applicable Rule or Requirement | Monitoring | Recordkeeping | Semi-annual Reports | Test Methods | Comments |
|---|---|---|---|---|---|---|
| 64.B.2 | Rule 64.B.2 | •Annual compliance certification<br>•Fuel supplier's certification, or fuel test per each delivery (submit with annual compliance certification) | •Fuel supplier's certification, or fuel test per each delivery | None | •ASTM Method D4294-83 or D2622-87 | |
| 74.6 | Rule 74.6 | •Annual compliance certification<br>•Maintain current solvent information<br>•Routine surveillance of solvent cleaning activities<br>•Upon request, solvent testing | •Records of current solvent information | None | •ROC content-EPA Test Method 24<br>•Identity of solvent components-ASTM E168-67, ASTM E169-87, or ASTM E260-85<br>•True vapor pressure or composite partial pressure -ASTM D2879-86 or other methods per Rule 74.6.G.5<br>•Initial boiling point-ASTM 1078-78 or published source<br>•Spray gun active/passive solvent losses-SCAQMD Method (10-3-89) | |
| 74.11.1 | Rule 74.11.1 | •Annual compliance certification<br>•Maintain identification records of large water heaters and small boilers | •Records of current information of large water heaters and small boilers | None | None | •Rule only applies to future installation of large water heaters and small boilers |
| 74.22 | Rule 74.22 | •Annual compliance certification<br>•Maintain furnace identification records | •Records of current furnace information | None | None | •Rule only applies to future installation of natural gas-fired, fan-type furnaces |

1.c.4. General Requirements for Short-Term Activities

The General Requirements for Short-term Activities Table includes a summary of the monitoring requirements, recordkeeping requirements, reporting requirements, and test methods associated with the attachments contained in Section No. 9 of this permit.

| Attachment No./ Condition No. | Applicable Rule or Requirement | Monitoring | Recordkeeping | Semi-annual Reports | Test Methods | Comments |
|---|---|---|---|---|---|---|
| 74.1 | Rule 74.1 | •Annual compliance certification<br>•Routine surveillance and visual inspections of abrasive blasting operation<br>•Abrasive blasting records | •Abrasive blasting records | None | •Visible emission evaluation- Section 92400 of CCR | |
| 74.2 | Rule 74.2 | •Annual compliance certification<br>•Routine surveillance<br>•Maintain VOC records of coatings used | •Maintain VOC records of coatings used | None | •Rule 74.2.G | |
| 74.4.D | Rule 74.4.D | •Annual compliance certification<br>•Test ROC content of oil sample being proposed for usage | •Records of oil analyses | None | •ASTM D402 | |
| 74.28 | Rule 74.28 | •Annual compliance certification<br>•Visual inspection to ensure proper vapor control during roofing kettle operation | None | None | None | |
| 74.29 | Rule 74.29 | •Annual compliance certification<br>•Weekly measurements of in-situ soil bioventing or bioremediation<br>•Weekly measurements of soil aeration<br>•Date and quantity of soil aerated<br>•Routine surveillance<br>•Notification required for excavation | •Weekly measurements of soil decontamination operation vapor concentration<br>•Date and quantity of soil aerated | None | •Vapor concentration- EPA Method 21<br>•Wt % of contaminant in soil-EPA Method 8015B | |
| 40CFR.61.M | 40 CFR Part 61, Subpart M | •Annual compliance certification<br>•See 40 CFR Part 61.145 for inspection procedures | •See 40 CFR Part 61.145 for recordkeeping procedures | •See 40 CFR Part 61.145 for notification procedures | •See 40 CFR Part 61.145 for test methods | |

Ventura County
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Control District

# ANNUAL COMPLIANCE CERTIFICATION
## DEVIATION SUMMARY FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| A. Attachment # or Permit Condition #: | B. Equipment description: | C. Deviation Period: Date & Time |
|---|---|---|
| 40CFR Part 63, Subpart AAAA<br><br>(Note: CARB CH4 from MSW regulation is not federally enforceable) | 40.5 MMBtu/hr Sur-Lite Enclosed Landfill Gas Flare – Annual Methane Destruction Efficiency (MDE) | Begin: October 21, 2015<br><br>End: December 11, 2015<br>When Discovered: Date & Time<br><br>November 24, 2015<br>NOV # 23419 FOR FAILED M.D.E. |
| D. Parameters monitored:<br>Methane Destruction Efficiency (MDE) | E. Limit:<br>At least 99% | F. Actual:<br>Test result 10/21/15 = 96.2%<br>Test Result 12/11/15 = 99.94% ✓ |
| G. Probable Cause of Deviation:<br>Low Coastal Flare Operating Temperature | H. Corrective actions taken:<br>Increased LFG flare operating temperature from 1,250° F to 1,400° F ✓<br>Conducted engineering test on 12/2/15 to assess MDE at 1,400° ✓<br>Conducted second MDE Source Test on 12/11/15 and confirmed MDE >99% ✓ | |

| A. Attachment # or Permit Condition #: | B. Equipment description: | C. Deviation Period: Date & Time<br>Begin: _____<br><br>End: _____<br>When Discovered: Date & Time<br>_____ |
|---|---|---|
| D. Parameters monitored: | E. Limit: | F. Actual: |
| G. Probable Cause of Deviation: | H. Corrective actions taken: | |

| A. Attachment # or Permit Condition #: | B. Equipment description: | C. Deviation Period: Date & Time<br>Begin: _____<br><br>End: _____<br>When Discovered: Date & Time<br>_____ |
|---|---|---|
| D. Parameters monitored: | E. Limit: | F. Actual: |
| G. Probable Cause of Deviation: | H. Corrective actions taken: | |

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# ANNUAL COMPLIANCE CERTIFICATION
## PERMIT ATTACHMENT FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.17.1N3 | D. Frequency of monitoring: |
| B. Description:<br>Rule 74.17.1 | Continuous, monthly, quarterly, annual, and bi-annually |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>• Monitor flare gas flow rate and temperature<br>• Monitor wells and collection header (temperature, pressure, nitrogen, oxygen).<br>• Monitor methane concentration at the surface of the landfill<br>• Source test flare every 2 years (NMOC, NOx and CO) | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 40CFR63AAAA | D. Frequency of monitoring: |
| B. Description:<br>40CFR Part 63, Subpart AAAA | Annual, as needed. |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable<br>See Deviation Summary Form and Attachments A & B |
| C. Method of monitoring:<br>• Annual source testing to determine compliance with methane destruction efficiency<br>• Develop and implement a Startup, Shutdown, Malfunction Plan (SSMP). | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): I<br>See Deviation Summary Form for details.<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): Y<br>*If yes, attach Deviation Summary Form |

NOV # 25419

| | |
|---|---|
| A. Attachment # or Permit Condition #: CARB CH4 from MSW | D. Frequency of monitoring: |
| B. Description:<br>Title 17, CCR, Sections 95460 to 95476, Methane Emissions From MSW Landfills<br>(Please note: this regulation is not federally enforceable.) | Quarterly, Annual |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable<br>See Deviation Summary Form and Attachment A & B |
| C. Method of monitoring:<br>• Annual source testing to determine compliance with methane destruction efficiency<br>• Annual landfill surface monitoring. The Oxnard Landfills had four consecutive quarterly surface monitoring periods below 500 ppmv and is required to conduct surface monitoring on an annual basis as required by CCR Section 95469(C) and Title V Permit Condition #6 for Methane Emissions from MSW Landfills. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): I<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): Y<br>*If yes, attach Deviation Summary Form |

Ventura County
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## PERMIT ATTACHMENT FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC1 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 1 – Rule 26 General Recordkeeping | Continuous |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Monthly records of throughput and consumption | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC1 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 2 – Rule 29 Solvent Recordkeeping | Annually |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: Maintain a list of exempt<br>solvents No solvents were used during the reporting period. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 1 – Rule 26 Annual Flare Combustion Limit<br>The annual amount of landfill gas combusted in the flare shall not exceed 350,000 MMBtu per year. | Continuous |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Landfill gas flow rate is recorded by a totalizer<br>continuous temperature recording device and landfill gas flow totalizer<br>Records of fuel high heating value (HHV) are maintained | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

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## PERMIT ATTACHMENT FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 2 – Rule 29 Flare Out of Service | Not Applicable.<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Flare #2 is out of service and will not be operated. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 3 – Rule 26 Flare BACT Limits | Continuous and Bi-annually<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>The flare is equipped with a continuous temperature recording device and landfill gas flow totalizer. Source testing occurs every 2 years using EPA test method 25 or 18 and 7. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 4 – Rule 54 Sulfur Compounds | Quadrennially<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Source test flare every 4 years for sulfur compounds using EPA test method 6, 6A, 6C, 8, 15, 16A, 16B, or SCAQMD method 307-94, as appropriate.<br>** See SCEC 2014 Toxics and Criteria Pollutant Source test Report No. 2001.1045.rpt2 | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

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Control District

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Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 5 – Rule 57.1 | Not Applicable. |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Not required based on District EPA emission factor analysis. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 6 – Rule 26 Flare Equipment Requirements | Monthly |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Monthly function checks of the flare equipment. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I: C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 7 – Rule 26 Calibration Requirements | Monthly and Annually |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Annual calibration and monthly function checks of control and recording of the landfill gas flow totalizer to the flare. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

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| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition 8 – Rule 26 Landfill Gas Control Requirements During Maintenance | As needed<br>E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Records of maintenance activities. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: P01399PC2 | D. Frequency of monitoring: |
| B. Description:<br>Condition No. 9 & 10 – Rule 51 Toxics Testing and HRA Requirements<br>(Note: these requirements are not federally enforceable and are included for completeness only.) | Every 1,000 hours, but not less than 10 years and not more than every 4 years<br>E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Source testing of the flare for Toxics using APCD approved testing protocol.<br>See SCEC 2014 Toxic and Criteria Pollutant Source Test Report No 2001.1045.rpt2 | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 50 | D. Frequency of monitoring: |
| B. Description:<br>Rule 50 Opacity | Ongoing, annually<br>E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable<br>See Attachment C |
| C. Method of monitoring:<br>Routine surveillance and visual inspections of the flare emissions. Annual formal survey of flare emissions. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

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# ANNUAL COMPLIANCE CERTIFICATION
## PERMIT ATTACHMENT FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: 54.B.1 | D. Frequency of monitoring: |
| B. Description:<br>Rule 54.B.1 Sulfur Compounds<br>APCD memos Rule 54, Sulfur Compounds 12/9/97 and SOx Rule Comparison for Combustion of Gaseous Fuel 12/2/97. | Not applicable<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Compliance with Rule 64 ensures compliance with this rule based on District analysis. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 54.B.2 | D. Frequency of monitoring: |
| B. Description:<br>Rule 54.B.2 Sulfur Dioxide<br>According to APCD memo from Terri Thomas, 5/23/96, subject Rule 54.B.2 compliance is an emission rate of 0.23 lb/hr would produce a 1-hour maximum concentration of 0.06 ppmv and a 24-hour maximum concentration of 0.03 ppmv, 100 meters from stack | Bi-annually<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Exhaust analysis and compliance demonstration. Source test exhaust value of Sulfur Dioxide of 0.06 lb/hr. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 57.1 | D. Frequency of monitoring: |
| B. Description:<br>Rule 57.1 Particulate Matter Emissions from Fuel Burning Equipment | Not applicable.<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Not required based on District analysis dated 12/3/1997. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

Ventura County
Air Pollution
Control District

# ANNUAL COMPLIANCE CERTIFICATION
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| | |
|---|---|
| A. Attachment # or Permit Condition #: 64.B.1 | D. Frequency of monitoring: Annually |
| B. Description: Rule 64.B.1 | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable: See Attachment B |
| C. Method of monitoring: Annual fuel gas analysis of hydrogen sulfide by source test using ASTM D4084-94 for sulfur content less than (<) 200 parts per million (ppm). . | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 64.B.2 | D. Frequency of monitoring: Not applicable. |
| B. Description: Rule 64.B.2 Fuel Supplier's Certification | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: Fuel supplier certification is requested after each delivery. Fuel supplier's certification is supplied by the fuel manufacturer. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.6 B1 | D. Frequency of monitoring: Annually |
| B. Description: Rule 74.6 Surface Cleaning and Degreasing | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: Maintain records of current solvent information. No solvents were used during the reporting period. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

Ventura County
Air Pollution
Control District

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| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.11.1 | D. Frequency of monitoring: |
| B. Description:<br>Rule 74.11.1 Large Water Heaters and Small Boilers | Not applicable.<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>There are no large water heaters or small boilers at this location that fall under this rule. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.22 | D. Frequency of monitoring: |
| B. Description:<br>Rule 74.22 Natural Gas-Fired Fan-Type Furnaces. | Not applicable.<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>There are no natural gas-fired fan-type furnaces at this location that fall under this rule. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.1 | D. Frequency of monitoring: |
| B. Description:<br>Rule 74.1 Abrasive Blasting | As needed<br>E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>Only Rule 74.1 compliant abrasives are used on site. Required visible emission evaluations (VEEs) are performed and abrasive blasting records are maintained. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

Ventura County
Air Pollution
Control District

# ANNUAL COMPLIANCE CERTIFICATION
## PERMIT ATTACHMENT FORM

Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.2 | D. Frequency of monitoring: Annually |
| B. Description: Rule 74.2 Architectural Coatings | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: Maintain VOC records of coatings used. Only coatings that are in compliance with Rule 74.2 are used. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.4.D | D. Frequency of monitoring: As needed. |
| B. Description: Rule 74.4.D Cut Back Asphalt | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: No road oils were applied in 2015. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.28 | D. Frequency of monitoring: As needed. |
| B. Description: Rule 74.28 Asphalt Roofing Operations | E. Source test reference method, if applicable. Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: No asphalt roofing operations were conducted in 2015. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

Ventura County
Air Pollution
Control District

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Period Covered by Compliance Certification: 01/01/15 (MM/DD/YY) to 12/31/15 (MM/DD/YY)

| | |
|---|---|
| A. Attachment # or Permit Condition #: 74.29 | D. Frequency of monitoring: |
| B. Description:<br>Rule 74.29 Soil Decontamination Operations | As needed. |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>No soil decontamination operations were conducted in 2015. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: 40CFR.61.M | D. Frequency of monitoring: |
| B. Description:<br>40 CFR, Part 61, Subpart M – National Emission Standard for Asbestos | As needed |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring:<br>No asbestos demolition or renovation activities were conducted in 2015. | F. Currently in Compliance? (Y or N): Y<br>G. Compliance Status? (C or I): C<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): N<br>*If yes, attach Deviation Summary Form |

| | |
|---|---|
| A. Attachment # or Permit Condition #: | D. Frequency of monitoring: |
| B. Description: | |
| | E. Source test reference method, if applicable.<br>Attach Source Test Summary Form, if applicable |
| C. Method of monitoring: | F. Currently in Compliance? (Y or N): _____<br>G. Compliance Status? (C or I): _____<br>H. *Excursions, exceedances, or other non-compliance? (Y or N): _____<br>*If yes, attach Deviation Summary Form |

Ventura County
Air Pollution
Control District

669 County Square Drive
Ventura, California 93003

tel 805/645-1400
fax 805/645-1444
www.vcapcd.org

Michael Villegas
Air Pollution Control Officer

December 3, 2015

Frank Kiesler, Director of Operation
Ventura Regional Sanitation District
1001 Partridge Dr., Ste. 150
Ventura, CA 93003

CERTIFIED - RETURN
RECEIPT REQUESTED

Subject: Notice of Violation Number: 23419

Dear Mr. Kiesler,

Enclosed you will find Notice of Violation (NOV) number 23419. It has been issued to VRSD Oxnard Landfills for violation of APCD Rule 29.C for operating a 40.5 MMBTU/hr Sur-Lite Model Sacramento Landfill Gas Flare (No. 1) that failed to meet the methane destruction efficiency (MDE) of at least 99 percent by weight as contained in permit condition 3 (Attachment CARB CH4fromMSW).

The violation was observed during a recent source test performed at your facility located at 4105 W. Gonzales Road, Oxnard on October 21, 2015.

In order to correct this violation, you must repair the 40.5 MMBTU/hr Sur-Lite Model Sacramento Landfill Gas Flare (No. 1) as necessary, re-test the unit and show compliance with the NOx emission standard. Any additional operation, without complying with the emission standard, could subject you to further enforcement action including additional penalties.

You will be contacted separately regarding settlement of the Notice of Violation, once you have achieved compliance.

If you have any questions regarding this matter, please contact me at 805-645-1413 or email me at daniel@vcapcd.org.

Sincerely,

Daniel Cho
Air Quality Engineer, Compliance Division

c. David Thomas, Management Analyst
VRSD Oxnard Landfills
4150 W. Gonzales Road
Oxnard, CA 93030

Enclosures: NOV #23419

Ventura County
Air Pollution
Control District

669 County Square Drive 2nd Flr.
Ventura CA 93003

Tel: 805/645-1400
Fax 805/645-1444

# NOTICE OF VIOLATION

No. 23419

Name: Ventura Regional Sanitation District Date: 12-3-2015

Address: 1001 Partridge Dr. Ste. 150 City/Zip: Ventura 93003

Inspection Address: 4105 W. Gonzales Rd. P.O./ID#: C1399

City/Zip: Oxnard 93030 Phone: 805-658-4675

You are hereby notified that a **VIOLATION** of **RULE** 29.C of the Rules and Regulations of the Ventura County Air Pollution Control District, **SECTION** — of the California Heath and Safety Code, **SECTION** — of the California Code of Regulations, was committed on 10-21-2015 by: Failure to comply with the methane destruction efficiency (MDE) requirement in permit condition 3 (Attachment CARB CH4 Form #15). Permit requirement for MDE is at least 99% by weight. The Sur-Lite flare had a MDE of 96.2%.

Pursuant to Section 42400 of the Health and Safety Code of the State of California, any person who violates any Order, Rule, or Regulation of the State Board or of an Air Pollution Control District is guilty of a MISDEMEANOR. Every day during any portion of which such violation occurs constitutes a separate offense.

**ADVISE THIS DISTRICT, IN WRITING, WITHIN TEN (10) DAYS, OF THE CORRECTIVE ACTION TAKEN TO RESOLVE THIS VIOLATION. YOUR RESPONSE DOES NOT PRECLUDE THE POSSIBLITY OF FURTHER LEGAL ACTION.**

| Issued by (Signature) | Sector | Date | Time |
|---|---|---|---|
| | | 12-3-2015 | 0900 |

**SIGNING THIS NOTICE ACKOWLEDGES RECEIPT OF THIS NOTICE. IT IS NOT AN ADMISSION OF GUILT.**

| Issued To (please print) | Title (please print) |
|---|---|
| Frank Kiesler | Director of Operations |

| Signature of Person Receiving Notice | Title | Date |
|---|---|---|
| Sent via Certified Mail | | |

Follow-up Action: _____

Disposition: _____

**White-Office Copy Yellow-Field Copy Pink-Site Copy**

VENTURA REGIONAL SANITATION DISTRICT
1001 PARTRIDGE DRIVE, SUITE 150 ▪ VENTURA, CA 93003-0704

A Public Waste Management Agency

December 9, 2015

Mr. Daniel Cho
Ventura County Air Pollution Control District (VCAPCD)
669 County Square Drive
Ventura CA 93003

**RESPONSE TO NOTICE OF VIOLATION NUMBER: 23419**

Dear Mr. Cho,

This letter is in response to the Notice of Violation Number 23419, received on December 3, 2015 for the operation of the Bailard/Coastal landfill gas (LFG) flare. Ventura Regional Sanitation District (VRSD, owner) conducted a flare methane destruction efficiency (MDE) test on October 21, 2015 and reported its finding on November 29, 2015. After completion of the test report, it was determined that the flare emissions were in excess of the permitted limits for MDE, and VRSD performed the following actions to bring the flare back into the compliance:

- Increased the LFG flare operating temperature from 1,250°F to 1,400 °F;
- Performed an engineering test to assess the MDE of the flare at the new temperature set point;
- Permanently increased the flare temperature set point to 1,400 °F.
- Scheduled the source test company for the earliest possible re-test at the increased flare temperature set point of 1,400 °F.

We believe this change in flare operation will bring flare destruction efficiency back into compliance. VRSD has scheduled a MDE test for Friday December 11, 2015. Horizon Air Measurements (Horizon) will be performing the MDE test in accordance with the previously approved test protocol. Results of this test will be reported within 30 days of the testing.

Please feel free to contact me at (805) 658-4672 if you have any further questions on this subject matter.

FRANK KIESLER - DIRECTOR OF OPERATIONS

c: David Thomas, Richard Baldwin, Dave Edwards, Gautam Arora, Cindy Griffin

# Attachment B

Ventura County
Air Pollution
Control District

# ANNUAL COMPLIANCE CERTIFICATION

## SOURCE TEST SUMMARY FORM

Period Covered by Compliance Certification: 01 / 01 / 15 (MM/DD/YY) to 12 / 31 / 15 (MM/DD/YY)

| A. Emission Unit Description: 40.5 MMBtu/Hr Sur-Lite Model Sacramento Landfill Gas Flare | | | B. Pollutant: Destruction Eff.% |
|---|---|---|---|
| C. Measured Emission Rate: >96.2 | D. Limited Emission Rate: >99% | E. Specific Source Test or Monitoring Record Citation: EPA Method 18 | F. Test Date: 10/21/15 |

| A. Emission Unit Description: 40.5 MMBtu/Hr Sur-Lite Model Sacramento Landfill Gas Flare | | | B. Pollutant: Destruction Eff.% |
|---|---|---|---|
| C. Measured Emission Rate: >99.95% | D. Limited Emission Rate: >99% | E. Specific Source Test or Monitoring Record Citation: EPA Method 18 | F. Test Date: 12/11/15 |

| A. Emission Unit Description: 40.5 MMBtu/Hr Sur-Lite Model Sacramento Landfill Gas Flare | | | B. Pollutant: Total Sulfur |
|---|---|---|---|
| C. Measured Emission Rate: 9.03 ppm as H2S | D. Limited Emission Rate: | E. Specific Source Test or Monitoring Record Citation: SCAQMD Method 307.91 | F. Test Date: 10/21/15 |

| A. Emission Unit Description: | | | B. Pollutant: |
|---|---|---|---|
| C. Measured Emission Rate: | D. Limited Emission Rate: | E. Specific Source Test or Monitoring Record Citation: | F. Test Date: |

| A. Emission Unit Description: | | | B. Pollutant: |
|---|---|---|---|
| C. Measured Emission Rate: | D. Limited Emission Rate: | E. Specific Source Test or Monitoring Record Citation: | F. Test Date: |

Table 2-1
Summary of Results
Ventura Regional Sanitation District
Coastal Landfill Flare
October 21, 2015

| Run | 1 | 2 | 3 | Average | Permit Limit |
|---|---|---|---|---|---|
| Oxygen, % | 16.0 | 15.9 | 15.7 | 15.9 | |
| Carbon Dioxide, % | 4.0 | 4.2 | 4.3 | 4.2 | |
| Flow Rate, dscfm | 10,920 | 10,646 | 10,198 | 10,588 | |
| Fuel Flow Rate, scfm | 770 | 766 | 763 | 766 | |
| **Methane (Outlet)** | | | | | |
| ppm, as Methane | 1094 | 676 | 754 | 841 | |
| lb/hr, as Methane | 29.76 | 17.9 | 19.2 | 22.3 | |
| **Methane (Inlet)** | | | | | |
| ppm, as Methane | 308330 | 308330 | 308330 | 308330 | |
| lb/hr, as Methane | 591 | 588 | 586 | 589 | |
| **Methane Destruction Efficiency,** | | | | | |
| % | 95.0 | 97.0 | 96.7 | 96.2 | 99 |
| **Total Reduced Sulfur Compounds,** | | | | | |
| Hydrogen Sulfide, ppm | 9.15 | 9.09 | 8.37 | 8.87 | |
| Total Sulfur , ppm as $H_2S$ | 9.31 | 9.26 | 8.52 | 9.03 | |
| **Oxides of Sulfur,** | | | | | |
| ppm | 0.66 | 0.67 | 0.64 | 0.65 | 300 |
| lbs/hr | 0.073 | 0.072 | 0.066 | 0.070 | 0.41 |
| lbs/MMBtu | 0.0050 | 0.0050 | 0.0046 | 0.0049 | 0.02 |
| **Operating Parameters,** | | | | | |
| Fuel Flow, scfh | 770 | 766 | 763 | 766 | |
| Heat Rate, MMbtu/hr | 14.41 | 14.34 | 14.28 | 14.35 | |
| Flare Temperature, F | 1235 | 1237 | 1223 | 1232 | |

Table 2-1
Summary of Results
Ventura Regional Sanitation District
Coastal Landfill Flare
December 11, 2015

| Run | 1 | 2 | 3 | Average | Permit Limit |
|---|---|---|---|---|---|
| Oxygen, % | 14.8 | 14.4 | 14.4 | 14.5 | |
| Carbon Dioxide, % | 4.9 | 5.3 | 5.3 | 5.2 | |
| Flow Rate, dscfm | 8,802 | 8,067 | 8,126 | 8,332 | |
| Fuel Flow Rate, scfm | 795 | 772 | 772 | 780 | |
| **Methane (Outlet)** | | | | | |
| ppm, as Methane | 20.0 | 11.8 | 14.6 | 15.5 | |
| lb/hr, as Methane | 0.437 | 0.237 | 0.296 | 0.324 | |
| **Methane (Inlet)** | | | | | |
| ppm, as Methane | 295470 | 298210 | 300950 | 298210 | |
| lb/hr, as Methane | 585 | 573 | 579 | 579 | |
| **Methane Destruction Efficiency,** | | | | | |
| % | 99.93 | 99.96 | 99.95 | 99.95 | 99 |
| **Operating Parameters,** | | | | | |
| Fuel Flow, scfh | 795 | 772 | 772 | 780 | |
| Heat Rate, MMbtu/hr | 14.26 | 13.98 | 14.11 | 14.12 | |
| Flare Temperature, F | 1406 | 1401 | 1403 | 1403 | |

# Atmospheric Analysis & Consulting, Inc.

| | |
|---|---|
| CLIENT | : Ventura Regional Sanitation District |
| PROJECT NAME | : Toland Road Landfill – Gas |
| PROJECT NO. | : 400300 |
| AAC PROJECT NO. | : 150485 |
| REPORT DATE | : 5/6/2015 |

On May 4, 2015, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for TRS analysis by SCAQMD 307.91 and one (1) Tedlar Bag for BTU analysis by ASTM D-3588. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

| Client ID | Lab No. |
|---|---|
| Raw Gas | 150485-78834 |
| 24" Header GHG | 150485-78835 |

SCAQMD 307.91 Analysis – Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following SCAQMD 307.91 as specified in the SOW.

ASTM D-3588 Analysis – Up to a 1 mL aliquot of sample is injected into the GC/SCD/FID/TCD for analysis following ASTM D-3588 as specified in the SOW.

No problems were encountered during receiving, preparation, and/or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-SCAQMD 307.91 and ASTM D-3588.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 8 pages.



1534 Eastman Ave., Ste. A • Ventura, • CA 93003 www.aaclab.com • (805) 650-1642 • FAX (805) 650-1644

# Atmospheric Analysis & Consulting, Inc.

## *Laboratory Analysis Report*
## *ASTM-D3588 (BTU and F-Factor)*

**CLIENT** Ventura Regional Sanitation District
**PROJECT NO.** 150485

**SAMPLING DATE** 5/4/2015
**ANALYSIS DATE** 5/5/2015

| | Client ID: | 24" Header GHG | |
|---|---|---|---|
| | AAC ID: | 150485-78835 | |
| | Component | Mole % | Weight % |
| FIXED GASES | $H_2$ | 0.00 | 0.00 |
| | $O_2$ | 1.22 | 1.43 |
| | $N_2$ | 13.75 | 14.13 |
| | CO | 0.00 | 0.00 |
| | $CO_2$ | 33.36 | 53.88 |
| | $CH_4$ | 51.62 | 30.39 |
| | He | NM | NM |
| | Ar | NM | NM |
| HYDROCARBONS | $C_2$ (as Ethane) | 0.0001 | 0.0002 |
| | $C_3$ (as Propane) | 0.0041 | 0.0066 |
| | $C_4$ (as Butane) | 0.0018 | 0.0039 |
| | $C_5$ (as Pentane) | 0.0061 | 0.0161 |
| | $C_6$ (as Hexane) | 0.0063 | 0.0200 |
| | $C_{6+}$ (as Hexane) | 0.0369 | 0.1165 |
| TRS | TRS as H2S | 0.0024 | 0.0030 |
| H2O | Moisture content | NM | NM |

*All results have been normalized to 100% on a dry weight basis.*

| *Fuel Gas Specifications* | | | | |
|---|---|---|---|---|
| Atomic Breakdown - (scf/lb) / % | | | *HHV Btu/lb* | 7295 |
| *Carbon ( C )* | 37.6 | | *LHV Btu/lb* | 6569 |
| *Hydrogen ( H )* | 7.7 | | *HHV Btu/dscf* | 524 |
| *Oxygen ( O )* | 40.6 | | *LHV Btu/dscf* | 472 |
| *Nitrogen ( N )* | 14.1 | | *F-Factor* | 9419 |
| *Helium ( He )* | 0.00 | | *Specific Gravity* | 0.9409 |
| *Argon ( Ar )* | 0.00 | | *C2-C6+ Weight %* | 0.1632 |
| *Sulfur ( S )* | 0.00 | | *MW lb/lb-mole* | 27.248 |

Marcus Hueppe
Laboratory Director



1534 Eastman Ave., Ste. A • Ventura, • CA 93003 www.aaclab.com • (805) 650-1642 • FAX (805) 650-1644

# Atmospheric Analysis & Consulting, Inc.

## *LABORATORY ANALYSIS REPORT*

*Total Reduced Sulfur Compounds Analysis by SCAQMD 307.91*

CLIENT **Ventura Regional Sanitation District** SAMPLING DATE **5/4/2015**
PROJECT NO. **150485** ANALYSIS DATE **5/5/2015**

| Client ID | 24" Header GHG |
|---|---|
| AAC ID | 150485-78835 |
| **Analyte** | **Result** |
| Hydrogen Sulfide | **1.03 ppmv** |
| Carbonyl Sulfide | **0.739 ppmv** |
| Sulfur Dioxide | < 0.050 ppmv |
| Carbon Disulfide | **0.501 ppmv** |
| Total Inorganic Sulfur | **2.26 ppmv** |

| | |
|---|---|
| Methyl Mercaptan | **2.54 ppmv** |
| Ethyl Mercaptan | **0.094 ppmv** |
| Isopropyl Mercaptan | **1.51 ppmv** |
| sec-Butyl Mercaptan | < 0.050 ppmv |
| tert-Butyl Mercaptan | **0.235 ppmv** |
| n-Propyl Mercaptan | < 0.050 ppmv |
| iso-Butyl Mercaptan | **0.212 ppmv** |
| n-Butyl Mercaptan | < 0.050 ppmv |
| n-Pentyl Mercaptan | < 0.050 ppmv |
| n-Hexyl Mercaptan | < 0.050 ppmv |
| n-Heptyl Mercaptan | < 0.050 ppmv |
| n-Octyl Mercaptan | < 0.050 ppmv |
| Total Mercaptans | **4.59 ppmv** |

| | |
|---|---|
| Thiophene | **1.28 ppmv** |
| Tetrahydrothiophene | < 0.050 ppmv |
| 2-Methylthiophene | **0.248 ppmv** |
| 3-Methylthiophene | **0.110 ppmv** |
| 2,5-Dimethyl Thiophene | < 0.050 ppmv |
| 2-Ethyl Thiophene | < 0.050 ppmv |
| 2-Propyl Thiophene | < 0.050 ppmv |
| 2-Butyl Thiophene | < 0.050 ppmv |
| Bromothiophene | < 0.050 ppmv |
| Benzothiophene | < 0.050 ppmv |
| Total Thiophenes | **1.64 ppmv** |

| | |
|---|---|
| Dimethyl Sulfide | **12.3 ppmv** |
| Methylethylsulfide | < 0.050 ppmv |
| Diethyl Sulfide | < 0.050 ppmv |
| Phenyl Sulfide | < 0.050 ppmv |
| Total Organic Sulfides | **12.3 ppmv** |

| | |
|---|---|
| Dimethyl Disulfide | **1.50 ppmv** |
| Diethyl disulfide | < 0.050 ppmv |
| Total Organic Disulfides | **1.50 ppmv** |

| | |
|---|---|
| Total Unidentified Sulfur | **2.44 ppmv** |
| Total Reduced Sulfur | **24.0 ppmv** |

***All compound's concentrations expressed in terms of $H_2S$***
***Total Reduced Sulfur (TRS) does not include COS and SO2***

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

## *LABORATORY ANALYSIS REPORT*

***Total Reduced Sulfur Compounds Analysis by SCAQMD 307.91***

| | | | |
|---|---|---|---|
| **CLIENT** | : **Ventura Regional Sanitation District** | **SAMPLING DATE** | : **05/04/2015** |
| **PROJECT NO.** | : **150333** | **RECEIVING DATE** | : **05/04/2015** |
| **MATRIX** | : **AIR** | **ANALYSIS DATE** | : **05/05/2015** |
| **UNITS** | : **ppmV** | **REPORT DATE** | : **05/06/2015** |

| **Client ID** | **Raw Gas** |
|---|---|
| **AAC ID** | **150485-78834** |
| **Analyte** | **Result** |
| Hydrogen Sulfide | **118** |
| Carbonyl Sulfide | < 0.100 |
| Sulfur Dioxide | < 0.100 |
| Carbon Disulfide | **0.165** |
| Total Inorganic Sulfur | **118** |
| Methyl Mercaptan | **6.71** |
| Ethyl Mercaptan | **0.200** |
| Isopropyl Mercaptan | **2.84** |
| sec-Butyl Mercaptan | < 0.100 |
| tert-Butyl Mercaptan | **0.290** |
| n-Propyl Mercaptan | **0.180** |
| iso-Butyl Mercaptan | **0.384** |
| n-Butyl Mercaptan | < 0.100 |
| n-Pentyl Mercaptan | < 0.100 |
| n-Hexyl Mercaptan | < 0.100 |
| n-Heptyl Mercaptan | < 0.100 |
| n-Octyl Mercaptan | < 0.100 |
| Total Mercaptans | 10.6 |
| Thiophene | **2.11** |
| Tetrahydrothiophene | < 0.100 |
| 2-Methylthiophene | **0.248** |
| 3-Methylthiophene | < 0.100 |
| 2,5-Dimethyl Thiophene | < 0.100 |
| 2-Ethyl Thiophene | < 0.100 |
| 2-Propyl Thiophene | < 0.100 |
| 2-Butyl Thiophene | < 0.100 |
| Bromothiophene | < 0.100 |
| Benzothiophene | < 0.100 |
| Total Thiophenes | **2.35** |
| Dimethyl Sulfide | **15.0** |
| Methylethylsulfide | < 0.100 |
| Diethyl Sulfide | < 0.100 |
| Phenyl Sulfide | < 0.100 |
| Total Organic Sulfides | **15.0** |
| Dimethyl Disulfide | **0.188** |
| Diethyl disulfide | < 0.100 |
| Total Organic Disulfides | **0.188** |
| Total Unidentified Sulfur | **0.237** |
| Total Reduced Sulfur | **147** |

***All compound's concentrations expressed in terms of H2S (TRS does not include COS and SO2)***
***Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.***

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 05/05/2015
Analyst : DJ
Units : %

Instrument ID : TCD#1
Calb Date : 01/06/2015
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | Result | 9.5 | 11.1 | 21.3 | 9.1 | 10.1 | 10.2 |
| | % Rec * | 100.3 | 108.4 | 106.4 | 89.4 | 99.5 | 99.3 |

II - Method Blank - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | LCS Result | 9.7 | 10.7 | 20.5 | 9.3 | 10.3 | 10.4 |
| | LCSD Result | 9.4 | 10.5 | 20.3 | 9.5 | 10.4 | 10.5 |
| | LCS % Rec * | 102.3 | 104.6 | 102.5 | 90.5 | 101.6 | 101.9 |
| | LCSD % Rec * | 99.0 | 102.8 | 101.6 | 92.5 | 102.7 | 102.7 |
| | % RPD *** | 3.4 | 1.8 | 0.9 | 2.2 | 1.0 | 0.8 |

IV - Sample & Sample Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| 150490-78856 | Sample | 0.0 | 0.5 | 9.2 | 34.3 | 57.5 | 0.0 |
| | Sample Dup | 0.0 | 0.5 | 9.1 | 33.9 | 56.9 | 0.0 |
| | Mean | 0.0 | 0.5 | 9.2 | 34.1 | 57.2 | 0.0 |
| | % RPD *** | 0.0 | 0.2 | 0.7 | 1.1 | 1.1 | 0.0 |

V - Matrix Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|
| 150490-78856 | Sample Conc | 0.0 | 4.6 | 17.0 | 28.6 | 0.0 |
| | Spike Conc | 9.5 | 9.2 | 10.2 | 10.1 | 10.2 |
| | MS Result | 9.3 | 15.0 | 26.2 | 39.9 | 10.6 |
| | MSD Result | 9.2 | 14.6 | 25.5 | 38.8 | 10.4 |
| | MS % Rec ** | 98.2 | 113.3 | 90.1 | 112.1 | 104.0 |
| | MSD % Rec ** | 96.4 | 109.0 | 82.8 | 100.7 | 101.4 |
| | % RPD *** | 1.9 | 3.9 | 8.4 | 10.8 | 2.6 |

VI - Closing Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | Result | 9.6 | 10.6 | 20.7 | 9.5 | 10.6 | 10.6 |
| | % Rec * | 101.3 | 103.7 | 103.3 | 92.7 | 104.9 | 103.3 |

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
*ND = Not Detected*
*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 05/05/2015
Analyst : DJ
Units : ppmv

Instrument ID : FID #3
Calb Date : 09/05/14
Reporting Limit : 0.5 ppmv

I - Opening Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 98.6 | 100.6 | 102.1 | 102.9 | 103.4 | 102.1 |
| | % Rec * | 101.0 | 101.6 | 102.4 | 103.9 | 104.3 | 102.7 |

II - Method Blank - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | LCS Result | 99.9 | 102.2 | 103.7 | 104.5 | 104.9 | 103.8 |
| | LCSD Result | 104.2 | 106.5 | 108.1 | 109.1 | 109.7 | 108.2 |
| | LCS % Rec * | 102.3 | 103.1 | 104.0 | 105.6 | 105.9 | 104.4 |
| | LCSD % Rec * | 106.7 | 107.5 | 108.4 | 110.2 | 110.7 | 108.9 |
| | % RPD *** | 4.2 | 4.1 | 4.2 | 4.3 | 4.4 | 4.2 |

IV - Sample & Sample Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150486-78836 | Sample | N/A | 0.0 | 10.2 | 2.3 | 0.6 | 0.5 |
| | Sample Dup | N/A | 0.0 | 10.2 | 2.3 | 0.6 | 0.5 |
| | Mean | N/A | 0.0 | 10.2 | 2.3 | 0.6 | 0.5 |
| | % RPD *** | N/A | 0.0 | 0.8 | 1.2 | 0.7 | 0.6 |

V - Matrix Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150486-78836 | Sample Conc | N/A | 0.0 | 5.1 | 1.1 | 0.3 | 0.3 |
| | Spike Conc | N/A | 49.5 | 49.9 | 49.5 | 49.6 | 49.7 |
| | MS Result | N/A | 55.8 | 59.2 | 55.9 | 55.4 | 54.7 |
| | MSD Result | N/A | 55.3 | 58.7 | 55.5 | 54.8 | 54.3 |
| | MS % Rec ** | N/A | 112.7 | 108.6 | 110.7 | 111.1 | 109.5 |
| | MSD % Rec ** | N/A | 111.6 | 107.6 | 109.9 | 109.9 | 108.7 |
| | % RPD *** | N/A | 1.0 | 0.9 | 0.8 | 1.1 | 0.8 |

VI - Closing Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 98.9 | 100.5 | 101.7 | 102.7 | 103.0 | 101.8 |
| | % Rec * | 101.3 | 101.5 | 102.0 | 103.8 | 103.9 | 102.4 |

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

*ND = Not Detected*

*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*
**SCAQMD 307.91**

**Date Analyzed:** 5/5/2015
**Analyst:** ZB

**Instrument ID:** SCD#10
**Calb. Date:** 5/4/2015

**Opening Calibration Verification Standard**

| | Resp. (area) | Result (ppbV) | % Rec * | % RPD **** |
|---|---|---|---|---|
| Initial | 4604 | 512 | 102.3 | NA |
| Duplicate | 4632 | 515 | 102.9 | 0.6 |
| Triplicate | 4598 | 511 | 102.2 | 0.1 |

**Method Blank**

| Analyte | Result |
|---|---|
| H2S | ND |

**Duplicate Analysis** **Sample ID** 150485-78834 x100

| Analyte | Sample Result | Duplicate Result | Mean | % RPD *** |
|---|---|---|---|---|
| H2S | 118677.9 | 117914.9 | 118296.4 | 0.6 |

**Matrix Spike & Duplicate** **Sample ID** 150485-78834 x500

| Analyte | Sample Conc. | Spike Added | MS Result | MSD Result | MS % Rec ** | MSD % Rec ** | % RPD *** |
|---|---|---|---|---|---|---|---|
| H2S | 236.6 | 250.0 | 489.7 | 514.9 | 100.6 | 105.8 | 5.0 |

**Closing Calibration Verification Standard**

| Analyte | Std. Conc. | Result (ppbV) | % Rec ** |
|---|---|---|---|
| H2S | 500.0 | 496.1 | 99.2 |

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** Must be < 5% RPD from Initial result.*

**Marcus Hueppe**
**Laboratory Director**



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# Chain of Custody / Analysis Request Form

**Atmospheric Analysis & Consulting, Inc.**
1534 Eastman Avenue, Suite A
Vantura, CA 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-Mail: info@aaclab.com

AAC Project No. 150485 Page ____ of ____

| **Client Name** Ventura Regional Sanitation District | | | **Project Name** Toland Road Landfill - Gas | | | **Analysis** | | | | | | **Sent Results to:** David Thomas 3500 Toland Road Santa Paula, CA 93060 (805) 658-4672 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Mgr** David Thomas (805) 658-4672 | | | **Project Number** 400300 | | | | | | | | | |
| **Samplers Name (Print)** DAVID F. THOMAS | | | **Samplers Signature** David F Thomas | | | | | | | | | |
| **Sample Number** | **Date** | **Time** | **Type** | **Client Sample ID/Description** | **Type/No. Containers** | **307-91** | **D3588-98** | | | | | **Comments:** |
| 1 | 5-4-15 | 13:05 | Gas | Raw Gas 78834 | T / 1 | X | | | | | | $H_2S$ = 2 |
| 2 | 5-4-15 | 13:10 | Gas | 24" Header GHG 78835 | T / 1 | | X | | | | | $H_2S$ = 80 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |

**Flare:** 1600 **Vilter:** 220 **Blower A:** ~~0~~ **Blower B:** 0 **TOTAL Flow:** 1,820 scfm

| **Relinquished By (Signature)** David F Thomas | **(Print Name)** DAVID F. THOMAS | **Date** 5-4-15 | **Time** 14:20 |
|---|---|---|---|
| **Received By (Signature)** Tony DiCeglie | **(Print Name)** Tony DiCeglie | **Date** 5/4/15 | **Time** 1420 |

Drop off

# Atmospheric Analysis & Consulting, Inc.

| | |
|---|---|
| CLIENT | : Ventura Regional Sanitation District |
| PROJECT NAME | : Oxnard Landfills – GHG |
| PROJECT NO. | : 400801, 400803 |
| AAC PROJECT NO. | : 150136 |
| REPORT DATE | : 2/13/2015 |

On February 11, 2015, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for BTU analysis by ASTM D-3588. Upon receipt, the sample was assigned a unique Laboratory ID number as follows:

| Client ID | Lab No. |
|---|---|
| Oxnard GHG | 150136-77223 |

ASTM D-3588 Analysis – Up to a 1 mL aliquot of sample is injected into the GC/SCD/FID/TCD for analysis following ASTM D-3588 as specified in the SOW.

No problems were encountered during receiving, preparation, and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-3588.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 6 pages.



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# Atmospheric Analysis & Consulting, Inc.

## *LABORATORY ANALYSIS REPORT*

***Total Reduced Sulfur Compounds Analysis by SCAQMD 307.91***

**CLIENT** **Ventura Regional Sanitation District**
**PROJECT NO.** **150136**

**SAMPLING DATE** **2/11/2015**
**ANALYSIS DATE** **2/12/2015**

| **Client ID** | **Oxnard GHG** |
|---|---|
| **AAC ID** | **150136-77223** |
| **Analyte** | **Result** |
| Hydrogen Sulfide | **4.85 ppmv** |
| Carbonyl Sulfide | < 0.050 ppmv |
| Sulfur Dioxide | < 0.050 ppmv |
| Carbon Disulfide | < 0.050 ppmv |
| Total Inorganic Sulfur | **4.85 ppmv** |

| | |
|---|---|
| Methyl Mercaptan | **0.055 ppmv** |
| Ethyl Mercaptan | < 0.050 ppmv |
| Isopropyl Mercaptan | < 0.050 ppmv |
| sec-Butyl Mercaptan | < 0.050 ppmv |
| tert-Butyl Mercaptan | < 0.050 ppmv |
| n-Propyl Mercaptan | < 0.050 ppmv |
| iso-Butyl Mercaptan | < 0.050 ppmv |
| n-Butyl Mercaptan | < 0.050 ppmv |
| n-Pentyl Mercaptan | < 0.050 ppmv |
| n-Hexyl Mercaptan | < 0.050 ppmv |
| n-Heptyl Mercaptan | < 0.050 ppmv |
| n-Octyl Mercaptan | < 0.050 ppmv |
| Total Mercaptans | **0.055 ppmv** |

| | |
|---|---|
| Thiophene | < 0.050 ppmv |
| Tetrahydrothiophene | < 0.050 ppmv |
| 2-Methylthiophene | < 0.050 ppmv |
| 3-Methylthiophene | < 0.050 ppmv |
| 2,5-Dimethyl Thiophene | < 0.050 ppmv |
| 2-Ethyl Thiophene | < 0.050 ppmv |
| 2-Propyl Thiophene | < 0.050 ppmv |
| 2-Butyl Thiophene | < 0.050 ppmv |
| Bromothiophene | < 0.050 ppmv |
| Benzothiophene | < 0.050 ppmv |
| Total Thiophenes | < 0.050 ppmv |

| | |
|---|---|
| Dimethyl Sulfide | **0.112 ppmv** |
| Methylethylsulfide | < 0.050 ppmv |
| Diethyl Sulfide | < 0.050 ppmv |
| Phenyl Sulfide | < 0.050 ppmv |
| Total Organic Sulfides | **0.112 ppmv** |

| | |
|---|---|
| Dimethyl Disulfide | < 0.050 ppmv |
| Diethyl disulfide | < 0.050 ppmv |
| Total Organic Disulfides | < 0.050 ppmv |

| | |
|---|---|
| Total Unidentified Sulfur | < 0.050 ppmv |
| Total Reduced Sulfur | **5.02 ppmv** |

***All compound's concentrations expressed in terms of $H_2S$***
***Total Reduced Sulfur (TRS) does not include COS and SO2***

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

## *Laboratory Analysis Report*
## *ASTM-D3588 (BTU and F-Factor)*

**CLIENT** Ventura Regional Sanitation District
**PROJECT NO.** 150136

**SAMPLING DATE** 2/11/2015
**ANALYSIS DATE** 2/12/2015

| | Client ID: | Oxnard GHG | |
|---|---|---|---|
| | AAC ID: | 150136-77223 | |
| | Component | Mole % | Weight % |
| FIXED GASES | $H_2$ | 0.00 | 0.00 |
| | $O_2$ | 2.30 | 2.70 |
| | $N_2$ | 35.49 | 36.52 |
| | CO | 0.00 | 0.00 |
| | $CO_2$ | 23.43 | 37.88 |
| | $CH_4$ | 38.78 | 22.86 |
| | He | NM | NM |
| | Ar | NM | NM |
| HYDROCARBONS | $C_2$ (as Ethane) | 0.0004 | 0.0004 |
| | $C_3$ (as Propane) | 0.0013 | 0.0022 |
| | $C_4$ (as Butane) | 0.0008 | 0.0017 |
| | $C_5$ (as Pentane) | 0.0001 | 0.0004 |
| | $C_6$ (as Hexane) | 0.0002 | 0.0007 |
| | $C_{6+}$ (as Hexane) | 0.0109 | 0.0346 |
| TRS | TRS as H2S | 0.0005 | 0.0006 |
| H2O | Moisture content | NM | NM |

*All results have been normalized to 100% on a dry weight basis.*

| *Fuel Gas Specifications* | | | | |
|---|---|---|---|---|
| Atomic Breakdown - (scf/lb) / % | | | *HHV Btu/lb* | 5469 |
| *Carbon ( C )* | 27.5 | | *LHV Btu/lb* | 4924 |
| *Hydrogen ( H )* | 5.8 | | *HHV Btu/dscf* | 392 |
| *Oxygen ( O )* | 30.2 | | *LHV Btu/dscf* | 353 |
| *Nitrogen ( N )* | 36.5 | | *F-Factor* | 9907 |
| *Helium ( He )* | 0.00 | | *Specific Gravity* | 0.9398 |
| *Argon ( Ar )* | 0.00 | | *C2-C6+ Weight %* | 0.0400 |
| *Sulfur ( S )* | 0.00 | | *MW lb/lb-mole* | 27.218 |

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 02/12/2015
Analyst : DJ
Units : ppmv

Instrument ID : FID #3
Calb Date : 09/05/14
Reporting Limit : 0.5 ppmv

I - Opening Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 100.0 | 102.5 | 103.6 | 104.5 | 105.0 | 103.2 |
| | % Rec * | 102.4 | 103.5 | 103.9 | 105.5 | 106.0 | 103.8 |

II - Method Blank - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | LCS Result | 102.2 | 104.5 | 106.2 | 107.4 | 108.0 | 106.6 |
| | LCSD Result | 100.6 | 102.7 | 104.5 | 105.6 | 106.3 | 104.8 |
| | LCS % Rec * | 104.6 | 105.5 | 106.5 | 108.4 | 109.0 | 107.2 |
| | LCSD % Rec * | 103.0 | 103.7 | 104.8 | 106.7 | 107.2 | 105.4 |
| | % RPD *** | 1.6 | 1.7 | 1.6 | 1.6 | 1.6 | 1.7 |

IV - Sample & Sample Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150133-77217 | Sample | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Sample Dup | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Mean | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | % RPD *** | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

V - Matrix Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150133-77217 | Sample Conc | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 48.8 | 49.5 | 49.9 | 49.5 | 49.6 | 49.7 |
| | MS Result | 51.7 | 51.8 | 52.3 | 52.5 | 52.8 | 51.9 |
| | MSD Result | 52.3 | 52.8 | 53.4 | 54.1 | 54.3 | 53.4 |
| | MS % Rec ** | 104.1 | 104.6 | 105.0 | 106.1 | 106.5 | 104.3 |
| | MSD % Rec ** | 105.4 | 106.5 | 107.2 | 109.2 | 109.6 | 107.3 |
| | % RPD *** | 1.3 | 1.9 | 2.1 | 3.0 | 2.9 | 2.8 |

VI - Closing Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 100.9 | 102.7 | 104.1 | 105.2 | 105.3 | 104.1 |
| | % Rec * | 103.3 | 103.7 | 104.4 | 106.2 | 106.3 | 104.7 |

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

*ND = Not Detected*

*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*
**SCAQMD 307.91**

**Date Analyzed:** 2/12/2015
**Analyst:** ZB

**Instrument ID:** SCD#10
**Calb. Date:** 10/20/2014

**Opening Calibration Verification Standard**

| | Resp. (area) | Result (ppbV) | % Rec * | % RPD **** |
|---|---|---|---|---|
| Initial | 14939 | 491 | 98.2 | NA |
| Duplicate | 15602 | 513 | 102.6 | 4.3 |
| Triplicate | 15460 | 508 | 101.6 | 3.4 |

**Method Blank**

| Analyte | Result |
|---|---|
| H2S | ND |

**Duplicate Analysis** **Sample ID** 150135-77221 x100

| Analyte | Sample Result | Duplicate Result | Mean | % RPD *** |
|---|---|---|---|---|
| H2S | 121662.5 | 121821.2 | 121741.9 | 0.1 |

**Matrix Spike & Duplicate** **Sample ID** 150135-77221 x200

| Analyte | Sample Conc. | Spike Added | MS Result | MSD Result | MS % Rec ** | MSD % Rec ** | % RPD *** |
|---|---|---|---|---|---|---|---|
| H2S | 608.7 | 250.0 | 900.7 | 824.7 | 104.9 | 96.0 | 8.8 |

**Closing Calibration Verification Standard**

| Analyte | Std. Conc. | Result (ppbV) | % Rec ** |
|---|---|---|---|
| H2S | 500.0 | 500.7 | 100.1 |

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** Must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director



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# Chain of Custody / Analysis Request Form

**Atmospheric Analysis & Consulting, Inc.**
1534 Eastman Avenue, Suite A
Ventura, CA 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-Mail: info@aaclab.com

AAC Project No. 150136 Page ____ of ____

| **Client Name** | **Project Name** | **Analysis** | **Sent Results to:** |
|---|---|---|---|
| Ventura Regional Sanitation District | Oxnard Landfills - GHG | | David Thomas |
| **Project Mgr** | **Project Number** | | 3500 Toland Road |
| David Thomas (805) 658-4672 | 400801, 400803 | | Santa Paula, CA 93060 |
| **Samplers Name (Print)** DAVID THOMAS | **Samplers Signature** David F Thomas | | (805) 658-4672 |

| Sample Number | Date | Time | Type | Client Sample ID/Description | Type/No. Containers | D3588-98 | | | | | | Comments: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2-11-15 | 13:00 | Gas | Oxnard GHG 77223 | T / 1 | X | | | | | | $H_2S$ = 4 |
| | | | | | | | | | | | | |
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**Flare :** 679 scfm

| | | | |
|---|---|---|---|
| **Relinquished By (Signature)** David F Thomas | **(Print Name)** DAVID THOMAS | **Date** 2-11-15 | **Time** 13:20 |
| **Received By (Signature)** | **(Print Name)** Marcus Hoppe | **Date** 2-11-15 | **Time** 1:20pm |

# Atmospheric Analysis & Consulting, Inc.

| | |
|---|---|
| CLIENT | : Ventura Regional Sanitation District |
| PROJECT NAME | : Oxnard Landfills – GHG |
| PROJECT NO. | : 400801, 400803 |
| AAC PROJECT NO. | : 150978 |
| REPORT DATE | : 8/7/2015 |

On August 5, 2015, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for BTU analysis by ASTM D-3588. Upon receipt, the sample was assigned a unique Laboratory ID number as follows:

| Client ID | Lab No. |
|---|---|
| Oxnard GHG | 150978-81446 |

ASTM D-3588 Analysis – Up to a 1 mL aliquot of sample is injected into the GC/SCD/FID/TCD for analysis following ASTM D-3588 as specified in the SOW.

No problems were encountered during receiving, preparation, and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-3588.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 7 pages.



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# Atmospheric Analysis & Consulting, Inc.

## *Laboratory Analysis Report*
## *ASTM-D3588 (BTU and F-Factor)*

**CLIENT** Ventura Regional Sanitation District
**PROJECT NO.** 150978

**SAMPLING DATE** 8/5/2015
**ANALYSIS DATE** 8/6/2015

| | Client ID: | Oxnard GHG | |
|---|---|---|---|
| | AAC ID: | 150978-81446 | |
| | Component | Mole % | Weight % |
| FIXED GASES | $H_2$ | 0.00 | 0.00 |
| | $O_2$ | 2.23 | 2.47 |
| | $N_2$ | 39.59 | 38.40 |
| | CO | 0.00 | 0.00 |
| | $CO_2$ | 27.66 | 42.15 |
| | $CH_4$ | 30.51 | 16.94 |
| | He | NM | NM |
| | Ar | NM | NM |
| HYDROCARBONS | $C_2$ (as Ethane) | 0.0003 | 0.0003 |
| | $C_3$ (as Propane) | 0.0010 | 0.0016 |
| | $C_4$ (as Butane) | 0.0006 | 0.0013 |
| | $C_5$ (as Pentane) | 0.0002 | 0.0004 |
| | $C_6$ (as Hexane) | 0.0002 | 0.0006 |
| | $C_{6+}$ (as Hexane) | 0.0090 | 0.0269 |
| TRS | TRS as H2S | 0.0010 | 0.0012 |
| H2O | Moisture content | NM | NM |

***All results have been normalized to 100% on a dry weight basis.***

| *Fuel Gas Specifications* | | | | |
|---|---|---|---|---|
| Atomic Breakdown - (scf/lb) / % | | | *HHV Btu/lb* | 4055 |
| *Carbon ( C )* | 24.2 | | *LHV Btu/lb* | 3651 |
| *Hydrogen ( H )* | 4.3 | | *HHV Btu/dscf* | 309 |
| *Oxygen ( O )* | 33.1 | | *LHV Btu/dscf* | 278 |
| *Nitrogen ( N )* | 38.4 | | *F-Factor* | 10532 |
| *Helium ( He )* | 0.00 | | *Specific Gravity* | 0.9973 |
| *Argon ( Ar )* | 0.00 | | *C2-C6+ Weight %* | 0.0311 |
| *Sulfur ( S )* | 0.00 | | *MW lb/lb-mole* | 28.882 |

Marcus Hueppe
Laboratory Director



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Atmospheric Analysis & Consulting, Inc.

# *LABORATORY ANALYSIS REPORT*

## *Total Reduced Sulfur Compounds Analysis by SCAQMD 307.91*

**CLIENT** Ventura Regional Sanitation District
**PROJECT NO.** 150978

**SAMPLING DATE** 8/5/2015
**ANALYSIS DATE** 8/5/2015

| Client ID | Oxnard GHG |
|---|---|
| AAC ID | 150978-81446 |
| Analyte | Result |
| Hydrogen Sulfide | **9.29 ppmv** |
| Carbonyl Sulfide | **0.053 ppmv** |
| Sulfur Dioxide | < 0.050 ppmv |
| Carbon Disulfide | < 0.050 ppmv |
| Total Inorganic Sulfur | **9.34 ppmv** |

| | |
|---|---|
| Methyl Mercaptan | **0.105 ppmv** |
| Ethyl Mercaptan | < 0.050 ppmv |
| Isopropyl Mercaptan | < 0.050 ppmv |
| sec-Butyl Mercaptan | < 0.050 ppmv |
| tert-Butyl Mercaptan | < 0.050 ppmv |
| n-Propyl Mercaptan | < 0.050 ppmv |
| iso-Butyl Mercaptan | < 0.050 ppmv |
| n-Butyl Mercaptan | < 0.050 ppmv |
| n-Pentyl Mercaptan | < 0.050 ppmv |
| n-Hexyl Mercaptan | < 0.050 ppmv |
| n-Heptyl Mercaptan | < 0.050 ppmv |
| n-Octyl Mercaptan | < 0.050 ppmv |
| Total Mercaptans | **0.105 ppmv** |

| | |
|---|---|
| Thiophene | < 0.050 ppmv |
| Tetrahydrothiophene | < 0.050 ppmv |
| 2-Methylthiophene | < 0.050 ppmv |
| 3-Methylthiophene | < 0.050 ppmv |
| 2,5-Dimethyl Thiophene | < 0.050 ppmv |
| 2-Ethyl Thiophene | < 0.050 ppmv |
| 2-Propyl Thiophene | < 0.050 ppmv |
| 2-Butyl Thiophene | < 0.050 ppmv |
| Bromothiophene | < 0.050 ppmv |
| Benzothiophene | < 0.050 ppmv |
| Total Thiophenes | < 0.050 ppmv |

| | |
|---|---|
| Dimethyl Sulfide | **0.154 ppmv** |
| Methylethylsulfide | < 0.050 ppmv |
| Diethyl Sulfide | < 0.050 ppmv |
| Phenyl Sulfide | < 0.050 ppmv |
| Total Organic Sulfides | **0.154 ppmv** |

| | |
|---|---|
| Dimethyl Disulfide | **0.076 ppmv** |
| Diethyl disulfide | < 0.050 ppmv |
| Total Organic Disulfides | **0.076 ppmv** |

| | |
|---|---|
| Total Unidentified Sulfur | < 0.050 ppmv |
| Total Reduced Sulfur | **9.62 ppmv** |

***All compound's concentrations expressed in terms of $H_2S$***
***Total Reduced Sulfur (TRS) does not include COS and SO2***

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 08/06/2015
Analyst : DJ
Units : %

Instrument ID : TCD#1
Calb Date : 06/01/2015
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | Result | 9.4 | 9.9 | 19.0 | 11.5 | 10.0 | 9.6 |
| | % Rec * | 99.2 | 96.3 | 94.9 | 112.5 | 98.6 | 93.7 |

II - Method Blank - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | LCS Result | 9.6 | 9.3 | 18.3 | 10.7 | 9.2 | 8.8 |
| | LCSD Result | 8.5 | 9.1 | 17.6 | 10.9 | 9.2 | 8.9 |
| | LCS % Rec * | 101.5 | 90.8 | 91.3 | 104.7 | 90.7 | 86.4 |
| | LCSD % Rec * | 89.9 | 89.0 | 88.0 | 106.2 | 90.7 | 87.0 |
| | % RPD *** | 12.1 | 2.0 | 3.7 | 1.4 | 0.0 | 0.6 |

IV - Sample & Sample Duplicate - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| 150926-81120 | Sample | 0.0 | 6.5 | 44.0 | 6.3 | 0.0 | 0.0 |
| | Sample Dup | 0.0 | 6.6 | 44.1 | 6.4 | 0.0 | 0.0 |
| | Mean | 0.0 | 6.5 | 44.0 | 6.3 | 0.0 | 0.0 |
| | % RPD *** | 0.0 | 0.6 | 0.4 | 1.0 | 0.0 | 0.0 |

V - Matrix Spike & Duplicate - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|
| 150926-81120 | Sample Conc | 0.0 | 22.0 | 3.2 | 0.0 | 0.0 |
| | Spike Conc | 9.5 | 9.2 | 10.2 | 10.1 | 10.2 |
| | MS Result | 9.6 | 30.8 | 14.1 | 9.8 | 9.5 |
| | MSD Result | 9.0 | 30.9 | 14.2 | 9.8 | 9.5 |
| | MS % Rec ** | 100.9 | 95.5 | 107.1 | 96.7 | 92.8 |
| | MSD % Rec ** | 95.2 | 96.8 | 108.0 | 96.8 | 93.0 |
| | % RPD *** | 5.9 | 1.4 | 0.9 | 0.0 | 0.2 |

VI - Closing Continuing Calibration Verification - ASTM D-1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.0 | 10.2 | 10.1 | 10.2 |
| | Result | 9.0 | 9.6 | 18.2 | 11.3 | 9.8 | 9.5 |
| | % Rec * | 94.8 | 93.8 | 90.8 | 111.0 | 96.9 | 93.1 |

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
*ND = Not Detected*
*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 08/06/2015
Analyst : DJ
Units : ppmv

Instrument ID : FID #3
Calb Date : 09/05/14
Reporting Limit : 0.5 ppmv

**I - Opening Continuing Calibration Verification - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 91.7 | 92.6 | 93.9 | 94.7 | 95.1 | 94.0 |
| | % Rec * | 93.8 | 93.5 | 94.1 | 95.6 | 95.9 | 94.6 |

**II - Method Blank - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

**III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | LCS Result | 92.6 | 94.4 | 95.9 | 96.9 | 97.3 | 96.4 |
| | LCSD Result | 94.8 | 96.9 | 98.3 | 99.1 | 99.7 | 98.6 |
| | LCS % Rec * | 94.8 | 95.3 | 96.2 | 97.8 | 98.2 | 96.9 |
| | LCSD % Rec * | 97.1 | 97.8 | 98.6 | 100.1 | 100.6 | 99.2 |
| | % RPD *** | 2.4 | 2.6 | 2.5 | 2.3 | 2.4 | 2.3 |

**IV - Sample & Sample Duplicate - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150977-81445 | Sample | NA | 0.0 | 34.1 | 6.3 | 2.3 | 1.9 |
| | Sample Dup | NA | 0.0 | 32.2 | 6.0 | 2.2 | 1.8 |
| | Mean | NA | 0.0 | 33.1 | 6.2 | 2.3 | 1.8 |
| | % RPD *** | NA | 0.0 | 5.6 | 4.1 | 5.7 | 5.9 |

**V - Matrix Spike & Duplicate - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 150977-81445 | Sample Conc | NA | 0.0 | 16.6 | 3.1 | 1.1 | 0.9 |
| | Spike Conc | NA | 49.5 | 49.9 | 49.5 | 49.6 | 49.7 |
| | MS Result | NA | 52.5 | 65.9 | 52.9 | 50.9 | 50.3 |
| | MSD Result | NA | 52.2 | 65.4 | 52.2 | 50.3 | 49.4 |
| | MS % Rec ** | NA | 106.0 | 99.0 | 100.6 | 100.5 | 99.4 |
| | MSD % Rec ** | NA | 105.5 | 98.0 | 99.2 | 99.2 | 97.6 |
| | % RPD *** | NA | 0.5 | 1.1 | 1.4 | 1.4 | 1.8 |

**VI - Closing Continuing Calibration Verification - ASTM D-1945/1946**

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 97.7 | 99.1 | 99.7 | 99.0 | 99.1 | 99.4 |
| | Result | 97.8 | 99.0 | 100.7 | 101.3 | 101.2 | 99.2 |
| | % Rec * | 100.1 | 100.0 | 101.0 | 102.3 | 102.1 | 99.8 |

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

*ND = Not Detected*

*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*
**SCAQMD 307.91**

**Date Analyzed:** 8/5/2015
**Analyst:** ZB

**Instrument ID:** SCD#10
**Calb. Date:** 5/4/2015

**Opening Calibration Verification Standard**

| | Resp. (area) | Result (ppbV) | % Rec * | % RPD **** |
|---|---|---|---|---|
| Initial | 4327 | 481 | 96.2 | NA |
| Duplicate | 4304 | 478 | 95.6 | 0.5 |
| Triplicate | 4289 | 477 | 95.3 | 0.9 |

**Method Blank**

| Analyte | Result |
|---|---|
| H2S | ND |

**Duplicate Analysis** **Sample ID** 150969-81373 x2k

| Analyte | Sample Result | Duplicate Result | Mean | % RPD *** |
|---|---|---|---|---|
| H2S | 1436500.8 | 1496968.0 | 1466734.4 | 4.1 |

**Matrix Spike & Duplicate** **Sample ID** 150969-81373 x4k

| Analyte | Sample Conc. | Spike Added | MS Result | MSD Result | MS % Rec ** | MSD % Rec ** | % RPD *** |
|---|---|---|---|---|---|---|---|
| H2S | 366.7 | 250.0 | 579.7 | 610.6 | 94.0 | 99.0 | 5.2 |

**Closing Calibration Verification Standard**

| Analyte | Std. Conc. | Result (ppbV) | % Rec ** |
|---|---|---|---|
| H2S | 500.0 | 488.9 | 97.8 |

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** Must be < 5% RPD from Initial result.*

**Marcus Hueppe**
**Laboratory Director**



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# Chain of Custody / Analysis Request Form

**Atmospheric Analysis & Consulting, Inc.**
1534 Eastman Avenue, Suite A
Ventura, CA 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-Mail: info@aaclab.com

AAC Project No. 150978 Page ____ of ____

| Client Name | Project Name | Analysis | Sent Results to: |
|---|---|---|---|
| Ventura Regional Sanitation District | Oxnard Landfills - GHG | | David Thomas |
| **Project Mgr** | **Project Number** | | 3500 Toland Road |
| David Thomas (805) 658-4672 | 400801, 400803 | | Santa Paula, CA 93060 |
| **Samplers Name (Print)** | **Samplers Signature** | | (805) 658-4672 |
| DAVID THOMAS | David F Thomas | | |

| Sample Number | Date | Time | Type | Client Sample ID/Description | Type/No. Containers | D3588-98 | | | | | | Comments: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.5.15 | 11:50 | Gas | Oxnard GHG | T / 1 | X | | S | F | 6 | | $H_2S$ = 6 |
| | | | | | | | | | | | | |
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**Flare :** 800 scfm

| | | | |
|---|---|---|---|
| **Relinquished By (Signature)** David F Thomas | **(Print Name)** DAVID THOMAS | **Date** 8.5.15 | **Time** 12:20 |
| **Received By (Signature)** | **(Print Name)** Jose Heredia | **Date** 8/5/15 | **Time** 1217 |

# Atmospheric Analysis & Consulting, Inc.

| | |
|---|---|
| CLIENT | : Ventura Regional Sanitation District |
| PROJECT NAME | : Oxnard Landfills – GHG |
| PROJECT NO. | : 400801, 400803 |
| AAC PROJECT NO. | : 151488 |
| REPORT DATE | : 11/3/2015 |

On November 2, 2015, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for BTU analysis by ASTM D-3588. Upon receipt, the sample was assigned a unique Laboratory ID number as follows:

| Client ID | Lab No. |
|---|---|
| Oxnard GHG | 151488-84248 |

ASTM D-3588 Analysis – Up to a 1 mL aliquot of sample is injected into the GC/SCD/FID/TCD for analysis following ASTM D-3588 as specified in the SOW.

No problems were encountered during receiving, preparation, and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-3588.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 7 pages.



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# Atmospheric Analysis & Consulting, Inc.

## *Laboratory Analysis Report*
## *ASTM-D3588 (BTU and F-Factor)*

**CLIENT** Ventura Regional Sanitation District
**PROJECT NO.** 151488

**SAMPLING DATE** 11/2/2015
**ANALYSIS DATE** 11/2-3/2015

| | Client ID: | Oxnard GHG | |
|---|---|---|---|
| | AAC ID: | 151488-84248 | |
| | Component | Mole % | Weight % |
| FIXED GASES | $H_2$ | 0.00 | 0.00 |
| | $O_2$ | 1.39 | 1.58 |
| | $N_2$ | 33.72 | 33.53 |
| | CO | 0.00 | 0.00 |
| | $CO_2$ | 28.14 | 43.95 |
| | $CH_4$ | 36.74 | 20.92 |
| | He | NM | NM |
| | Ar | NM | NM |
| HYDROCARBONS | $C_2$ (as Ethane) | 0.0004 | 0.0004 |
| | $C_3$ (as Propane) | 0.0012 | 0.0019 |
| | $C_4$ (as Butane) | 0.0008 | 0.0016 |
| | $C_5$ (as Pentane) | 0.0002 | 0.0004 |
| | $C_6$ (as Hexane) | 0.0002 | 0.0006 |
| | $C_{6+}$ (as Hexane) | 0.0095 | 0.0291 |
| TRS | TRS as H2S | 0.0010 | 0.0012 |
| H2O | Moisture content | NM | NM |

*All results have been normalized to 100% on a dry weight basis.*

| *Fuel Gas Specifications* | | | | |
|---|---|---|---|---|
| Atomic Breakdown - (scf/lb) / % | | | *HHV Btu/lb* | 5004 |
| *Carbon ( C )* | 27.7 | | *LHV Btu/lb* | 4506 |
| *Hydrogen ( H )* | 5.3 | | *HHV Btu/dscf* | 372 |
| *Oxygen ( O )* | 33.5 | | *LHV Btu/dscf* | 335 |
| *Nitrogen ( N )* | 33.5 | | *F-Factor* | 10146 |
| *Helium ( He )* | 0.00 | | *Specific Gravity* | 0.9730 |
| *Argon ( Ar )* | 0.00 | | *C2-C6+ Weight %* | 0.0341 |
| *Sulfur ( S )* | 0.00 | | *MW lb/lb-mole* | 28.178 |

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

## *LABORATORY ANALYSIS REPORT*

***Total Reduced Sulfur Compounds Analysis by SCAQMD 307.91***

**CLIENT** **Ventura Regional Sanitation District** **SAMPLING DATE** **11/2/2015**
**PROJECT NO.** **151488** **ANALYSIS DATE** **11/2/2015**

| Client ID | Oxnard GHG |
|---|---|
| AAC ID | 151488-84248 |
| Analyte | Result |
| Hydrogen Sulfide | **9.47 ppmv** |
| Carbonyl Sulfide | < 0.050 ppmv |
| Sulfur Dioxide | < 0.050 ppmv |
| Carbon Disulfide | < 0.050 ppmv |
| Total Inorganic Sulfur | **9.47 ppmv** |

| | |
|---|---|
| Methyl Mercaptan | **0.115 ppmv** |
| Ethyl Mercaptan | < 0.050 ppmv |
| Isopropyl Mercaptan | < 0.050 ppmv |
| sec-Butyl Mercaptan | < 0.050 ppmv |
| tert-Butyl Mercaptan | < 0.050 ppmv |
| n-Propyl Mercaptan | < 0.050 ppmv |
| iso-Butyl Mercaptan | < 0.050 ppmv |
| n-Butyl Mercaptan | < 0.050 ppmv |
| n-Pentyl Mercaptan | < 0.050 ppmv |
| n-Hexyl Mercaptan | < 0.050 ppmv |
| n-Heptyl Mercaptan | < 0.050 ppmv |
| n-Octyl Mercaptan | < 0.050 ppmv |
| Total Mercaptans | **0.115 ppmv** |

| | |
|---|---|
| Thiophene | < 0.050 ppmv |
| Tetrahydrothiophene | < 0.050 ppmv |
| 2-Methylthiophene | < 0.050 ppmv |
| 3-Methylthiophene | < 0.050 ppmv |
| 2,5-Dimethyl Thiophene | < 0.050 ppmv |
| 2-Ethyl Thiophene | < 0.050 ppmv |
| 2-Propyl Thiophene | < 0.050 ppmv |
| 2-Butyl Thiophene | < 0.050 ppmv |
| Bromothiophene | < 0.050 ppmv |
| Benzothiophene | < 0.050 ppmv |
| Total Thiophenes | < 0.050 ppmv |

| | |
|---|---|
| Dimethyl Sulfide | **0.109 ppmv** |
| Methylethylsulfide | < 0.050 ppmv |
| Diethyl Sulfide | < 0.050 ppmv |
| Phenyl Sulfide | < 0.050 ppmv |
| Total Organic Sulfides | **0.109 ppmv** |

| | |
|---|---|
| Dimethyl Disulfide | < 0.050 ppmv |
| Diethyl disulfide | < 0.050 ppmv |
| Total Organic Disulfides | < 0.050 ppmv |

| | |
|---|---|
| Total Unidentified Sulfur | < 0.050 ppmv |
| Total Reduced Sulfur | **9.69 ppmv** |

***All compound's concentrations expressed in terms of $H_2S$***
***Total Reduced Sulfur (TRS) does not include COS and SO2***

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 11/03/2015
Analyst : DJ
Units : %

Instrument ID : TCD#1
Calb Date : 06/01/2015
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.1 | 10.2 | 10.1 | 10.2 |
| | Result | 9.7 | 9.7 | 20.4 | 10.5 | 10.0 | 10.1 |
| | % Rec * | 101.9 | 94.0 | 101.1 | 103.2 | 98.7 | 99.2 |

II - Method Blank - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 9.5 | 10.3 | 20.1 | 10.2 | 10.1 | 10.2 |
| | LCS Result | 9.3 | 9.3 | 18.6 | 10.6 | 9.9 | 10.0 |
| | LCSD Result | 9.3 | 8.9 | 18.5 | 10.2 | 9.4 | 9.6 |
| | LCS % Rec * | 98.1 | 90.8 | 92.2 | 103.6 | 98.3 | 97.8 |
| | LCSD % Rec * | 97.7 | 86.1 | 91.7 | 99.7 | 93.3 | 93.7 |
| | % RPD *** | 0.3 | 5.4 | 0.5 | 3.8 | 5.2 | 4.3 |

IV - Sample & Sample Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| 151485-84237 | Sample | 0.0 | 3.3 | 42.4 | 5.6 | 0.0 | 0.0 |
| | Sample Dup | 0.0 | 3.3 | 42.4 | 5.7 | 0.0 | 0.0 |
| | Mean | 0.0 | 3.3 | 42.4 | 5.7 | 0.0 | 0.0 |
| | % RPD *** | 0.0 | 0.0 | 0.1 | 1.6 | 0.0 | 0.0 |

V - Matrix Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|
| 151485-84237 | Sample Conc | 0.0 | 21.2 | 2.8 | 0.0 | 0.0 |
| | Spike Conc | 9.5 | 9.9 | 10.2 | 10.1 | 10.2 |
| | MS Result | 9.2 | 30.2 | 13.2 | 9.7 | 9.9 |
| | MSD Result | 9.5 | 31.8 | 13.5 | 10.1 | 10.3 |
| | MS % Rec ** | 97.3 | 90.9 | 101.4 | 96.3 | 96.6 |
| | MSD % Rec ** | 100.5 | 106.1 | 104.2 | 100.4 | 101.0 |
| | % RPD *** | 3.3 | 15.5 | 2.7 | 4.1 | 4.4 |

VI - Closing Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | $H_2$ | $O_2$ | $N_2$ | $CO_2$ | $CH_4$ | CO |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 9.5 | 10.3 | 20.1 | 10.2 | 10.1 | 10.2 |
| | Result | 9.2 | 9.5 | 18.6 | 10.3 | 9.6 | 9.8 |
| | % Rec * | 97.3 | 92.6 | 92.2 | 101.0 | 95.2 | 95.9 |

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
*ND = Not Detected*
*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*

Date Analyzed : 11/02/2015
Analyst : DJ
Units : ppmv

Instrument ID : FID #3
Calb Date : 09/05/14
Reporting Limit : 0.5 ppmv

I - Opening Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 102.0 | 98.6 | 95.2 | 100.8 | 99.6 | 98.8 |
| | Result | 100.9 | 98.3 | 90.6 | 103.7 | 101.3 | 99.3 |
| | % Rec * | 98.9 | 99.7 | 95.1 | 102.9 | 101.7 | 100.5 |

II - Method Blank - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| MB | Concentration | ND | ND | ND | ND | ND | ND |

III - Laboratory Control Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| Lab Control Standards | Sample Conc | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 102.0 | 98.6 | 95.2 | 100.8 | 99.6 | 98.8 |
| | LCS Result | 103.8 | 101.2 | 92.8 | 106.2 | 103.9 | 101.5 |
| | LCSD Result | 104.1 | 101.3 | 93.4 | 107.1 | 104.9 | 102.7 |
| | LCS % Rec * | 101.8 | 102.7 | 97.5 | 105.4 | 104.3 | 102.7 |
| | LCSD % Rec * | 102.0 | 102.7 | 98.1 | 106.2 | 105.3 | 103.9 |
| | % RPD *** | 0.3 | 0.0 | 0.6 | 0.8 | 0.9 | 1.2 |

IV - Sample & Sample Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 151451-84090 | Sample | 9.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Sample Dup | 8.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Mean | 9.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | % RPD *** | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

V - Matrix Spike & Duplicate - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| 151451-84090 | Sample Conc | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Spike Conc | 51.0 | 49.3 | 47.6 | 50.4 | 49.8 | 49.4 |
| | MS Result | 56.3 | 51.1 | 47.0 | 53.6 | 52.5 | 51.4 |
| | MSD Result | 56.4 | 51.6 | 47.6 | 54.4 | 53.3 | 52.4 |
| | MS % Rec ** | 101.3 | 103.6 | 98.7 | 106.3 | 105.4 | 104.1 |
| | MSD % Rec ** | 101.6 | 104.7 | 100.1 | 108.0 | 107.1 | 106.1 |
| | % RPD *** | 0.3 | 1.1 | 1.3 | 1.5 | 1.6 | 1.9 |

VI - Closing Continuing Calibration Verification - ASTM D-1945/1946

| AAC ID | Analyte | Methane | Ethane | Propane | Butane | Pentane | Hexane |
|---|---|---|---|---|---|---|---|
| CCV | Spike Conc | 102.0 | 98.6 | 95.2 | 100.8 | 99.6 | 98.8 |
| | Result | 102.8 | 100.0 | 91.9 | 105.4 | 103.0 | 100.7 |
| | % Rec * | 100.8 | 101.4 | 96.5 | 104.6 | 103.4 | 101.9 |

** Must be 85-115%*

*** Must be 75-125%*

**** Must be < 25%*

*ND = Not Detected*

*<RL = less than Reporting Limit*

Marcus Hueppe
Laboratory Director



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# Atmospheric Analysis & Consulting, Inc.

*Quality Control/Quality Assurance Report*
**SCAQMD 307.91**

**Date Analyzed:** 11/2/2015
**Analyst:** ZB

**Instrument ID:** SCD#10
**Calb. Date:** 5/4/2015

**Opening Calibration Verification Standard**

| | Resp. (area) | Result (ppbV) | % Rec * | % RPD **** |
|---|---|---|---|---|
| Initial | 4519 | 502 | 100.4 | NA |
| Duplicate | 4500 | 500 | 100.0 | 0.4 |
| Triplicate | 4534 | 504 | 100.8 | 0.3 |

**Method Blank**

| Analyte | Result |
|---|---|
| H2S | ND |

**Duplicate Analysis** Sample ID 151486-84241 x2k

| Analyte | Sample Result | Duplicate Result | Mean | % RPD *** |
|---|---|---|---|---|
| H2S | 2349952.2 | 2206103.7 | 2278028.0 | 6.3 |

**Matrix Spike & Duplicate** Sample ID 151486-84241 x4k

| Analyte | Sample Conc. | Spike Added | MS Result | MSD Result | MS % Rec ** | MSD % Rec ** | % RPD *** |
|---|---|---|---|---|---|---|---|
| H2S | 569.5 | 250.0 | 840.2 | 821.7 | 102.5 | 100.3 | 2.2 |

**Closing Calibration Verification Standard**

| Analyte | Std. Conc. | Result (ppbV) | % Rec ** |
|---|---|---|---|
| H2S | 500.0 | 497.2 | 99.4 |

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** Must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director



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# Chain of Custody / Analysis Request Form

**Atmospheric Analysis & Consulting, Inc.**
1534 Eastman Avenue, Suite A
Ventura, CA 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-Mail: info@aaclab.com

AAC Project No. 15488 Page ____ of ____

| Client Name | Project Name | Analysis | Sent Results to: |
|---|---|---|---|
| Ventura Regional Sanitation District | Oxnard Landfills - GHG | | David Thomas |
| **Project Mgr** | **Project Number** | | 3500 Toland Road |
| David Thomas (805) 658-4672 | 400801, 400803 | | Santa Paula, CA 93060 |
| **Samplers Name (Print)** | **Samplers Signature** | | (805) 658-4672 |
| DAVID THOMAS | David F Thomas | | |

| Sample Number | Date | Time | Type | Client Sample ID/Description | Type/No. Containers | D3588-98 | | | | | | Comments: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11-2-15 | 12:15 | Gas | Oxnard GHG 84258 | T / 1 | X | | | | | | $H_2S$ = 6 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |

**Flare :** 777 scfm

| | | | |
|---|---|---|---|
| **Relinquished By (Signature)** David F Thomas | **(Print Name)** DAVID THOMAS | **Date** 11-2-15 | **Time** 12:38 |
| **Received By (Signature)** | **(Print Name)** JOSE H | **Date** 11/2/15 | **Time** 12:38 |

# Attachment C

**VCAPCD Rule 50, Opacity**
**Annual Compliance Survey**

Survey Information:

By: David Thomas
Date: October 21, 2015
Time: 8:30 AM to 9:00 AM
Emissions Unit: Oxnard Landfill Flare

Verification: On the above date I observed no visible emissions (smoke) for a period or periods aggregating more than three (3) minutes during the time observed (0.5 hour).

David F Thomas

DAVID F. THOMAS – ENVIRONMENTAL RESOURCE ANALYST

**VCAPCD Rule 64.B.1, Sulfur Content**
**Annual Compliance Survey**

Survey Information:

By: David Thomas
Date: October 21, 2015
Time(s): 8:30 AM, 8:50 AM and 9:10 AM
Emissions Unit: Oxnard Landfills Flare #1

Verification: On the above date and times, three (3) Tedlar bag samples were collected and analyzed by Atmospheric Analysis & Consulting, Inc. Laboratory in Ventura, Ca. for hydrogen sulfide, and other compounds, at the 12" header leading to the Coastal Flare #1. These samples are part of the Coastal Flare 2015 Annual Methane Destruction Efficiency source testing requirement. The average hydrogen sulfide for the three samples (9.31, 9.26, and 8.52) is 9.03 ppm.

David F Thomas

DAVID F THOMAS – ENVIRONMENTAL RESOURCE ANALYST

# ATTACHMENT 2

# SEMI-ANNUAL STARTUP, SHUTDOWN AND MALFUNCTION PLAN REPORT FOR JULY 1, 2015 TO DECEMBER 31, 2015

Ventura County
Air Pollution
Control District

# RESPONSIBLE OFFICIAL'S CERTIFICATION FORM

Ventura County APCD Rule 33.9 requires that "*any document, including reports, schedule of compliance progress reports and compliance certifications, required by a Part 70 permit shall be certified by a responsible official.*" Therefore, this form shall be signed by the company's Responsible Official and submitted with all such reports, including, but not limited to semi-annual reports, deviation and emergency reports and any periodic reports required by a Part 70 permit. However, when submitting your Annual Compliance Certifications, please use the form titled Annual Compliance Certification Signature Cover Form.

Semi-annual reports, deviations and emergency reports and any periodic reports required by your Part 70 permit should be submitted to:

Daniel Cho
Air Quality Engineer
Ventura County Air Pollution Control District
669 County Square Drive
Ventura, CA 93003

**Certification by Responsible Official**

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document is true, accurate, and complete.

| Signature and Title of Responsible Official: | Date: |
|---|---|
| Signature: _____ | 2/16/16 |
| Title: Director of Operations | |

# Attachment 1:
# Description of all Malfunction Events

**For the Reporting Period 07/01/15 to 12/31/15**

Total Number of Malfunctions: 10

| Date of Malfunction | Total Duration (hours [H] Minutes [M]) | Equipment Affected* | Description of Malfunction | Were SSM Plan Procedures Followed (Y/N) | Date of SSM Plan Revision to Address Event** |
|---|---|---|---|---|---|
| 07/04/15 | 1h 16m | Flare | Low Temperature Permissive | Y | N/A |
| 07/09/15 | 2h 39m | Flare | Low Temperature Permissive | Y | N/A |
| 07/15/15 | 5h 7m | Flare | Low Temperature Permissive | Y | N/A |
| 07/25/15 | 1h 45m | Flare | Power Loss | Y | N/A |
| 08/09/15 | 0h 56m | Flare | Low Temperature Permissive | Y | N/A |
| 08/21/15 | 2h 47m | Flare | Loss of Flame at the Control Device | Y | N/A |
| 11/28/15 | 6h 1m | Flare | Loss of Flame at the Control Device | Y | N/A |
| 12/18/15 | 0h 27m | Flare | Loss of Flame at the Control Device | Y | N/A |
| 12/20/15 | 2h 17m | Flare | Loss of Flame at the Control Device | Y | N/A |
| 12/22/15 | 0h 11m | Flare | Loss of Flame at the Control Device | Y | N/A |

*Control Device, Continuous Monitoring System, or Collection System

**Not Applicable if SSM Plan Procedures were followed during the Malfunction Event

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/06/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 07/04/15 Time: Off 7:45 AM, On 9:01 AM

Duration: 1 hours 16 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 7:45 AM due to low temperature.

Provide description of corrective action:

The flare would not restart remotely, was restarted on site by Mark Potter and operating at temperature by 9:01 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/13/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 07/09/15 Time: Off 6:36 AM, On 9:15 AM

Duration: 2 hours 39 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 6:36 AM due to low temperature.

Provide description of corrective action:

The flare would not restart remotely, was restarted and operating at temperature by 9:15 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/16/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 07/15/15 Time: Off 6:45 AM, On 11:52 AM

Duration: 5 hours 7 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare shut down at 6:45 AM due to low combustion temperature. It did not restart automatically.

Provide description of corrective action:

The APCD Breakdown Line was called at 10:37 AM. Mark Potter sent a follow-up e-mail notification to Dan Searcy, Lyle Olsen, and Eric Wetherbee on 7-15-15 at 4:21 PM. The flare was restarted and operating at temperature by 11:52 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/27/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 07/22/15 thru 07-24-15 Time: Off 6:15 AM, On 3:13 PM

Duration: 56 hours 58 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare was shut down on July 22, 2015 at 6:15 AM to conduct equipment maintenance (replace several fatigued burner heads, install new flame ignitor, and install new propane solenoid valves).

Provide description of corrective action:

The flare was restarted and operating at temperature on July 24, 2015 by 3:13 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/27/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 07/25/15 Time: Off 2:15 PM, On 4:00 PM

Duration: 1 hours 45 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare shut down at 2:15 PM due to power grid fluctuations.

Provide description of corrective action:

The flare was restarted and operating at temperature by 4:00 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 07/29/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 07/29/15 Time: Off 1:01 AM, On 2:53 AM

Duration: 1 hours 52 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down at 1:01 PM for scheduled maintenance. ICS validating gas pressure switches.

Provide description of corrective action:

The flare was restarted and operating at temperature by 2:35 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 08/10/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 08/09/15 Time: Off 8:27 AM, On 9:23 AM

Duration: 0 hours 56 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 8:27 AM due to low combustion temperature.

Provide description of corrective action:

The flare was restarted at 9:23 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 08/24/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 08/21/15 Time: Off 10:29 AM, On 1:16 PM

Duration: 2 hours 47 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 10:29 AM due to loss of flame at the control device.

Provide description of corrective action:

The flare was restarted and at operating temperature by 1:16 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 08/28/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 08/26/15 Time: Off 5:45 AM, On 4:20 PM

Duration: 10 hours 35 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare was shutdown at 5:45 AM to cool off for a scheduled burner table inspection.

Provide description of corrective action:

An e-mail was sent to APCD informing of the shutdown on 8/25/15 at 11:35 PM by Mark Potter. The APCD Breakdown Line was also called @ 8:20 AM by Mark Potter. The flare was restarted and operating at temperature at 4:20 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 09/03/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 08/27/15 Time: Off 5:45 AM, On 4:40 PM

Duration: 10 hours 55 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare was shutdown at 5:45 AM to cool off for scheduled maintenace.

Provide description of corrective action:

An e-mail was sent to APCD informing of the shutdown on 8/25/15 at 11:35 PM by Mark Potter. The APCD Breakdown Line was also called @ 8:20 AM by Mark Potter. The flare was restarted and operating at temperature at 4:40 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 09/21/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 09/17/15 Time: Off 12:30 PM, On 1:39 PM

Duration: 1 hours 9 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down at 12:30 PM for scheduled maintenance. ICS installed cell modem.

Provide description of corrective action:

The flare was restarted and at operating temperature by 1:39 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 09/30/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 09/30/15 Time: Off 9:24 AM, On 12:00 PM

Duration: 2 hours 36 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down at 9:24 AM for scheduled maintenance. Eric with Ponton Industries making repairs to leaking FCI Flowmeter packing gland.

Provide description of corrective action:

The flare was restarted and operating at temperature by 12:00 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 11/16/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 11/11/15 Time: Off 9:01 AM, On 9:31 AM

Duration: 0 hours 30 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down at 9:01 AM to conduct scheduled maintenance. Remove 12" pneumatic valve from flare #2.

Provide description of corrective action:

The flare was restarted and at operating temperature by 9:31 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 11/16/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 11/11/15 Time: Off 11:11 AM, On 11:29 AM; 11:39 AM – 11:48 PM; 11:57 AM – 12:14 PM

Duration: 0 hours 44 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down multiple times during this time period, to conduct scheduled maintenance. The flare was shut down and restarted as identified above, totaling 44 minutes of non-operation. Maintenance activities included checking the rotation on new blower installed, and demolition of old electrical components on the old flare #2.

Provide description of corrective action:

The flare was restarted and at operating temperature by 12:14 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 11/18/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 11/18/15 Time: Off 7:48 AM, On 11:58 AM

Duration: 4 hours 10 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

The Coastal Flare was shut down at 7:48 AM for scheduled maintenance for the new blower cold alignment.

Provide description of corrective action:

The APCD Breakdown Line was call on 11/18/15 at 11:43 AM notifying of the shutdown. An e-mail followed on 11/19/15 at 10:47 AM. The flare was restarted and operating at temperature by 11:48 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 11/30/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 11/28/15 Time: Off 8:56AM, On 2:57 PM

Duration: 6 hours 1 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 8:56 AM due to loss of flame at the control device.

Provide description of corrective action:

APCD Breakdown line called at 9:02 AM. Air inlet modified by Mark P. to restrict air intake from the base of flare. The flare was restarted and at operating temperature by 2:57 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 12/03/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 12/03/15 Time: Off 7:47 AM - 7:59 AM; 8:40 AM – 10:51 AM

Duration: 2 hours 23 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 7:47 AM for scheduled maintenance on the new Blower No. 1 to check the balance and alignment.

Provide description of corrective action:

The flare was restarted and at operating temperature by 10:51 AMM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 12/18/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 12/14/16 thru 12/17/15 Time: Off 12/14/15 8:09 AM, On 12/17/15 3:17 PM

Duration: 79 hours 8 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down on 12/14/15 at 8:09 AM for scheduled maintenance: new flare controls installation, programming, and new gas collection system piping connections completed at Bailard Landfill.

Provide description of corrective action:

The flare was restarted on 12/17/15 and operating at temperature by 3:17 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 12/18/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 12/18/15 Time: Off 9:56 AM On 10:23 AM

Duration: 0 hours 27 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 9:56 AM due to loss of flame at the control device.

Provide description of corrective action:

The flare restarted and was operating at temperature by 10:23 AM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Ballard, Coastal, Santa Clara) Date Form Completed: 12/21/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 12/20/15 Time: Off 5:23 AM On 7:40.AM

Duration: 2 hours 17 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 5:23 AM due to loss of flame at the control device.

Provide description of corrective action:

The flare was restarted and operating at temperature by 7:40 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 12/28/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☐ Shutdown ☑ Malfunction

Date: 12/22/15 Time: Off 1:31 PM On 1:42 PM

Duration: 0 hours 11 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare shut down at 1:31 PM due to loss of flame at the control device.

Provide description of corrective action:

The flare restarted and operating at temperature by 1:42 AM/PM

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

# Startup, Shutdown, and Malfunction Plan Deviation Report

Facility: Oxnard Landfills (Bailard, Coastal, Santa Clara) Date Form Completed: 12/30/2015

Unit ID: Coastal Flare, LFG Collection System

Event: ☑ *appropriate box.*

☐ Startup ☑ Shutdown ☐ Malfunction

Date: 12/29/15 Time: Off 7:45 AM On 12:45 PM

Duration: 5 hours 0 minutes

Provide detailed explanation of the circumstance of the startup, shutdown, malfunction:

Coastal Flare was shut down at 7:45 AM for scheduled maintenance on the Bailard Landfill gas collection system.

Provide description of corrective action:

The APCD Breakdown Line was called (JW) on 12/29/15 at 11:15 AM and an e-mail sent (MP) at 3:07 PM. The flare was restarted and operating at temperature by 12:45 PM.

Describe the reasons the Startup, Shutdown, Malfunction Plan was not adequate:

n/a

Describe proposed revisions to the Startup, Shutdown, Malfunction Plan:

n/a

Were any excess emissions and/ or parameter monitoring exceedances believed to have occurred during the event:

☐ Yes ☑ No

Name: David F. Thomas

Title: Environmental Resource Analyst

Signature: David F Thomas

**ATTACHMENT 3**

**REPORT OF NEW WELLS ADDED**
**JULY 1, 2015 TO DECEMBER 31, 2015**

**No new wells were added between July 1, 2015 and December 31, 2015**

# ATTACHMENT 4

# SUPPLEMENTAL INFORMATION HISTORICALLY SUBMITTED WITH TITLE V COMPLIANCE CERTIFICATION

# Oxnard Landfills 2015

## Shut-In Wells

| Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|
| A-1W | A-1W | A-1W | A-1W | A-1W | A-1W |
| A-2LW | A-2LW | A-2LW | A-2LW | A-2LW | A-2LW |
| A-2RW | A-2RW | A-2RW | A-2RW | A-2RW | A-2RW |
| A-3LW | A-3LW | A-3LW | A-3LW | A-3LW | A-3LW |
| A-3RW | A-3RW | A-3RW | A-3RW | A-3RW | A-3RW |
| A-4L | A-4L | A-4L | A-4L | A-4L | A-4L |
| A-4N | A-4N | A-4N | A-4N | A-4N | A-4N |
| A-4R | A-4R | A-4R | A-4R | A-4R | A-4R |
| A-4RW | A-4RW | A-4RW | A-4RW | A-4RW | A-4RW |
| A-5LW | A-5LW | A-5LW | A-5LW | A-5LW | A-5LW |
| A-5RW | A-5RW | A-5RW | A-5RW | A-5RW | A-5RW |
| A-6LW | A-6LW | A-6LW | A-6LW | A-6LW | A-6LW |
| A-6RW | A-6RW | A-6RW | A-6RW | A-6RW | A-6RW |
| A-7LW | A-7LW | A-7LW | A-7LW | A-7LW | A-7LW |
| A-7RW | A-7RW | A-7RW | A-7RW | A-7RW | A-7RW |
| A-8LW | A-8LW | A-8LW | A-8LW | A-8LW | A-8LW |
| A-12W | A-12W | A-12W | A-12W | A-12W | A-12W |
| A-14W | A-14W | A-14W | A-14W | A-14W | A-14W |
| A-16W | A-16W | A-16W | A-16W | A-16W | A-16W |
| A-17N | A-17N | A-17N | A-17N | A-17N | A-17N |
| A-17W | A-17W | A-17W | A-17W | A-17W | A-17W |
| A-18N | A-18N | A-18N | A-18N | A-18N | A-18N |
| A-18W | A-18W | A-18W | A-18W | A-18W | A-18W |
| A-19N | A-19N | A-19N | A-19N | A-19N | A-19N |
| A-20N | A-20N | A-20N | A-20N | A-20N | A-20N |
| A-21V | A-21V | A-21V | A-21V | A-21V | A-21V |
| A-22N | A-22N | A-22N | A-22N | A-22N | A-22N |
| A-22V | A-22V | A-22V | A-22V | A-22V | A-22V |
| A-23N | A-23N | A-23N | A-23N | A-23N | A-23N |
| A-23V | A-23V | A-23V | A-23V | A-23V | A-23V |
| A-24N | A-24N | A-24N | A-24N | A-24N | A-24N |
| A-24N | A-24N | A-24N | A-24N | A-24N | A-24N |
| A-24W | A-24W | A-24W | A-24W | A-24W | A-24W |
| A-26W | A-26W | A-26W | A-26W | A-26W | A-26W |
| A-26W | A-26W | A-26W | A-26W | A-26W | A-26W |
| A-28N | A-28N | A-28N | A-28N | A-28N | A-28N |
| A-28W | A-28W | A-28W | A-28W | A-28W | A-28W |
| A-29N | A-29N | A-29N | A-29N | A-29N | A-29N |
| A-29W | A-29W | A-29W | A-29W | A-29W | A-29W |
| A-30N | A-30N | A-30N | A-30N | A-30N | A-30N |
| A-31N | A-31N | A-31N | A-31N | A-31N | A-31N |
| A-32N | A-32N | A-32N | A-32N | A-32N | A-32N |
| A-33N | A-33N | A-33N | A-33N | A-33N | A-33N |
| A-36N | A-36N | A-36N | A-36N | A-36N | A-36N |
| A-38N | A-38N | A-38N | A-38N | A-38N | A-38N |
| A-39N | A-39N | A-39N | A-39N | A-39N | A-39N |
| A-40N | A-40N | A-40N | A-40N | A-40N | A-40N |
| A-44N | A-44N | A-44N | A-44N | A-44N | A-44N |
| A-45W | A-45W | A-45W | A-45W | A-45W | A-45W |

# Oxnard Landfills 2015

## Shut-In Wells

| Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|
| B-1 | B-1 | B-1 | B-1 | B-1 | B-1 |
| B-3 | B-3 | B-3 | B-3 | B-3 | B-3 |
| B-4 | B-4 | B-4 | B-4 | B-4 | B-4 |
| B-5 | B-5 | B-5 | B-5 | B-5 | B-5 |
| B-6 | B-6 | B-6 | B-6 | B-6 | B-6 |
| B-7 | B-7 | B-7 | B-7 | B-7 | B-7 |
| B-8E | B-8E | B-8E | B-8E | B-8E | B-8E |
| B-10 | B-10 | B-10 | B-10 | B-10 | B-10 |
| B-11E | B-11E | B-11E | B-11E | B-11E | B-11E |
| B-12S | B-12S | B-12S | B-12S | B-12S | B-12S |
| B-13 | B-13 | B-13 | B-13 | B-13 | B-13 |
| B-14 | B-14 | B-14 | B-14 | B-14 | B-14 |
| B-15 | B-15 | B-15 | B-15 | B-15 | B-15 |
| B-16 | B-16 | B-16 | B-16 | B-16 | B-16 |
| B-17 | B-17 | B-17 | B-17 | B-17 | B-17 |
| B-17S | B-17S | B-17S | B-17S | B-17S | B-17S |
| B-18 | B-18 | B-18 | B-18 | B-18 | B-18 |
| B-19 | B-19 | B-19 | B-19 | B-19 | B-19 |
| B-20 | B-20 | B-20 | B-20 | B-20 | B-20 |
| B-21 | B-21 | B-21 | B-21 | B-21 | B-21 |
| B-22 | B-22 | B-22 | B-22 | B-22 | B-22 |
| B-23 | B-23 | B-23 | B-23 | B-23 | B-23 |
| B-26 | B-26 | B-26 | B-26 | B-26 | B-26 |
| B-27 | B-27 | B-27 | B-27 | B-27 | B-27 |
| B-28 | B-28 | B-28 | B-28 | B-28 | B-28 |
| B-29E | B-29E | B-29E | B-29E | B-29E | B-29E |
| B-31 | B-31 | B-31 | B-31 | B-31 | B-31 |
| B-32 | B-32 | B-32 | B-32 | B-32 | B-32 |
| C-3S | C-3S | C-3S | C-3S | C-3S | C-3S |
| C-5S | C-5S | C-5S | C-5S | C-5S | C-5S |
| C-6S | C-6S | C-6S | C-6S | C-6S | C-6S |
| C-17S | C-17S | C-17S | C-17S | C-17S | C-17S |
| C-18S | C-18S | C-18S | C-18S | C-18S | C-18S |
| C-19S | C-19S | C-19S | C-19S | C-19S | C-19S |
| C-20S | C-20S | C-20S | C-20S | C-20S | C-20S |
| ED-1 | ED-1 | ED-1 | ED-1 | ED-1 | ED-1 |
| ED-2 | ED-2 | ED-2 | ED-2 | ED-2 | ED-2 |
| ED-3 | ED-3 | ED-3 | ED-3 | ED-3 | ED-3 |
| ED-4 | ED-4 | ED-4 | ED-4 | ED-4 | ED-4 |
| ED-5 | ED-5 | ED-5 | ED-5 | ED-5 | ED-5 |
| ED-6 | ED-6 | ED-6 | ED-6 | ED-6 | ED-6 |
| EV-2 | EV-2 | EV-2 | EV-2 | EV-2 | EV-2 |
| EV-3 | EV-3 | EV-3 | EV-3 | EV-3 | EV-3 |
| EV-5 | EV-5 | EV-5 | EV-5 | EV-5 | EV-5 |
| EV-6 | EV-6 | EV-6 | EV-6 | EV-6 | EV-6 |
| EV-7 | EV-7 | EV-7 | EV-7 | EV-7 | EV-7 |
| EV-10 | EV-10 | EV-10 | EV-10 | EV-10 | EV-10 |
| EV-11 | EV-11 | EV-11 | EV-11 | EV-11 | EV-11 |
| EV-12 | EV-12 | EV-12 | EV-12 | EV-12 | EV-12 |
| S-2 | S-2 | S-2 | S-2 | S-2 | S-2 |
| S-5 | S-5 | S-5 | S-5 | S-5 | S-5 |
| S-6 | S-6 | S-6 | S-6 | S-6 | S-6 |

# Oxnard Landfills 2015

## Shut-In Wells

| Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|
| EBE00ED3 | EBE00ED3 | 308U0000 | EBE00ED3 | EBE00ED3 | WBE0A2LE |
| SC000W19 | SC000W21 | 310U0000 | SC000W21 | SC000W14 | WBE0A23E |
| SC000W21 | VC0000-3 | EBE00ED3 | VC0000-3 | SC000W19 | WBE0A3RE |
| VC0000-3 | VC000-10 | EBE00EV5 | VC0000-7 | SC000W24 | WBE0A33E |
| VC000-13 | VC000-14 | EBE00EV6 | VC0000-8 | VC0000-3 | WBE0A41E |
| VC000-17 | VC000-18 | EBT00BV8 | VC000-10 | VC0000-7 | WBE0A19E |
| VC000-18 | VC000-20 | SC000W19 | VC000-12 | VC0000-9 | WBE0A16E |
| VC000-19 | VC000-28 | SC000W24 | VC000-13 | VC000-11 | WBE0A27E |
| VC000-28 | WBE0A07R | VC0000-3 | VC000-15 | VC000-13 | WBE0A30E |
| WBE0A07R | WBE0A15E | VC000-13 | VC000-18 | VC000-17 | WBE0A15E |
| WBE0A15E | WBE0A25E | VC000-16 | VC000-19 | VC000-18 | WBE0A35E |
| WBE0A30E | WBE0A30E | VC000-17 | VC000-20 | VC000-19 | WBE0A26E |
| WBE0A35E | WBE0A33E | VC000-18 | VC000-28 | VC000-28 | WBE0A07L |
| WBE0A3RE | WBE0A35E | VC000-28 | VC00-103 | WBE0A07R | WBE0A07R |
| WBT0WAV4 | WBE0A3RE | WBE0A07R | WBE0A07R | WBE0A15E | WBE0A25E |
| WBTWAV06 | W8E0A9LE | WBE0A15E | WBE0A15E | WBE0A23E | WBE0A9LE |
| WBTWAV11 | WBT0WAV4 | WBE0A23E | WBE0A30E | WBE0A25E | |
| | WBT0WAV7 | WBE0A25E | WBE0A33E | WBE0A26E | |
| | WBT0WAV8 | WBE0A27E | WBE0A35E | WBE0A30E | |
| | WBTWAV11 | WBE0A30E | WBT0WAV4 | WBE0A35E | |
| | | WBE0A33E | WBT0WAV7 | WBE0A3RE | |
| | | WBE0A35E | WBT0WAV8 | WBE0A9LE | |
| | | WBT0WAV4 | WBTWAV09 | WBT0WAV4 | |
| | | WBT0WAV8 | WBTWAV11 | WBT0WAV7 | |
| | | | | | |
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| | | | | | |
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| | | | | | |

Surface Monitoring Log

Landfill: Bailard
Quarter: 3rd QTR 2015 Instantaneous Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Exceedences of 500 PPM methane (Instantaneous) | Remediation Date |
|---|---|---|---|---|
| 7/28/2015 | 07:00 AM - 12:07 PM | A1-A12, B1-B12, C1-C11, D1-D8, D11-D12, E1-E7, E10-E12, F1-F6, F9-F12, G1-G5, G9-G12, H1-H3, I1-I2, J1 | None | N/R |
| 7/29/2015 | 07:00 AM - 09:15 AM | F8, G7-G8, H6-H12, I6-I12, J4-J10, K3-K11, L1-L8, I5 | None | N/R |

Surface Monitoring Log

Landfill: Bailard
Quarter: 3rd QTR 2015 Integrated Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Methane (Integrated) | Remediation Date |
|---|---|---|---|---|
| 7/30/2015 | 07:00 AM - 11:14 AM | A5-A12, B5-B12, C5-C10, C12, D5-8, D-12, E6-E7, E12, F6, F12, G12, H12, I12, J10-J11, K10-K11 | <25 | N/R |
| 8/3/2015 | 07:00 AM - 12:05 PM | D11, E10-E11, F8-F11, G7-G11, H6-H11, I5-I11, J4-J9, K3-K9, L1-L8 | <25 | N/R |

Surface Monitoring Log

Landfill: Coastal
Quarter: 4th QTR 2015 Instantaneous Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Exceedences of 500 PPM methane (Instantaneous) | Remediation Date |
|---|---|---|---|---|
| 10/8/2015 | 8:15 AM - 10:33 AM | C2-C7, D2-D7, E2-E7, F2-F7, G2-G7, H2-H7 | None | |
| 10/9/2015 | 7:15 AM - 9:03 AM | A2-A8, B1-B8, C1, C8, D1, D8, E1, E8, F1, F8, G1, G8, H1, H8 | None | |

Surface Monitoring Log

Landfill: Coastal
Quarter: 4th QTR 2015 Integrated Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Methane (Integrated) | Remediation Date |
|---|---|---|---|---|
| 10/8/2015 | 10:35 AM - 12:15 PM | C2-C3, D2-D3, E2-E4, F2-F4, G2-G4, H2-H4 | <25 | N/R |
| 10/9/2015 | 8:50 AM - 12:12 PM | A2-A8, B1-B8, C1, C8, D1, D8, E1, E8, F1, F8, G1, G8, H1, H7-H8 | <25 | N/R |

Surface Monitoring Log

Landfill: Santa Clara
Quarter: 4th QTR 2015 Instantaneous Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Exceedences of 500 PPM methane (Instantaneous) | Remediation Date |
|---|---|---|---|---|
| 10/13/2015 | 7:45 AM - 9:17 AM | K5-K8, L4-L8, M4-M8, N4-N7, O4-O7, P6-P7 | None | N/R |
| 10/20/2015 | 10:55 AM - 1:09 PM | A5-A8, B3-B8, C3-C8, D3-D8 | None | N/R |

Surface Monitoring Log

Landfill: Santa Clara
Quarter: 4th QTR 2015 Integrated Surface Emission Monitoring

| Date: | Time | Area Covered (See Map) | Methane (Integrated) | Remediation Date |
|---|---|---|---|---|
| 10/12/15 | 9:10 AM - 12:10 PM | A5-A8, B3-B8, C3, D3, E3, F3, G3, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2 | <25 | N/R |
| 10/13/15 | 9:20 AM - 11:52 AM | K5-K8, L4-L8, M4-M8, N4-N7, O4-O7, P6-P7 | <25 | N/R |

# Oxnard Landfills - Coastal Flare

## Permit No. 01399

## Control Device (Coastal Flare) Off for more than 1-hour

| Date(s): | Day | Time | Description | Duration | |
|---|---|---|---|---|---|
| | | | | Hours | Minutes |
| 7/4/2015 | Sat | 7:45 AM - 9:01 AM | SSMP - Low Combustion Temperature | 1 | 16 |
| 7/9/2015 | Thu | 6:36 AM - 9:15 AM | SSMP - Low Combustion Temperature | 2 | 39 |
| 7/15/2015 | Wed | 6:45 AM - 11:52 AM | SSMP - Low Combustion Temperature | 5 | 7 |
| 7/22/2015 - 7/24/2015 | Wed | 6:15 AM - 3:13 PM | SSMP - Maintenance & Inspection | 56 | 58 |
| 7/25/2015 | Sat | 2:15 AM - 4:00 PM | SSMP - Utility Trip | 1 | 45 |
| 7/29/2015 | Wed | 1:01 AM 2:53 AM | SSMP - Maintenance & Inspection | 1 | 52 |
| 8/21/2015 | Fri | 10:29 AM - 1:16 pm | SSMP - Poor Gas Quality | 2 | 47 |
| 8/26/2015 | Wed | 5:45 AM - 4:20 PM | SSMP - Maintenance & Inspection | 10 | 35 |
| 8/27/2015 | Thu | 5:45 AM - 4:40 PM | SSMP - Maintenance & Inspection | 10 | 55 |
| 9/17/2015 | Wed | 12:30 PM - 1:39 PM | SSMP - Maintenance & Inspection | 1 | 9 |
| 9/30/2015 | Wed | 9:24 AM - 12:00 PM | SSMP - Maintenance & Inspection | 2 | 36 |
| 11/18/2015 | Wed | 7:48 AM - 11:58 AM | SSMP - Maintenance & Inspection | 4 | 10 |
| 11/28/2015 | Sat | 8:56 AM - 2:57 PM | SSMP - Poor Gas Quality | 6 | 1 |
| 12/3/2015 | Thu | 7:47 AM - 7:59 AM; 8:40 AM - 10:51 AM | SSMP - Maintenance & Inspection | 2 | 23 |
| 12/14/2015 - 12/17/15 | Mon | 8:09 AM - 3:17 PM | SSMP - Maintenance & Inspection | 79 | 8 |
| 12/20/2015 | Sun | 5:23 AM - 7:40 AM | SSMP - Poor Gas Quality | 2 | 17 |
| 12/29/2015 | Tue | 7:45 AM - 12:45 PM | SSMP - Maintenance & Inspection | 5 | 0 |
| | | | | 189 | 458 |

| Total Hours | 196.6 |
|---|---|

# Oxnard Landfills
## 2015 Monthly Throughput

| Month | LFG scf | HHV | CH4 Average |
|---|---|---|---|
| Jan | 30,740,380 | 392 | 35.5 |
| Feb | 24,435,555 | | 34.4 |
| Mar | 28,984,688 | | 32.8 |
| Apr | 30,702,483 | 357 | 32.3 |
| May | 32,234,842 | | 31.2 |
| Jun | 28,817,130 | | 30.2 |

| | Total LFG | Average HHV | MMbtu |
|---|---|---|---|
| 2015 | 175,915,078 | 375 | 65,880 |

| Blower Hours | |
|---|---|
| Blower 1 | Blower 2 |
| 710 | 0 |
| 595 | 0 |
| 702 | 0 |
| 716 | 0 |
| 727 | 0 |
| 703 | 0 |
| 4,153 | 0 |

ACTUAL = 133,116 MMBTU/YR

PERMIT LIMIT: 350,000 MMBTU/YR

# Oxnard Landfills
## 2015 Monthly Throughput

| Month | LFG scf | HHV | CH4 Average |
|---|---|---|---|
| Jul | 32,138,792 | 309 | 30.2 |
| Aug | 35,741,887 | | 30.0 |
| Sep | 31,499,762 | | 31.4 |
| Oct | 34,543,821 | 372 | 31.3 |
| Nov | 33,397,518 | | 30.6 |
| Dec | 30,146,016 | | 28.6 |

| | Total LFG | Average HHV | MMbtu |
|---|---|---|---|
| 2015 | 197,467,796 | 341 | 67,238 |

| Blower Hours | |
|---|---|
| Blower 1 | Blower 2 |
| 675 | 0 |
| 720 | 0 |
| 716 | 0 |
| 744 | 0 |
| 708 | 0 |
| 656 | 1 |
| 4,219 | 1 |