Cindy Phillips

# Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

December 1, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Gary K. Crane
Executive Vice President
Ogden Energy Group, Inc.
40 Lane Road
Fairfield, NJ 07007-2615

RE: Request for Additional Information
Ogden Martin Systems of Lake, Inc.
Lake County Resource Recovery Facility
Air Construction Permit Application DEP File No. 0690046-002-AC

Dear Mr. Crane:

The Department has received your application to revise the existing construction permit No. PSD-FL-113 to establish a federally-enforceable throughput limitation for the processing of biomedical waste at the facility and to establish a clear definition of the acceptable fuels fro the facility. The application was received by the Department on September 29, 1998 and a valid Notice of Application was published on November 4, 1998. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the below items require new calculations, please submit the new calculation, assumptions, reference material and appropriate revised pages of the application form.

1. There is no description of how the facility will physically receive, store, handle and load the proposed daily quantity of biomedical waste (BMW). The Department of Health rule 16E-64 proscribes handling and storage requirements for BMW that are applicable to this facility. Please describe how you intend to comply with those requirements.

2. Referring to section 2.3, page 3 of the narrative portion of the application, the 240 TPD maximum throughput of BMW occurs in the peak load range of the stoker capacity diagram (Appendix G). In the stoker capacity diagram, the maximum throughput in the normal operating range seems to be $18.5 \times 10^3$ lb/hr or, or 222 TPD, each unit. Please explain.

3. The proposal to burn such large amounts of BMW should be considered to be a change in the method of operation of the facility and should be evaluated for PSD applicability. It is assumed that Ogden Martin will attempt to operate the facility in the future at a higher capacity utilization in order to maximize the throughput of BMW and MSW and other solid wastes. An increase in capacity utilization would increase future potential emissions as compared with past actual emissions, even with no change in the wastes combusted. The average of the last two years operating information should be used to establish past capacity utilization for PSD purposes.

Z 333 638 485

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

| | |
|---|---|
| Sent to<br>Mr. Gary K. Crane | |
| Street & Number<br>40 Lane Road | |
| Post Office, State, & ZIP Code<br>Fairfield, NJ 07007-2615 | |
| Postage | $ |
| Certified Fee | |
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| **TOTAL** Postage & Fees | $ |
| Postmark or Date<br>12/01/98<br>Ogden Martin Systems of Lake<br>DEP File No. 0690046-002-AC | |

PS Form **3800**, April 1995

3. (Continued)
If the past actual to future potential emissions comparison shows a PSD significant increase in emissions will occur as a result of increased utilization from the proposed change, Ogden will have to submit a PSD permit application and evaluate and apply top down BACT, which may or may not be the same as the emission guideline requirements or the NSPS (MACT) for MWCs or BMW combustors.

4. Ogden Martin's proposal to accept industrial process or manufacturing wastes and wastes generated by manufacturing, industrial, commercial or agricultural activities is not specific. The Department's previous permits required that such wastes must be substantially similar to items found in MSW and that acceptance of such wastes was subject to prior approval by the Department. Please submit more specific information, and maximum proposed waste stream percentages of all segregated non-MSW waste to be burned.

5. Section 4.2.1 requests the removal of the emission limit for VOCs. The emission guideline's CO limit and requirements for good combustion practices seem to be acceptable alternatives. However, the ability of the combustion units to properly burn BMW in the amounts requested must be evaluated. Please provide reasonable assurance that the units are capable of combusting the requested amount of BMW and meeting the emission limits of the emission guideline.

6. The request for removal of the emission limits for beryllium and fluorides should include an evaluation of the possibility that combustion of the requested quantity of BMW or proposed segregated wastes will increase emissions of those pollutants. No information on future potential emissions was provided. Fluorides are a PSD pollutant so please provide a past actual to future potential emission comparison. If combustion of the BMW or the proposed segregated wastes will increase emissions of fluorides, the possible capacity utilization increase must be evaluated.

7. The maximum potential emissions calculations in Appendix F appear to be based on the existing permit limits, so these emissions do not reflect future potential emissions based on the emission limits of the emission guideline. Please provide.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. As a result, your response should be certified by a professional engineer registered in the State of Florida. Material changes to the application should also be accompanied by a new certification statement by the authorized representative or responsible official. Rule 62-4.055(1), F.A.C. requires that the applicant submit additional information requested by the Department, or request an extension of time to respond, within ninety days.

If you have any questions concerning this request for information, please call me at 850/921-9534, or send email to me at PHILLIPS_C@DEP.STATE.FL.US.

Sincerely,

Cindy L. Phillips, P.E.
Bureau of Air Regulation

c: Mr. David Crowe, Lake Co. Dept. of Solid Waste
Ms Valerie Fachs, Lake Co. Attorney's Office
Ms. Edith Coulter, Dept. of Health
Ms. Jan Rae Clark, FDEP
Mr. Len Kozlov, FDEP

OGDEN ENERGY GROUP, INC.

40 Lane Road
Fairfield, NJ 07007
973 882 9000
Fax 973 882 4156

TO:
CINDY PHILLIPS - DARM



# ENVIRONMENTAL TEST REPORT

## VOLUME 1

## EXECUTIVE SUMMARY - OEG REPORT NO. 2373

March 12, 1999

| | |
|---|---|
| PREPARED FOR: | Ogden Martin Systems of Lake, Inc.<br>3830 Rogers Industrial Park<br>P. O. Box 189<br>Okahumpka, Florida 34762 |
| PURPOSE: | To Demonstrate Compliance with Florida Department of Environmental Protection, Permit No. AO35-193817 and Rule 62-296. |
| TEST DATES: | January 26-29, 1999 |
| ASSOCIATED REPORTS: | OEG Report No. 2330 |
| PREPARED BY: | Ogden Energy Group, Inc.<br>Department 38 - CEM/Emission Testing |

# TABLE OF CONTENTS

# 1.0 INTRODUCTION

Ogden Martin System of Lake, Inc, (OMSL) performed compliance emission tests at the Lake County Resource Recovery Facility from January 26-29, 1999. The purpose of this test program was to demonstrate compliance with the Florida Department of Environmental Protection (FLDEP), Permit No. AO35-193817, Specific Condition 8 and Rule 62-296. The testing was performed by Testar, Inc. in accordance with all procedures in the FLDEP approved test protocol.

The OMSL municipal solid waste combustion facility is located in Okahumpka, FL. The facility is rated at 528 tons of municipal solid waste per day. Units 1 and 2 were tested for mercury emissions at the economizer outlet and stack. Acid gas emissions were tested at the inlet and outlet of the air pollution control equipment. All testing was conducted simultaneously in accordance with procedures required by Florida Department of Environmental Protection (FLDEP) regional office.

A summary of emission test results for the facility is presented in Section 2.0, Tables 2.1 and 2.2. The Testar report (Volume 2) includes all testing data gathered at the site and all laboratory analytical data.

The test program, as indicated in the Source Test Plan (OEG Report No. 2330), is presented in Section 3.0, Table 3.2. Test observers and participants are presented in Table 3.1. The Schedule of Activities is presented in Table 3.3.

The mercury emission data for both units are not consistent with the control efficiency expected with activated carbon injection systems. The carbon injection system at the facility operated in accordance with permit requirements at all times without malfunction. The laboratory analysis for mercury was conducted twice. The results of the second analysis appear in the following tables. The results from the original analysis can be found in the appendices of Testar's report, Volume 2.

# 2.0 SUMMARY OF RESULTS

## TABLE 2.1

### SUMMARY OF SOURCE TEST RESULTS - UNIT 1

| Pollutant | Replicate [1] 1 | 2 | 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 1486 | 1298 | 1217 | 1334 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 42.5 | 24.7 | 25.1 | 30.8 | ---------- |
| Conc., ug/DSCM @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 9059 | 5460 | 681 | 5067 | ---------- |
| STACK [2] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 29.9 | 27.6 | 33.2 | 30.2 | 50 |
| Carbon Monoxide (CO) | 16.7 | 13.6 | 18.4 | 16.2 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 6.46 | 3.65 | 3.04 | 4.38 | 60 |
| Nitrogen Oxides (NOx) | 264 | 271 | 304 | 280 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.0131 | 0.00472 | 0.00595 | 0.00792 | 0.02 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.0128 | 0.00487 | 0.00600 | 0.00789 | 0.015 |
| Mercury (Hg) | 2.93E-03 | 6.49E-04 | 2.98E-04 | 1.29E-03 | 3.4E-04 |
| Conc.,ug/dscm @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 6696 | 1485 | 682 | 2954 | ~~70~~ |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.610 | 0.155 | 0.0637 | 0.276 | ---------- |
| Particulate (PM) | 2.90 | 1.06 | 1.29 | 1.75 | ---------- |
| Removal Efficiency, % | | | | | |
| Hydrogen Chloride (HCl) [3] | 98.0 | 97.9 | 97.3 | 97.7 | ≥90 |
| Mercury (Hg) [3] | 26.1 | 72.8 | 0 | 32.9 | ≥80 |
| Sulfur Dioxide ($SO_2$) [4] | 84.8 | 85.2 | 87.9 | 86.0 | ≥70 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

7% O2 ?

[1] Data presented as repetition number. Actual sample run number may differ.

[2] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[3] Based on lb/hr.

[4] Based on ppmdv @ 12% $CO_2$.

## TABLE 2.2

## SUMMARY OF SOURCE TEST RESULTS - UNIT 2

| Pollutant | Replicate 1 | Replicate 2 | Replicate 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 687 | 710 | 800 | 732 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 25.6 | 11.9 | 15.8 | 17.8 | ---------- |
| Conc., ug/DSCM @ 12% $CO_2$ | | | | | |
| Mercury (HCl) | 1068 | 693 | 281 | 681 | ---------- |
| STACK [1] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 17.9 | 7.88 | 19.3 | 15.0 | 50 |
| Carbon Monoxide (CO) | 31.6 | 21.4 | 19.1 | 24.0 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 0.565 | 0.000 | 0.698 | 0.421 | 60 |
| Nitrogen Oxides (NOx) | 265 | 334 | 345 | 315 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.00468 | 0.00343 | 0.00393 | 0.00401 | 0.020 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.00464 | 0.00339 | 0.00392 | 0.00398 | 0.015 |
| Mercury (Hg) | 2.27E-04 | 6.64E-05 | 4.19E-05 | 1.12E-04 | 3.4E-04 |
| Conc., ug/dscm @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 519 | 152 | 95.8 | 256 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.0461 | 0.0144 | 0.00935 | 0.0233 | ---------- |
| Particulate (PM) | 0.995 | 0.742 | 0.794 | 0.844 | ---------- |
| Removal Efficiency, % | | | | | |
| Sulfur Dioxide ($SO_2$) [2] | 97.8 | 100 | 95.6 | 97.8 | ≥70 |
| Hydrogen Chloride (HCl) [3] | 97.4 | 98.9 | 97.6 | 98.0 | ≥90 |
| Mercury (Hg) [3] | 51.4 | 78.1 | 65.9 | 65.1 | ≥80 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] All testing for HCl, $SO_2$, NOx CO, opacity, and particulate done simultaneously.

[2] Based on ppmvd @ 12% $CO_2$.

[3] Based on lb/hr.

# 3.0 TEST PROGRAM

## TABLE 3.1

TEST PARTICIPANTS

Ogden Energy Group, Inc.

G. J. Aldina

Testar, Inc.

Gary Williams
David Brintle
Herb Dixon
Joe Daley
Bill Harris
Dan Beatty

Malcolm Pirnie

John Pacifici
Chip Gerlock

## TABLE 3.2

## TEST PROGRAM

| Parameter | Method |
|---|---|
| Particulate Matter (PM) | U.S. EPA Method 5 |
| Sulfur Dioxide ($SO_2$) [1] | U.S. EPA Method 6C |
| Nitrogen Oxides (NOx) | U.S. EPA Method 7E |
| Carbon Monoxide (CO) | U.S. EPA Method 10 |
| Visible Emissions (VE) | U.S. EPA Method 9 |
| Hydrogen Chloride (HCl)[1] | U.S. EPA Method 26 |
| Mercury (Hg) [1] | U.S. EPA Method 29 |

[1] $SO_2$, HCl and Hg sampled at the inlet and outlet of the air pollution control equipment.

## TABLE 3.3

## SCHEDULE OF ACTIVITIES

| Date/ Time | Unit | Location | Sampling Method | Replicate (Run) | Parameter |
|---|---|---|---|---|---|
| 1/26/99 | | | | | |
| 0836-1045 | 1 | Outlet | EPA 5/26 | 1 | PM/HCl |
| 0842-1042 | 1 | Inlet | EPA 26 | 1 | HCl |
| 0844-0944 | 1 | Inlet | EPA 3A, 6C | 1 | $SO_2$ |
| 0844-0944 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 1 | $SO_2$, NOx, CO |
| 0853-0953 | 1 | Outlet | EPA 9 | 1 | VE |
| 1520-1727 | 1 | Outlet | EPA 5/26 | 2 | PM/HCl |
| 1520-1720 | 1 | Inlet | EPA 26 | 2 | HCl |
| 1528-1628 | 1 | Outlet | EPA 9 | 2 | VE |
| 1552-1727 | 1 | Inlet | EPA 3A, 6C | 2 | $SO_2$ |
| 1552-1652 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 2 | $SO_2$, NOx, CO |
| 1628-1728 | 1 | Outlet | EPA 9 | 3 | VE |
| 1752-2000 | 1 | Outlet | EPA 5/26 | 3 | PM/HCl |
| 1755-1955 | 1 | Inlet | EPA 26 | 3 | HCl |
| 1756-1856 | 1 | Inlet | EPA 3A, 6C | 3 | $SO_2$ |
| 1756-1856 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 3 | $SO_2$, NOx, CO |
| 1/27/99 | | | | | |
| 0840-1107 | 1 | Inlet | EPA 29 | (1) [1] | Hg |
| 0840-1111 | 1 | Outlet | EPA 29 | (1) | Hg |
| 1140-1350 | 1 | Inlet | EPA 29 | 1(2) | Hg |
| 1140-1350 | 1 | Outlet | EPA 29 | 1(2) | Hg |
| 1420-1647 | 1 | Inlet | EPA 29 | 2(3) | Hg |
| 1420-1648 | 1 | Outlet | EPA 29 | 2(3) | Hg |
| 1710-1920 | 1 | Inlet | EPA 29 | 3(4) | Hg |
| 1713-1920 | 1 | Outlet | EPA 29 | 3(4) | Hg |
| 1/28/99 | | | | | |
| 0827-1035 | 2 | Inlet | EPA 29 | 1 | Hg |
| 0827-1035 | 2 | Outlet | EPA 29 | 1 | Hg |
| 1340-1546 | 2 | Inlet | EPA 29 | 2 | Hg |
| 1340-1548 | 2 | Outlet | EPA 29 | 2 | Hg |
| 1615-1822 | 2 | Inlet | EPA 29 | 3 | Hg |
| 1615-1822 | 2 | Outlet | EPA 29 | 3 | Hg |
| 1/29/99 | | | | | |
| 0800-1000 | 2 | Inlet | EPA 26 | 1 | HCl |
| 0800-1005 | 2 | Outlet | EPA 5/26 | 1 | PM/HCl |
| 0806-0906 | 2 | Outlet | EPA 9 | 1 | VE |
| 0840-0940 | 2 | Inlet | EPA 3A, 6C | 1 | $SO_2$ |
| 0840-0940 | 2 | Stack | EPA 3A, 6C, 7E, 10 | 1 | $SO_2$, NOx, CO |
| 1028-1235 | 2 | Outlet | EPA 5/26 | 2 | PM/HCl |
| 1032-1132 | 2 | Inlet | EPA 3A, 6C | 2 | $SO_2$ |
| 1032-1132 | 2 | Outlet | EPA 3A, 6C, 7E, 10 | 2 | $SO_2$, NOx, CO |
| 1032-1242 | 2 | Inlet | EPA 26 | 2 | HCl |
| 1033-1133 | 2 | Outlet | EPA 9 | 2 | VE |
| 1300-1553 | 2 | Inlet | EPA 26 | 3 | HCl |
| 1300-1551 | 2 | Outlet | EPA 5/26 | 3 | PM/HCl |
| 1307-1407 | 2 | Inlet | EPA 3A, 6C | 3 | $SO_2$ |
| 1307-1407 | 2 | Outlet | EPA 3A, 6C, 7E, 10 | 3 | $SO_2$, NOx, CO |
| 1313-1413 | 2 | Outlet | EPA 9 | 3 | VE |

[1] First mercury test runs for unit one were voided due to the lower quantities of medical waste being processed.

# 4.0 OPERATIONAL DATA DURING EMISSION TESTING

# 4.0 OPERATIONAL DATA DURING EMISSION TESTING

Operational data were collected from process recorders. This confidential data is shown in Volume 3.

# 5.0 METHODOLOGY

## TABLE 5.1

## REFERENCES

| Parameter | Test Method | Reference |
|---|---|---|
| PM | U.S. EPA Method 5 | 40 CFR 60, App. A |
| $SO_2$ | U.S. EPA Method 6C | 40 CFR 60, App. A |
| NOx | U.S. EPA Method 7E | 40 CFR 60, App. A |
| CO | U.S. EPA Method 10 | 40 CFR 60, App. A |
| VE | U.S. EPA Method 9 | 40 CFR 60, App. A |
| HCl | U.S. EPA Method 26 | 40 CFR 60, App. A |
| Hg | U.S. EPA Method 29 | 40 CFR 60, App. A |

# INTEROFFICE MEMORANDUM

**Date:** 16-Mar-1999 04:55pm
**From:** Cindy Phillips TAL
PHILLIPS_C
**Dept:** Air Resources Management
**Tel No:** 850/921-9534

**To:** John B. Turner ORL ( TURNER_JB@A1@ORL1 )

**Subject:** Re: Ogden Martin Lake Co. Stack Test

Hi John! Yes, I would like to be included in the pre-test meeting by teleconference. No one else up here is working on this permit that I know of because I was give the construction permit application as well as the Title V application.

I didn't really take notes on the compliance test. I was there to see how the medical waste was unloaded from the trucks and loaded into the incinerator hopper and take a general tour of the facility. They showed me the improvements that they had made to the crane bucket that Toli had suggested the last time he was there. While I watched, their bucket operator was able to transfer the red bags from the truck unloading conveyor to the incinerator hopper without dropping them into the pit. In general, the facility seemed to be well run and the staff well trained.

I reminded them that they had promised to send Len a protocol which would include their procedures for handling red bags that might accidentally land in the pit.

# INTEROFFICE MEMORANDUM

**Date:** 16-Mar-1999 05:00pm
**From:** Cindy Phillips TAL
PHILLIPS_C
**Dept:** Air Resources Management
**Tel No:** 850/921-9534

**To:** John B. Turner ORL ( TURNER_JB @ Al @ ORLl )

**Subject:** Re: Ogden Martin Lake Co. Stack Test

P.S. Brian Bahor and Jason Gorrie called me today to warn me that they had failed their stack test for mercury and they needed to retest at current rates before they would try to test at a higher rate.

# INTEROFFICE MEMORANDUM

**Sensitivity:** COMPANY CONFIDENTIAL

**Date:** 24-Mar-1999 03:50pm
**From:** Garry Kuberski ORL
KUBERSKI_G@A1@ORL1
**Dept:** Central District Office
**Tel No:** 407/894-7555

| | | | |
|---|---|---|---|
| **To:** | John B. Turner | ORL | ( TURNER_JB@A1@ORL1 ) |
| **CC:** | Leonard Kozlov | ORL | ( KOZLOV_L@A1@ORL1 ) |
| **CC:** | Cindy Phillips | TAL | ( PHILLIPS_C@A1@DER ) |
| **CC:** | Saadia Qureshi | ORL | ( QURESHI_S@A1@ORL1 ) |
| **CC:** | Caroline Shine | ORL | ( SHINE_C@A1@ORL1 ) |

**Subject:** Ogden Martin Pre Test Meeting and discussion about mercury

A pre stack test meeting was held at Ogden Martin, Lake County, to discuss the stack tests necessary to show compliance with the mercury stack emission limit. Joe Aldina, Jason Gorrie and Cecil Boatwright from Ogden Martin, were present. Garry Kuberski and Saadia Qureshi were present from the DEP Central District Office, and Cindy Phillips from the DEP Tallahassee office participated telephonically.

Stack tests conducted in January had shown a mercury concentration of 2954 ug/dscm at 7% oxygen. The emission limit is 70 ug/dscm at 7% oxygen. The emission was

# Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

## FAX TRANSMITTAL

**TO:**

**NAME:** Cindy Phillips

**AGENCY:** DARM

**TELEPHONE NO: (fax no.):** 850-921-9534 (PH.) - 922-6979 FAX.

**NUMBER OF PAGES (INCLUDING COVER PAGE)** 3

**FROM:**

**NAME:** Garry Kubeck.

**PROGRAM:** Orlando

(ORLANDO FAX TELEPHONE NO.) (407) 897-5963 - SC 342-5963
(ORLANDO TELEPHONE NO.) (407) 893-3333 OR 3334 SC 325-3333, 3334

**SENDER'S NAME:** Garry Kubeck.

Jason Cecil Joe Nadia DEP Garms

**COMMENTS:**

Pre test Discussion Item.

# PRE STACK TEST AGREEMENT

## Ogden Martin Systems of Lake Inc.

Municipal Solid Waste-to-Energy Facility
Two (2) municipal solid waste fired boilers
with biohazardous waste commingled in unit 1
Each stack is equipped with CEM for $SO_2$, CO, $O_2$, $CO_2$. There are 2 stacks, 1 for each unit.
Permitted process rate: UNIT 1: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr
UNIT 1 ONLY: 2.15 tons/hr and 51.6 tons/day biohazardous waste.
UNIT 2: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr

*Emission tests will be conducted simultaneously for all pollutants except Mercury. All items listed below apply to each unit.*
Items marked with **X** will be completed for the test covered by this agreement

| POLLUTANT | | TEST METHODS |
|---|---|---|
| PM | | EPA Method 5, EPA method 2 for velocity, EPA method 3 or 3A and 4 for $O_2$, $CO_2$, and stack gas molecular weight. |
| NOx | | Method 7E |
| CO | | EPA Method 10 |
| VE | | EPA Method 9 |
| HCl | | EPA Method 26. Tests before and after control device to determine removal efficiency. |
| $SO_2$ | | EPA Method 6C Tests before and after control device to determine removal efficiency. |
| Mercury | X | EPA Method 29 Tests before and after control device to determine removal efficiency. |
| VOC, Lead, Fluoride, Beryllium | | Tested 90 days prior to permit expiration. (10-25-96) Metals were tested in Jan '96. Tests not required for Jan 99 test. |

**OTHER PARAMETERS TO BE INCLUDED IN TEST REPORT**

| PARAMETER | | DETERMINED BY |
|---|---|---|
| Tons per hour of Municipal Solid Waste fired for each Unit and Unit Biohazardous waste | X | Automatic recording of weight for each crane bucket of MSW placed in hopper. * |
| Steam Production | X | Recorded by the computer. To be reported as average lb/hr for each test run and average for each test. |
| Pounds per hour of biohazardous waste | X | Each box of medical waste to be weighted as it is unloaded from truck and placed on conveyor. To be reported as average tons/hr for each test run and average for each test. also * |
| $O_2$, $CO_2$ | X | Method 3 and or 3A to be used for stack gas molecular weight, excess air, and composition during particulate testing. |
| RATA for $SO_2$, CO, $O_2$, $CO_2$ for comparison to CEM data. | | Performance Specification tests as required by 40 CFR 60 Appendix B for new CEM's. Method 3A may be used as the reference method. RATA as required by 40 CFR 60 Appendix F |
| Ambient temperature, pressure and humidity | X | To be recorded separately by the stack test crew. |
| Test Port Location | X | Method 1 |
| Secondary Chamber Temp. | X | Minimum of 1800 F, as determined by roof temperature readings which shall be no less than 1138 F. |

IT IS AGREED THAT THE COMPLIANCE TEST WILL BE CONDUCTED IN ACCORDANCE WITH THE ABOVE LISTED TEST METHODS AND ALL ITEMS LISTED WILL BE INCLUDED IN THE COMPLIANCE TEST REPORT.

FOR: OGDEN MARTIN SYSTEMS OF LAKE, INC.

Signature _____ Date _____

FOR : DEPARTMENT OF ENVIRONMENTAL PROTECTION

Signature _____ Date _____

## Ogden Martin Systems of Lake Inc.

### EMISSION LIMITS

| Pollutant | Limit |
|---|---|
| PM | 0.0150 grains/dscf corrected to 12% $CO_2$ or 0.020 grains/dscf corrected to 7% O2, whichever is less. |
| SO2 | 60 ppmdv corrected to 12% $CO_2$, 6-hour rolling average<br>70% reduction of uncontrolled $SO_2$ emissions, 6-hour rolling average.<br>Not to exceed 120 ppmdv corrected to 12% $CO_2$, 6-hour rolling average. (error in permit) |
| NOx | 385 ppmdv corrected to 12% $CO_2$ |
| CO | 100 ppmdv corrected to 7% $O_2$, on an hourly-average basis. |
| HCl | 50 ppmdv, corrected to 7% $O_2$ on a three hour average basis; or shall be reduced by 90% by weight on a three hour average basis. |
| Lead | 3.1 $x10^{-4}$gr/dscf corrected to 12% $CO_2$ |
| Fluoride | 1.5 $x10^{-3}$gr/dscf corrected to 12% $CO_2$ |
| Beryllium | 2.0 $x10^{-7}$gr/dscf corrected to 12% $CO_2$ |
| Mercury | 3.4 $x10^{-4}$gr/dscf corrected to 12% $CO_2$, 70 ug/dscm corrected to 7% $O_2$, or 80% removal by weight |
| VE | 15% opacity (6-min average), except for one six min. period per hour of not more than 20 % opacity. |

### OPERATING PARAMETERS SPECIFIED IN PERMIT

Permitted process rate: UNIT 1: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr
UNIT 1 ONLY: 2.15 tons/hr and 51.6 tons/day biohazardous waste.
UNIT 2: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr

Each unit Temperature of fully mixed zone of the combustor 1800 °F
Roof temperature, 1138 °F as determined from control room readings.
Each Unit carbon injection rate not specified in permit.

### CONTINUOUS EMISSION MONITORS (CEM)

as listed in pretest plan of 12/2/97

| Pollutant Monitor | Unit Number | Location | Monitor Manufacturer | Model Number | Serial Number |
|---|---|---|---|---|---|
| $SO_2$ | 1 | Stack | Bovar/Western Research | 721M | VD-721M-8635-4 |
| $CO/CO_2$ | 1 | Stack | Milton Roy | ZRH2 | N3P4354T |
| $O_2$ | 1 | Stack | Servomex | 1400 | 01420/B530 |
| $O_2$ | 1 | Economizer | Servomex | 1400 | 01420/B525 |
| $SO_2$ | 1 | Economizer | Bovar/Western Research | 721M | VD-721M-8535-3 |
| $CO_2$ | 1 | Economizer | Siemens | 21P | X07-017 |
| $SO_2$ | 2 | Stack | Bovar/Western Research | 721M | VD-721M-8535-6 |
| $CO/CO_2$ | 2 | Stack | Milton Roy | ZRH2 | N3P4354-T |
| $O_2$ | 2 | Stack | Servomex | 1400 | 01420/B527 |
| $O_2$ | 2 | Economizer | Servomex | 1400 | 01420/B528 |
| $SO_2$ | 2 | Economizer | Bovar/Western Research | 721M | VD-721M-8535-5 |
| $CO_2$ | 2 | Economizer | Siemens | 21P | X07-013 |

# INTEROFFICE MEMORANDUM

**Sensitivity:** COMPANY CONFIDENTIAL

**Date:** 25-Mar-1999 04:46pm
**From:** Garry Kuberski ORL
KUBERSKI_G@A1@ORL1
**Dept:** Central District Office
**Tel No:** 407/894-7555

**To:** Cindy Phillips TAL ( PHILLIPS_C@A1@DER )
**CC:** John B. Turner ORL ( TURNER_JB@A1@ORL1 )

**Subject:** Ogden Martin Hg emission

I have faxed data from the test report for the mercury runs for units 1 and 2.

Four runs were done on unit 1 inlet and outlet. As you can see from the data sheets, the ug of mercury was not reported for run 1 and the calculations were not done. Joe Aldina has verbally told me that the mercury rate for unit 1 inlet was about 4 pounds per hour and the mercury rate for unit 1 outlet was about 3 pounds per hour.

The first run was not averaged into the emission rate for the test. They have stated that the first run was not used because the medical waste rate was two low, not because they believe it to be invalid.

At this point I am going to ask them to submit the complete data for run 1,and to submit a corrected executive summary.

# Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

## FAX TRANSMITTAL

**TO:**

**NAME:** Cindy Phillips

**AGENCY:** DARM

**TELEPHONE NO: (fax no.):** 850-922-6976

**NUMBER OF PAGES (INCLUDING COVER PAGE)** 3

**FROM:**

**NAME:** Gary Kubeisk.

**PROGRAM:** AIR Orlando

(ORLANDO FAX TELEPHONE NO.) (407) 897-5963 - SC 342-5963
(ORLANDO TELEPHONE NO.) (407) 893-3333 OR 3334 SC 325-3333, 3334

**SENDER'S NAME:** G Kubeisk.

**COMMENTS:**

I'm Re faxing the agreement and attendance list.

DK. FILE LAKE CO.

# PRE STACK TEST AGREEMENT

## Ogden Martin Systems of Lake Inc.

Municipal Solid Waste-to-Energy Facility
Two (2) municipal solid waste fired boilers
with biohazardous waste commingled in unit 1

Each stack is equipped with CEM for $SO_2$, CO, $O_2$, $CO_2$. There are 2 stacks, 1 for each unit.
Permitted process rate: UNIT 1: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr
UNIT 1 ONLY: 2.15 tons/hr and 51.6 tons/day biohazardous waste.
UNIT 2: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr

*Emission tests will be conducted simultaneously for all pollutants except Mercury. All items listed below apply to each unit.*
Items marked with X will be completed for the test covered by this agreement

| POLLUTANT | | TEST METHODS |
|---|---|---|
| PM | | EPA Method 5, EPA method 2 for velocity, EPA method 3 or 3A and 4 for $O_2$, $CO_2$, and stack gas molecular weight. |
| NOx | | Method 7E |
| CO | | EPA Method 10 |
| VE | | EPA Method 9 |
| HCl | | EPA Method 26. Tests before and after control device to determine removal efficiency. |
| $SO_2$ | | EPA Method 6C Tests before and after control device to determine removal efficiency. |
| Mercury | X | EPA Method 29 Tests before and after control device to determine removal efficiency. DK |
| Speciated mercury | X | modified EPA method 101A train. Single run per unit (inlet and outlet) CA DK. |
| VOC, Lead, Fluoride, Beryllium | | Tested 90 days prior to permit expiration. (10-25-96) Metals were tested in Jan '96. Tests not required for Jan 99 test. |

**OTHER PARAMETERS TO BE INCLUDED IN TEST REPORT**

| PARAMETER | | DETERMINED BY |
|---|---|---|
| Tons per hour of Municipal Solid Waste fired for each Unit | X | Automatic recording of weight for each crane bucket of MSW placed in hopper. |
| Steam Production | X | Recorded by the computer. To be reported as average lb/hr for each test run and average for each test. |
| Pounds per hour of biohazardous waste | X | Each box of medical waste to be weighted as it is unloaded from truck and placed on conveyor. Automatic recording of weight for each crane bucket of bulk biohazardous waste to be recorded prior to unloading in feedchute hopper. To be combined and reported as average tons/hr for each test run and average for each test. |
| $O_2$, $CO_2$ | X | Method 3 and or 3A to be used for stack gas molecular weight, excess air, and composition during particulate testing. |
| Carbon system QA/QC | X | Parametere such as Iodine number and molasses number. Visual observation of flow. Calibration of flow rate to 13 lb/hr before and after each DAY (currently at 11.2 lb/hr) CA DK |
| RATA for $SO_2$, CO, $O_2$, $CO_2$ for comparison to CEM data. | | Performance Specification tests as required by 40 CFR 60 Appendix B for new CEM's. Method 3A may be used as the reference method. RATA as required by 40 CFR 60 Appendix F |
| Ambient temperature, pressure and humidity | X | To be recorded separately by the stack test crew. |
| Test Port Location | X | Method 1 |
| Secondary Chamber Temp. | X | Minimum of 1800 F, as determined by roof temperature readings which shall be no less than 1138 F. |

IT IS AGREED THAT THE COMPLIANCE TEST WILL BE CONDUCTED IN ACCORDANCE WITH THE ABOVE LISTED TEST METHODS AND ALL ITEMS LISTED WILL BE INCLUDED IN THE COMPLIANCE TEST REPORT.
FOR: OGDEN MARTIN SYSTEMS OF LAKE, INC.

Giuseppe — Signature
3-24-99 — Date

addendum: collect monthly ash total metals sample during stack test. DC. CA

FOR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

Gary D. Rubenstein — Signature
3/24/99 — Date

Testing 4/19/99 week of: CA DK

# INSPECTION REPORT FORM
## AIR POLLUTION EMISSION SOURCES

| FACILITY | DISTRICT | COUNTY |
|---|---|---|
| OGDEN-MARTIN | Central | |

| ADDRESS | CONTACT |
|---|---|
| | |

| AIRS | PERMIT | EXPIRATION DATE |
|---|---|---|
| | | |

**SOURCE DESCRIPTION**
PRETEST MEETING

| INSPECTION DATE | AUDIT TYPE | COMPLIANCE STATUS |
|---|---|---|
| 3-24-99 | | |

**INSPECTION COMMENTS/RECOMMENDATIONS:**

Garry Kuberski FDEP
Jason Gorie - Ogden
Joe Aldina - Ogden Energy Group
Cecil Boatwright - Ogden Martin Systems of Lake
Sadia Qureshi - FDEP
Cindy Phillips FDEP - Tallahassee, (Telephonic)

**INSPECTOR(S) NAME(S)**
Garry Kuberski

| SIGNATURE | DATE |
|---|---|
| | |

# Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

## FAX TRANSMITTAL

**TO:**

**NAME:** CINDY PHILLIPS

**AGENCY:** DARM

**TELEPHONE NO: (fax no.):** 850-922-6979

**NUMBER OF PAGES (INCLUDING COVER PAGE)** 5

**FROM:**

**NAME:** GARY KUBEIK

**PROGRAM:** AIR - ORLANDO

(ORLANDO FAX TELEPHONE NO.) (407) 897-5963 - SC 342-5963
(ORLANDO TELEPHONE NO.) (407) 893-3333 OR 3334 SC 325-3333, 3334

**SENDER'S NAME:** GARY KUBEIK

**COMMENTS:** TABLE 2.1 SUMMARY OF SOURCE TEST RES. UNIT 1
TABLE 2.2 SUMMARY OF SOURCE TEST RESULTS UNIT 2
PRE TEST AGREEMENT
MEETING ATTENDANCE LIST

# TABLE 2.1

## SUMMARY OF SOURCE TEST RESULTS - UNIT 1

| Pollutant | Replicate [1] 1 | 2 | 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 1486 | 1298 | 1217 | 1334 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 42.5 | 24.7 | 25.1 | 30.8 | ---------- |
| Conc., ug/DSCM @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 9059 | 5460 | 681 | 5067 | ---------- |
| STACK [2] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 29.9 | 27.6 | 33.2 | 30.2 | 50 |
| Carbon Monoxide (CO) | 16.7 | 13.6 | 18.4 | 16.2 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 6.46 | 3.65 | 3.04 | 4.38 | 60 |
| Nitrogen Oxides (NOx) | 264 | 271 | 304 | 280 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.0131 | 0.00472 | 0.00595 | 0.00792 | 0.02 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.0128 | 0.00487 | 0.00600 | 0.00789 | 0.015 |
| Mercury (Hg) | 2.93E-03 | 6.49E-04 | 2.98E-04 | 1.29E-03 | 3.4E-04 |
| Conc., ug/dscm @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 6696 | 1485 | 682 | 2954 | ~~10~~ |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.610 | 0.155 | 0.0637 | 0.276 | ---------- |
| Particulate (PM) | 2.90 | 1.06 | 1.29 | 1.75 | ---------- |
| Removal Efficiency, % | | | | | |
| Hydrogen Chloride (HCl) [3] | 98.0 | 97.9 | 97.3 | 97.7 | ≥90 |
| Mercury (Hg) [3] | 26.1 | 72.8 | 0 | 32.9 | ≥80 |
| Sulfur Dioxide ($SO_2$) [4] | 84.8 | 85.2 | 87.9 | 86.0 | ≥70 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] Data presented as repetition number. Actual sample run number may differ.

[2] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[3] Based on lb/hr.

[4] Based on ppmdv @ 12% $CO_2$.

# TABLE 2.2

## SUMMARY OF SOURCE TEST RESULTS - UNIT 2

| Pollutant | Replicate 1 | Replicate 2 | Replicate 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 687 | 710 | 800 | 732 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 25.6 | 11.9 | 15.8 | 17.8 | ---------- |
| Conc., ug/DSCM @ 12% $CO_2$ | | | | | |
| Mercury (HCl) | 1068 | 693 | 281 | 681 | ---------- |
| STACK [1] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 17.9 | 7.88 | 19.3 | 15.0 | 50 |
| Carbon Monoxide (CO) | 31.6 | 21.4 | 19.1 | 24.0 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 0.565 | 0.000 | 0.698 | 0.421 | 60 |
| Nitrogen Oxides (NOx) | 265 | 334 | 345 | 315 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.00468 | 0.00343 | 0.00393 | 0.00401 | 0.020 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.00464 | 0.00339 | 0.00392 | 0.00398 | 0.015 |
| Mercury (Hg) | 2.27E-04 | 6.64E-05 | 4.19E-05 | 1.12E-04 | 3.4E-04 |
| Conc., ug/dscm @ 12% $CO_2$ | | | | | |
| Mercury (Hg) | 519 | 152 | 95.8 | 256 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.0461 | 0.0144 | 0.00935 | 0.0233 | ---------- |
| Particulate (PM) | 0.995 | 0.742 | 0.794 | 0.844 | ---------- |
| Removal Efficiency, % | | | | | |
| Sulfur Dioxide ($SO_2$) [2] | 97.8 | 100 | 95.6 | 97.8 | ≥70 |
| Hydrogen Chloride (HCl) [3] | 97.4 | 98.9 | 97.6 | 98.0 | ≥90 |
| Mercury (Hg) [3] | 51.4 | 78.1 | 65.9 | 65.1 | ≥80 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] All testing for HCl, $SO_2$, NOx CO, opacity, and particulate done simultaneously.

[2] Based on ppmvd @ 12% $CO_2$.

[3] Based on lb/hr.

# INTEROFFICE MEMORANDUM

**Date:** 26-Mar-1999 11:55am
**From:** Cindy Phillips TAL
PHILLIPS_C
**Dept:** Air Resources Management
**Tel No:** 850/921-9534

**To:** Kristine Roselius TAL ( ROSELIUS_K @ EPIC5A1 @ DER )
**To:** Howard Rhodes TAL ( RHODES_H )
**To:** Clair Fancy TAL ( FANCY_C )

**Subject:** Media Hot Sheet

Topic: Ogden Martin Systems at Lake
Date: 3/26/99
Reporter: David Dameron
Newspaper: Orlando Sentinel
Voice Mail received by: Cindy Phillips
Phone: SC 291-9534
Division/Bureau/Office: Air Resources/Air Regulation

Received a Voice Mail request for the status of Ogden Martin's construction permit application.

Left a voice mail response that the applicant had been granted an extension of time until June 7, 1999 to respond to my request for additional information.

OGDEN

Ogden Martin Systems of Pasco
14230 Hays Road
Spring Hill, FL 34610
813 856 2917
Fax 813 856 0007

# FACSIMILE COVER SHEET

**DATE:** 3/30 3/30/99

**TO:** Cindy Phillips

**FROM:** Jason Gorrie

**SUBJECT:** _____

**PAGE:** 3 + COVER

**SENT BY:** _____

**MEMO:** _____

# PRE STACK TEST AGREEMENT

## Ogden Martin Systems of Lake Inc.

Municipal Solid Waste-to-Energy Facility
Two (2) municipal solid waste fired boilers
with biohazardous waste commingled in unit 1

Each stack is equipped with CEM for $SO_2$, CO, $O_2$, $CO_2$. There are 2 stacks, 1 for each unit.
Permitted process rate: UNIT 1: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr
UNIT 1 ONLY: 2.15 tons/hr and 51.6 tons/day biohazardous waste.
UNIT 2: 288 tons MSW per day, 120 mm BTU/hr, 69000 lb-steam/hr

*Emission tests will be conducted simultaneously for all pollutants except Mercury. All items listed below apply to each unit.*
Items marked with **X** will be completed for the test covered by this agreement

| POLLUTANT | | TEST METHODS |
|---|---|---|
| PM | | EPA Method 5, EPA method 2 for velocity, EPA method 3 or 3A and 4 for $O_2$, $CO_2$, and stack gas molecular weight. |
| NOx | | Method 7E |
| CO | | EPA Method 10 |
| VE | | EPA Method 9 |
| HCl | | EPA Method 26. Tests before and after control device to determine removal efficiency. |
| $SO_2$ | | EPA Method 6C Tests before and after control device to determine removal efficiency. |
| Mercury | X | EPA Method 29 Tests before and after control device to determine removal efficiency. |
| Speciated mercury | X | modified EPA method 101A train. Single run per unit (inlet and outlet) GA JK. |
| VOC, Lead, Fluoride, Beryllium | | Tested 90 days prior to permit expiration. (10-25-96) Metals were tested in Jan '96. Tests not required for Jan 99 test. |

| OTHER PARAMETERS TO BE INCLUDED IN TEST REPORT | | |
|---|---|---|
| PARAMETER | | DETERMINED BY |
| Tons per hour of Municipal Solid Waste fired for each Unit | X | Automatic recording of weight for each crane bucket of MSW placed in hopper. |
| Steam Production | X | Recorded by the computer. To be reported as average lb/hr for each test run and average for each test. |
| Pounds per hour of biohazardous waste | X | Each box of medical waste to be weighted as it is unloaded from truck and placed on conveyor. Automatic recording of weight for each crane bucket of bulk biohazardous waste to be recorded prior to unloading in feedchute hopper. To be combined and reported as average tons/hr for each test run and average for each test. |
| $O_2$, $CO_2$ | X | Method 3 and or 3A to be used for stack gas molecular weight, excess air, and composition during particulate testing. |
| Carbon system QA/QC | X | Parameters such as iodine number and molasses number. Visual observation of flow. Calibration of flow rate to 13 lb/hr before and after each day (currently at 11.2 lb/hr) GA JK |
| RATA for $SO_2$, CO, $O_2$, $CO_2$ for comparison to CEM data. | | Performance Specification tests as required by 40 CFR 60 Appendix B for new CEM's. Method 3A may be used as the reference method. RATA as required by 40 CFR 60 Appecdix F |
| Ambient temperature, pressure and humidity | X | To be recorded separately by the stack test crew. |
| Test Port Location | X | Method 1 |
| Secondary Chamber Temp. | X | Minimum of 1800 F, as determined by roof temperature readings which shall be no less than 1138 F. |

IT IS AGREED THAT THE COMPLIANCE TEST WILL BE CONDUCTED IN ACCORDANCE WITH THE ABOVE LISTED TEST METHODS AND ALL ITEMS LISTED WILL BE INCLUDED IN THE COMPLIANCE TEST REPORT.

FOR: OGDEN MARTIN SYSTEMS OF LAKE, INC.

Giuseppe — Signature

3-24-99 — Date

addendum: collect monthly ash total metals sample during stack test. GA JK.

FOR: DEPARTMENT OF ENVIRONMENTAL PROTECTION

Signature

3/24/99 — Date

Testing 4/19/99 week of: GA JK

## TABLE 2.1

### SUMMARY OF SOURCE TEST RESULTS - UNIT 1

| Pollutant | Replicate [1] 1 | 2 | 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 1486 | 1298 | 1217 | 1334 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 42.5 | 24.7 | 25.1 | 30.8 | ---------- |
| Conc., ug/DSCM @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 9278 | 5595 | 699 | 5191 | ---------- |
| STACK [2] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 29.9 | 27.6 | 33.2 | 30.2 | 50 |
| Carbon Monoxide (CO) | 16.7 | 13.6 | 18.4 | 16.2 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 6.46 | 3.65 | 3.04 | 4.38 | 60 |
| Nitrogen Oxides (NOx) | 264 | 271 | 304 | 280 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.0131 | 0.00472 | 0.00595 | 0.00792 | 0.02 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.0128 | 0.00487 | 0.00600 | 0.00789 | 0.015 |
| Mercury (Hg) | 2.93E-03 | 6.49E-04 | 2.98E-04 | 1.29E-03 | 3.4E-04 |
| Conc.,ug/dscm @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 6787 | 1503 | 693 | 2994 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.610 | 0.155 | 0.0637 | 0.276 | ---------- |
| Particulate (PM) | 2.90 | 1.06 | 1.29 | 1.75 | ---------- |
| Removal Efficiency, % | | | | | |
| Hydrogen Chloride (HCl) [3] | 98.0 | 97.9 | 97.3 | 97.7 | ≥90 |
| Mercury (Hg) [3] | 26.9 | 73.1 | 0.9 | 33.6 | ≥80 |
| Sulfur Dioxide ($SO_2$) [4] | 84.8 | 85.2 | 87.9 | 86.0 | ≥70 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] Data presented as repetition number. Actual sample run number may differ.

[2] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[3] Based on lb/hr.

[4] Based on ppmdv @ 7% $O_2$.

## TABLE 2.2

## SUMMARY OF SOURCE TEST RESULTS - UNIT 2

| Pollutant | Replicate 1 | Replicate 2 | Replicate 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 687 | 710 | 800 | 732 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 25.6 | 11.9 | 15.8 | 17.8 | ---------- |
| Conc., ug/DSCM @ 7% $O_2$ | | | | | |
| Mercury (HCl) | 1068 | 693 | 281 | 681 | ---------- |
| STACK [1] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 17.9 | 7.88 | 19.3 | 15.0 | 50 |
| Carbon Monoxide (CO) | 31.6 | 21.4 | 19.1 | 24.0 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 0.565 | 0.000 | 0.698 | 0.421 | 60 |
| Nitrogen Oxides (NOx) | 265 | 334 | 345 | 315 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.00468 | 0.00343 | 0.00393 | 0.00401 | 0.020 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.00464 | 0.00339 | 0.00392 | 0.00398 | 0.015 |
| Mercury (Hg) | 2.27E-04 | 6.64E-05 | 4.19E-05 | 1.12E-04 | 3.4E-04 |
| Conc., ug/dscm @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 520 | 155 | 97.3 | 258 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.0461 | 0.0144 | 0.00935 | 0.0233 | ---------- |
| Particulate (PM) | 0.995 | 0.742 | 0.794 | 0.844 | ---------- |
| Removal Efficiency, % | | | | | |
| Sulfur Dioxide ($SO_2$) [2] | 97.8 | 100 | 95.6 | 97.8 | ≥70 |
| Hydrogen Chloride (HCl) [3] | 97.4 | 98.9 | 97.6 | 98.0 | ≥90 |
| Mercury (Hg) [3] | 52.0 | 78.1 | 65.3 | 65.1 | ≥80 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[2] Based on ppmvd @ 7% $CO_2$.

[3] Based on lb/hr.

# STACK TEST REPORT REVIEW

| | | |
|---|---|---|
| Facility | **Ogden Martin, Units 1 and 2** | |
| County | Lake | |
| Permit number | AO35-193817 | |
| Date of test | Jan 26 to 29, 1999 | AIRS NUMBER 0690046 |
| Test Team Name | TESTAR, INC. | ENTERED in ARMS? |
| Any field comments about the process weight determination? | no | |
| Permitted Fuels | Municipal and medical waste | |

Stack test Report acceptable? NO
Compliance Status: Not-In-Compliance

REVIEWERS COMMENTS

1 Mercury emission rate for unit 1 was 2994 ug/dscm @ 7% $O_2$. The emission limit is 70 ug/dscm @ 7% $O_2$.

2 Mercury emission rate for unit 2 was 258 ug/dscm @ 7% $O_2$. The emission limit is 70 ug/dscm @ 7% $O_2$.

3 Mercury removal efficiency was 32.9% for unit 1 and 65.1% for unit 2. A minimum removal efficiency of 80% is required.

4 Medical waste rate was not reported as average tons per hour for each test run.

5 MSW waste rate was not reported as average lb-steam/hour for each test run.

6 Mercury emission was not reported as ug/dscm at 7% $O_2$ in the original executive summary. A revised executive summary was received March 30.

7 Calculated emission rates were not reported for run 1 unit 1.

8 HCl audit samples, J2105 AND J2003 were analyzed and passed.

9 Part 2 of volume 2 is stack test data for mercury stack tests conducted on Feb 17 to 19.
Notice was not provided, therefore these tests are not compliance tests.

Reviewers name: Garry Kuberski

Reviewers Signature/Date Signature Garry O Kuberski Date 3/30/99

# STACK TEST REPORT REVIEW

| Unit and Test Location | DATE | FUEL | POLLUTANT AND TEST METHOD | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | EMISSION LIMIT | | EMISSION RATE or Inlet rate | | EMISSION RATE AS % OF EMISSION LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit 1 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | no limit | lb/hr Inlet | not calculated | lb/hr Inlet | O.K. |
| Unit 1 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | no limit | ppmvd at 12% $CO_2$ Inlet | 30.08 | ppmvd at 12% $CO_2$ Inlet | O.K. |
| Unit 1 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | no limit | lb/hr Inlet | not calculated | lb/hr Inlet | O.K. |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 50 | ppmvd at 7% $O_2$ | 30.2 | ppmvd at 7% $O_2$ | 60% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | CO 10 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 100 | ppmvd at 7% $O_2$ | 16.2 | ppmvd at 7% $O_2$ | 16% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 60 | ppmvd at 12% $CO_2$ | 4.38 | ppmvd at 12% $CO_2$ | 7% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | NOx 7e | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 385 | ppmvd at 12% $CO_2$ | 280 | ppmvd at 12% $CO_2$ | 73% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | VOC 25 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | 2.15 tons/hr bio-haz | tons/hr bio-haz | not tested | 70 | ppmvd at 12% $CO_2$ | not tested | ppmvd at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | PM 5 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 0.02 | gr/dscf at 7% $O_2$ | 0.00792 | gr/dscf at 7% $O_2$ | 40% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | PM 5 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 0.015 | gr/dscf at 12% $CO_2$ | 0.00789 | gr/dscf at 12% $CO_2$ | 53% |

# STACK TEST REPORT REVIEW

| Unit and Test Location | DATE | FUEL | POLLUTANT AND TEST METHOD | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | EMISSION LIMIT | EMISSION RATE or inlet rate | EMISSION RATE AS % OF EMISSION LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | HF 13B | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | 2.15 tons/hr bio-haz | tons/hr bio-haz | not tested | 1.50E-03 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Be 104 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | 2.15 tons/hr bio-haz | tons/hr bio-haz | not tested | 2.00E-07 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Pb 12 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | 2.15 tons/hr bio-haz | tons/hr bio-haz | not tested | 3.10E-04 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 3.40E-04 gr/dscf at 12% $CO_2$ | 1.29E-03 gr/dscf at 12% $CO_2$ | 379% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 70 ug/dscm at 7% $O_2$ | 2994 ug/dscm at 7% $O_2$ | 4277% |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | no limit lb/hr | 2.76E-01 lb/hr | not required |
| Unit 1 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | VE 9 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 15 % opacity | 0 % opacity | 0% |
| Unit 1 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 70 % | 86 % | >70 |
| Unit 1 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 90 % | 97.7 % | >90 |
| Unit 1 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | 2.15 tons/hr bio-haz | tons/hr bio-haz | 0% | 80 % | 32.9% % | >80 |

# STACK TEST REPORT REVIEW

| Unit and Test Location | DATE | FUEL | POLLUTANT AND TEST METHOD | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | EMISSION LIMIT | EMISSION RATE or Inlet rate | EMISSION RATE AS % OF EMISSION LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit 2 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | no limit lb/hr inlet | not calculated lb/hr inlet | O.K. |
| Unit 2 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | no limit ppmvd at 12% $CO_2$ Inlet | 17.80 ppmvd at 12% $CO_2$ Inlet | O.K. |
| Unit 2 Inlet | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | no limit lb/hr Inlet | not calculated lb/hr Inlet | O.K. |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 50 ppmvd at 7% $O_2$ | 15 ppmvd at 7% $O_2$ | 30% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-Hz | HCl 26 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | none lb/hr | not calculated lb/hr | none |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | CO 10 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 100 ppmvd at 7% $O_2$ | 24 ppmvd at 7% $O_2$ | 24% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 60 ppmvd at 12% $CO_2$ | 0.421 ppmvd at 12% $CO_2$ | 1% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | NOx 7e | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 385 ppmvd at 12% $CO_2$ | 315 ppmvd at 12% $CO_2$ | 82% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | VOC 25 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr Ave | not tested | NONE tons/hr bio-Hz | tons/hr bio-Hz | not permitted for bio Hz | 70 ppmvd at 12% $CO_2$ | not tested ppmvd at 12% $CO_2$ | TEST NOT REQUIRED |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | PM 5 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | not tested | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 0.02 gr/dscf at 7% $O_2$ | not reported gr/dscf at 7% $O_2$ | #VALUE! |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | PM 5 | 69 klb steam /hr, 3 hr ave | klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 0.015 gr/dscf at 12% $CO_2$ | 3.98E-03 gr/dscf at 12% $CO_2$ | 27% |

# STACK TEST REPORT REVIEW

| Unit and Test Location | DATE | FUEL | POLLUTANT AND TEST METHOD | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | PERMITTED RATE | OPERATING RATE | OPERATING RATE AS % OF PERMITTED OPERATING RATE | EMISSION LIMIT | EMISSION RATE or Inlet rate | EMISSION RATE AS % OF EMISSION LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | HF 13B | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | not tested | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 1.50E-03 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Be 104 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | not tested | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 2.00E-07 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Pb 12 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | not tested | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 3.10E-04 gr/dscf at 12% $CO_2$ | not tested gr/dscf at 12% $CO_2$ | Test every 5 years, last test 1/96 |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 3.40E-04 gr/dscf at 12% $CO_2$ | 1.12E-04 gr/dscf at 12% $CO_2$ | 33% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 70 ug/dscm at 7% $O_2$ | 258.0 ug/dscm at 7% $O_2$ | 369% |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | no limit lb/hr | 2.33E-02 lb/hr | not required |
| Unit 2 stack (outlet) | January 26 thru 29,1999 | MSW and Bio-Hz | VE 9 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 15 % opacity | 0 % opacity | 0% |
| Unit 2 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | $SO_2$ 6C | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 70 % | 97.8% % | >70 |
| Unit 2 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | HCl 26 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 90 % | 98.0% % | >90 |
| Unit 2 removal efficiency | January 26 thru 29,1999 | MSW and Bio-haz | Hg 29 | 69 klb steam /hr, 3 hr ave | 69 klb steam /hr, 3 hr ave | 0% | NONE tons/hr bio-haz | tons/hr bio-haz | not permitted for bio haz | 80 % | 65.1% % | >80 |

To: Cindy Phillips
From: Garry Kuberski - CD

**OGDEN** ENERGY GROUP, INC.

G.J. ALDINA
Senior Vice President
Environmental Testing/CEM

40 Lane Road CN 2615
Fairfield, NJ 07007-2615
973 882 4136
Fax 973 882 4156





March 29, 1999

Mr. John Turner
Air Resources Management
Florida Department of Environmental Protection
Central Division
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

**Subject:** **OMS of Lake, Inc.**
**Lake County Resource Recovery Facility**
**Compliance Test Report Correction**

Dear Mr. Turner:

Enclosed is a revised Executive Summary, Volume 1 (Report No. 2373R) for the annual emissions testing performed at the Lake County Resource Recovery Facility on January 26-29, 1999. This report presents mercury emissions as ug/dscm at 7% O2. The original report presented emissions at 12% CO2. We apologize for any inconvenience this may have caused you.

Please contact me at (973) 882-4136 if you have any questions.

Sincerely

G. J. Aldina
Sr. Vice President
Environmental Testing/CEM

GJA:rj

Enclosure

cc: G. Kuberski - FLDEP
D. Crowe - Lake Co. (w/Encl.)
G. Crane
C. Boatwright (w/Encl.)
J. Gorrie (w/Encl.)

OGDEN ENERGY GROUP, INC.

40 Lane Road
Fairfield, NJ 07007
973 882 9000
Fax 973 882 4156

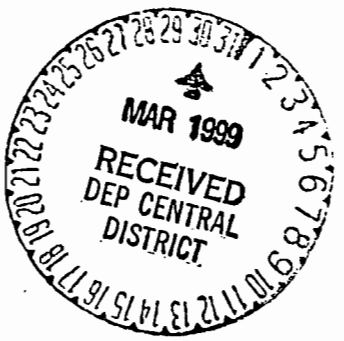
# ENVIRONMENTAL TEST REPORT

## VOLUME 1

## EXECUTIVE SUMMARY - OEG REPORT NO. 2373R

**MARCH 26, 1999**

| | |
|---|---|
| PREPARED FOR: | Ogden Martin Systems of Lake, Inc.<br>3830 Rogers Industrial Park<br>P. O. Box 189<br>Okahumpka, Florida 34762 |
| PURPOSE: | To Demonstrate Compliance with Florida Department of Environmental Protection, Permit No. AO35-193817 and Rule 62-296. |
| TEST DATES: | January 26-29, 1999 |
| ASSOCIATED REPORTS: | OEG Report No. 2330 |
| PREPARED BY: | Ogden Energy Group, Inc.<br>Department 38 - CEM/Emission Testing |



# TABLE OF CONTENTS

# 1.0 INTRODUCTION

Ogden Martin System of Lake, Inc, (OMSL) performed compliance emission tests at the Lake County Resource Recovery Facility from January 26-29, 1999. The purpose of this test program was to demonstrate compliance with the Florida Department of Environmental Protection (FLDEP), Permit No. AO35-193817, Specific Condition 8 and Rule 62-296. The testing was performed by Testar, Inc. in accordance with all procedures in the FLDEP approved test protocol.

The OMSL municipal solid waste combustion facility is located in Okahumpka, FL. The facility is rated at 528 tons of municipal solid waste per day. Units 1 and 2 were tested for mercury emissions at the economizer outlet and stack. Acid gas emissions were tested at the inlet and outlet of the air pollution control equipment. All testing was conducted simultaneously in accordance with procedures required by Florida Department of Environmental Protection (FLDEP) regional office.

A summary of emission test results for the facility is presented in Section 2.0, Tables 2.1 and 2.2. The Testar report (Volume 2) includes all testing data gathered at the site and all laboratory analytical data.

The test program, as indicated in the Source Test Plan (OEG Report No. 2330), is presented in Section 3.0, Table 3.2. Test observers and participants are presented in Table 3.1. The Schedule of Activities is presented in Table 3.3.

The mercury emission data for both units are not consistent with the control efficiency expected with activated carbon injection systems. The carbon injection system at the facility operated in accordance with permit requirements at all times without malfunction. The laboratory analysis for mercury was conducted twice. The results of the second analysis appear in the following tables. The results from the original analysis can be found in the appendices of Testar's report, Volume 2.

# 2.0 SUMMARY OF RESULTS

## TABLE 2.1

## SUMMARY OF SOURCE TEST RESULTS - UNIT 1

| Pollutant | Replicate [1] 1 | 2 | 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 1486 | 1298 | 1217 | 1334 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 42.5 | 24.7 | 25.1 | 30.8 | ---------- |
| Conc., ug/DSCM @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 9278 | 5595 | 699 | 5191 | ---------- |
| STACK [2] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 29.9 | 27.6 | 33.2 | 30.2 | 50 |
| Carbon Monoxide (CO) | 16.7 | 13.6 | 18.4 | 16.2 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 6.46 | 3.65 | 3.04 | 4.38 | 60 |
| Nitrogen Oxides (NOx) | 264 | 271 | 304 | 280 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.0131 | 0.00472 | 0.00595 | 0.00792 | 0.02 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.0128 | 0.00487 | 0.00600 | 0.00789 | 0.015 |
| Mercury (Hg) | 2.93E-03 | 6.49E-04 | 2.98E-04 | 1.29E-03 | 3.4E-04 |
| Conc.,ug/dscm @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 6787 | 1503 | 693 | 2994 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.610 | 0.155 | 0.0637 | 0.276 | ---------- |
| Particulate (PM) | 2.90 | 1.06 | 1.29 | 1.75 | ---------- |
| Removal Efficiency, % | | | | | |
| Hydrogen Chloride (HCl) [3] | 98.0 | 97.9 | 97.3 | 97.7 | ≥90 |
| Mercury (Hg) [3] | 26.9 | 73.1 | 0.9 | 33.6 | ≥80 |
| Sulfur Dioxide ($SO_2$) [4] | 84.8 | 85.2 | 87.9 | 86.0 | ≥70 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] Data presented as repetition number. Actual sample run number may differ.

[2] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[3] Based on lb/hr.

[4] Based on ppmdv @ 7% $O_2$.

## TABLE 2.2

## SUMMARY OF SOURCE TEST RESULTS - UNIT 2

| Pollutant | Replicate 1 | Replicate 2 | Replicate 3 | Average | Permitted Compliance Emission Limits |
|---|---|---|---|---|---|
| SDA INLET | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 687 | 710 | 800 | 732 | ---------- |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 25.6 | 11.9 | 15.8 | 17.8 | ---------- |
| Conc., ug/DSCM @ 7% $O_2$ | | | | | |
| Mercury (HCl) | 1068 | 693 | 281 | 681 | ---------- |
| STACK [1] | | | | | |
| Conc., ppmdv @ 7% $O_2$ | | | | | |
| Hydrogen Chloride (HCl) | 17.9 | 7.88 | 19.3 | 15.0 | 50 |
| Carbon Monoxide (CO) | 31.6 | 21.4 | 19.1 | 24.0 | 100 |
| Conc., ppmdv @ 12% $CO_2$ | | | | | |
| Sulfur Dioxide ($SO_2$) | 0.565 | 0.000 | 0.698 | 0.421 | 60 |
| Nitrogen Oxides (NOx) | 265 | 334 | 345 | 315 | 385 |
| Conc., gr/dscf @ 7% $O_2$ | | | | | |
| Particulate Matter (PM) | 0.00468 | 0.00343 | 0.00393 | 0.00401 | 0.020 |
| Conc., gr/dscf @ 12% $CO_2$ | | | | | |
| Particulate Matter (PM) | 0.00464 | 0.00339 | 0.00392 | 0.00398 | 0.015 |
| Mercury (Hg) | 2.27E-04 | 6.64E-05 | 4.19E-05 | 1.12E-04 | 3.4E-04 |
| Conc., ug/dscm @ 7% $O_2$ | | | | | |
| Mercury (Hg) | 520 | 155 | 97.3 | 258 | ---------- |
| Emission Rate, lb/hr | | | | | |
| Mercury (Hg) | 0.0461 | 0.0144 | 0.00935 | 0.0233 | ---------- |
| Particulate (PM) | 0.995 | 0.742 | 0.794 | 0.844 | ---------- |
| Removal Efficiency, % | | | | | |
| Sulfur Dioxide ($SO_2$) [2] | 97.8 | 100 | 95.6 | 97.8 | ≥70 |
| Hydrogen Chloride (HCl) [3] | 97.4 | 98.9 | 97.6 | 98.0 | ≥90 |
| Mercury (Hg) [3] | 52.0 | 78.1 | 65.3 | 65.1 | ≥80 |
| Opacity, % | | | | | |
| Visible Emissions (VE) | 0 | 0 | 0 | 0 | 15 |

[1] All testing for HCl, $SO_2$, NOx, CO, opacity, and particulate done simultaneously.

[2] Based on ppmvd @ 7% $CO_2$.

[3] Based on lb/hr.

# 3.0 TEST PROGRAM

## TABLE 3.1

TEST PARTICIPANTS

Ogden Energy Group, Inc.

G. J. Aldina

Testar, Inc.

Gary Williams
David Brintle
Herb Dixon
Joe Daley
Bill Harris
Dan Beatty

Malcolm Pirnie

John Pacifici
Chip Gerlock

## TABLE 3.2

TEST PROGRAM

| Parameter | Method |
|---|---|
| Particulate Matter (PM) | U.S. EPA Method 5 |
| Sulfur Dioxide ($SO_2$) [1] | U.S. EPA Method 6C |
| Nitrogen Oxides (NOx) | U.S. EPA Method 7E |
| Carbon Monoxide (CO) | U.S. EPA Method 10 |
| Visible Emissions (VE) | U.S. EPA Method 9 |
| Hydrogen Chloride (HCl)[1] | U.S. EPA Method 26 |
| Mercury (Hg) [1] | U.S. EPA Method 29 |

[1] $SO_2$, HCl and Hg sampled at the inlet and outlet of the air pollution control equipment.

## TABLE 3.3

## SCHEDULE OF ACTIVITIES

| Date/ Time | Unit | Location | Sampling Method | Replicate (Run) | Parameter |
|---|---|---|---|---|---|
| 1/26/99 | | | | | |
| 0836-1045 | 1 | Outlet | EPA 5/26 | 1 | PM/HCl |
| 0842-1042 | 1 | Inlet | EPA 26 | 1 | HCl |
| 0844-0944 | 1 | Inlet | EPA 3A, 6C | 1 | $SO_2$ |
| 0844-0944 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 1 | $SO_2$, NOx, CO |
| 0853-0953 | 1 | Outlet | EPA 9 | 1 | VE |
| 1520-1727 | 1 | Outlet | EPA 5/26 | 2 | PM/HCl |
| 1520-1720 | 1 | Inlet | EPA 26 | 2 | HCl |
| 1528-1628 | 1 | Outlet | EPA 9 | 2 | VE |
| 1552-1727 | 1 | Inlet | EPA 3A, 6C | 2 | $SO_2$ |
| 1552-1652 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 2 | $SO_2$, NOx, CO |
| 1628-1728 | 1 | Outlet | EPA 9 | 3 | VE |
| 1752-2000 | 1 | Outlet | EPA 5/26 | 3 | PM/HCl |
| 1755-1955 | 1 | Inlet | EPA 26 | 3 | HCl |
| 1756-1856 | 1 | Inlet | EPA 3A, 6C | 3 | $SO_2$ |
| 1756-1856 | 1 | Outlet | EPA 3A, 6C, 7E, 10 | 3 | $SO_2$, NOx, CO |
| 1/27/99 | | | | | |
| 0840-1107 | 1 | Inlet | EPA 29 | (1) [1] | Hg |
| 0840-1111 | 1 | Outlet | EPA 29 | (1) | Hg |
| 1140-1350 | 1 | Inlet | EPA 29 | 1(2) | Hg |
| 1140-1350 | 1 | Outlet | EPA 29 | 1(2) | Hg |
| 1420-1647 | 1 | Inlet | EPA 29 | 2(3) | Hg |
| 1420-1648 | 1 | Outlet | EPA 29 | 2(3) | Hg |
| 1710-1920 | 1 | Inlet | EPA 29 | 3(4) | Hg |
| 1713-1920 | 1 | Outlet | EPA 29 | 3(4) | Hg |
| 1/28/99 | | | | | |
| 0827-1035 | 2 | Inlet | EPA 29 | 1 | Hg |
| 0827-1035 | 2 | Outlet | EPA 29 | 1 | Hg |
| 1340-1546 | 2 | Inlet | EPA 29 | 2 | Hg |
| 1340-1548 | 2 | Outlet | EPA 29 | 2 | Hg |
| 1615-1822 | 2 | Inlet | EPA 29 | 3 | Hg |
| 1615-1822 | 2 | Outlet | EPA 29 | 3 | Hg |
| 1/29/99 | | | | | |
| 0800-1000 | 2 | Inlet | EPA 26 | 1 | HCl |
| 0800-1005 | 2 | Outlet | EPA 5/26 | 1 | PM/HCl |
| 0806-0906 | 2 | Outlet | EPA 9 | 1 | VE |
| 0840-0940 | 2 | Inlet | EPA 3A, 6C | 1 | $SO_2$ |
| 0840-0940 | 2 | Stack | EPA 3A, 6C, 7E, 10 | 1 | $SO_2$, NOx, CO |
| 1028-1235 | 2 | Outlet | EPA 5/26 | 2 | PM/HCl |
| 1032-1132 | 2 | Inlet | EPA 3A, 6C | 2 | $SO_2$ |
| 1032-1132 | 2 | Outlet | EPA 3A, 6C, 7E, 10 | 2 | $SO_2$, NOx, CO |
| 1032-1242 | 2 | Inlet | EPA 26 | 2 | HCl |
| 1033-1133 | 2 | Outlet | EPA 9 | 2 | VE |
| 1300-1553 | 2 | Inlet | EPA 26 | 3 | HCl |
| 1300-1551 | 2 | Outlet | EPA 5/26 | 3 | PM/HCl |
| 1307-1407 | 2 | Inlet | EPA 3A, 6C | 3 | $SO_2$ |
| 1307-1407 | 2 | Outlet | EPA 3A, 6C, 7E, 10 | 3 | $SO_2$, NOx, CO |
| 1313-1413 | 2 | Outlet | EPA 9 | 3 | VE |

[1] First mercury test runs for unit one were voided due to the lower quantities of medical waste being processed.

# 4.0 OPERATIONAL DATA DURING EMISSION TESTING

# 4.0 OPERATIONAL DATA DURING EMISSION TESTING

Operational data were collected from process recorders. This confidential data is shown in Volume 3.

# 5.0 METHODOLOGY

## TABLE 5.1

## REFERENCES

| Parameter | Test Method | Reference |
|---|---|---|
| PM | U.S. EPA Method 5 | 40 CFR 60, App. A |
| $SO_2$ | U.S. EPA Method 6C | 40 CFR 60, App. A |
| NOx | U.S. EPA Method 7E | 40 CFR 60, App. A |
| CO | U.S. EPA Method 10 | 40 CFR 60, App. A |
| VE | U.S. EPA Method 9 | 40 CFR 60, App. A |
| HCl | U.S. EPA Method 26 | 40 CFR 60, App. A |
| Hg | U.S. EPA Method 29 | 40 CFR 60, App. A |