

2008 ANNUAL STACK TEST RESULTS

	CONSTITUENT	Average Measured Emissions ¹			Permit Limit ²	Pass/Fail?		
		Unit 1	Unit 2	Unit 3				
TESTED ANNUALLY	FEDERAL	Cadmium (mg/dscm @ 7% O ₂)	1.09E-03	1.05E-03	< 8.68E-04	4.00E-02	P	
		Cadmium (lb/hr)	1.70E-04	1.88E-04	< 1.34E-04	1.90E-03	P	
		Carbon Monoxide (lb/hr)	1.30E+00	7.30E-01	7.10E-01	8.04E+00	P	
		Dioxins/Furans (ng/dscm @ 7% O ₂)	1.41E+00	9.83E-01	9.07E-01	3.00E+01	P	
		Hydrogen Chloride (ppmdv @ 7% O ₂)	4.50E+00	8.27E-01	3.55E+00	2.50E+01	P	
		Hydrogen Chloride (lb/hr)	1.06E+00	2.23E-01	8.58E-01	5.24E+00	P	
		Hydrogen Chloride Removal Efficiency (%)	99.4	99.9	99.5	>=95	P	
		Lead (mg/dscm @ 7% O ₂)	5.19E-02	2.97E-02	5.10E-03	4.40E-01	P	
		Lead (lb/hr)	8.08E-03	5.31E-03	7.82E-04	3.81E-02	P	
		Mercury (lb/hr)	2.10E-04	2.27E-04	2.04E-04	1.20E-02	P	
		Nitrogen Oxides (lb/hr)	5.31E+01	5.34E+01	5.18E+01	5.80E+01	P	
		Particulates (gr/dscf @ 7% O ₂)	1.57E-03	1.60E-03	1.55E-03	1.00E-02	P	
		PM ₁₀ ³ (gr/dscf @ 7% O ₂)	1.57E-03	1.60E-03	1.55E-03	1.00E-02	P	
		PM ₁₀ ³ (lb/hr)	5.62E-01	6.06E-01	5.43E-01	3.16E+00	P	
		Sulfur Dioxide (lb/hr)	3.30E-01	2.50E-01	4.12E+00	1.62E+01	P	
STATE	STATE	Ammonia (ppmdv @ 7% O ₂)	2.12E+00	< 7.38E-01	< 8.48E-01	5.00E+01	P	
		Ammonia (lb/hr)	2.33E-01	< 9.30E-02	< 9.60E-02	4.88E+00	P	
		Dioxins/Furans-2,3,7,8 TCDD TEQ (ng/dscm @ 7% O ₂)	2.09E-02	1.66E-02	1.46E-02	4.00E-01	P	
		Dioxins/Furans-2,3,7,8 TCDD TEQ (lb/hr)	3.20E-09	2.55E-09	2.22E-09	1.29E-07	P	
		Mercury (µg/dscm @ 7% O ₂)	1.34E+00	1.27E+00	1.32E+00	2.80E+01	P	
		Mercury Removal Efficiency (%)	98.8	99.4	98.3	>=85	P	
TESTED EVERY 5 YEARS	FEDERAL	Arsenic (lb/hr)	1.76E-04	8.88E-05	2.27E-04	7.80E-04	P	
		Beryllium (lb/hr)	< 4.99E-06	< 7.26E-06	< 6.70E-06	1.15E-05	P	
		Hydrogen Fluoride ⁴ (lb/hr)	< 1.98E-02	< 2.50E-02	< 1.94E-02	1.65E-01	P	
		VOCs - Total Hydrocarbons (ppmdv @ 7% O ₂)	1.8E+00	2.8E+00	2.1E+00	3.00E+01	P	
		VOCs - Total Hydrocarbons (lb/hr)	1.9E-01	2.9E-01	2.2E-01	2.76E+00	P	
	STATE	STATE	Chromium (lb/hr)	1.02E-03	1.13E-03	3.32E-04	1.93E-03	P
			Copper (lb/hr)	1.10E-03	9.52E-04	3.79E-04	4.00E-03	P
			Formaldehyde (µg/dscm @ 7% O ₂)	< 1.46E+01	< 1.60E+01	< 1.45E+01	5.00E+01	P
			Hexavalent Chromium - Cr ⁺⁶ ⁵ (lb/hr)	1.51E-04	1.34E-04	1.24E-04	3.00E-04	P
			Manganese (lb/hr)	1.55E-03	2.21E-03	1.80E-03	2.30E-02	P
STATE	STATE	Nickel (lb/hr)	1.06E-03	7.84E-04	4.18E-04	4.00E-03	P	
		PAHs ⁶ (µg/dscm @ 7% O ₂)	< 2.89E-01	< 3.57E-01	< 1.98E-01	1.00E+00	P	
		PAHs ⁶ (lb/hr)	< 4.51E-05	< 5.48E-05	< 3.04E-05	1.40E-04	P	
		PCBs (µg/dscm @ 7% O ₂)	< 7.06E-03	< 5.96E-03	< 1.28E-02	5.30E-02	P	
		Vanadium (lb/hr)	< 9.98E-05	< 3.13E-05	< 1.34E-04	6.00E-04	P	
Zinc ⁷ (lb/hr)	1.55E-02	2.22E-02	3.73E-03	1.88E-02	F			

NOTES:

- ¹ Based on three test runs
- ² NYSDEC Title V Permit Number 7-3142-00028/00009
- ³ Based on total particulate analysis
- ⁴ Based on total fluorides analysis
- ⁵ Results are based on 12/2008 retesting (BIF Method 0013)
- ⁶ Results do not include naphthalene/naphthalene derivatives
- ⁷ Unit 2 results are based on December 2008 retesting event

UNITS:

- gr/dscf** = grains per dry standard cubic foot
- ppmdv** = parts per million dry volume
- lb/hr** = pounds per hour
- ng/dscm** = nanograms per dry standard cubic meter
- µg/dscm** = micrograms per dry standard cubic meter
- mg/dscm** = milligrams per dry standard cubic meter
- @ 7% O₂** = concentration corrected to 7% oxygen

2008 ASH RESIDUE CHARACTERIZATION TEST RESULTS

Semi-Annual Test Results - May 2008

Constituent	Test Result	Permit Limit	Pass or Fail
Cadmium	0.35 mg/L	1 mg/L	Pass
Lead	1.175 mg/L	5 mg/L	Pass

Semi-Annual Test Results - December 2008

Constituent	Test Result	Permit Limit	Pass or Fail
Cadmium	0.32 mg/L	1 mg/L	Pass
Lead	0.5 mg/L	5 mg/L	Pass

Conclusions

Ash residue does NOT exhibit a hazardous characteristic. As such, it should continue to be managed as a non-hazardous solid waste.

2008 Air Emissions & Ash Testing: Frequently Asked Questions

Q: What is the purpose of annual air emissions stack testing?

A: **Stack testing is an important tool that measures the amount of regulated pollutants being emitted from the facility.** Stack testing consists of a series of sampling events, in which a probe is inserted into the stack gases to collect a representative sample, over a defined amount of time. Sampling and subsequent laboratory analysis must be conducted in accordance with New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (USEPA) protocols. **NYSDEC oversees stack testing at the Onondaga County Waste-to-Energy (WTE) Facility.**

Q: How do the 2008 stack test results look?

A: The results from the 2008 stack testing indicate that **the facility is operating acceptably** and that the **air pollution control devices are functioning properly.** As shown by the summary data, many of the parameters were considerably below the permit limit. One parameter had a result above the permit limit, as indicated by the “fail” for zinc.

Q: Can you explain the zinc result in more detail?

A: Absolutely. The zinc result for boiler Unit #2 was above the permit limit; however the results for boiler Units #1 and #3 were below the permit limit. Historically, the facility has never had a zinc result above the permit limit. To determine if this event was an anomaly, Unit #2 was retested in December 2008. The results again indicated a zinc result above the permit limit. Since other parameters indicated the air pollution control equipment was properly functioning, the 2008 Unit #2 zinc result could be due to increased levels of zinc in the incoming waste stream. However, if that was the case, it is surprising that the results for Units #1 and #3 were below the permit limit. Perhaps the specific waste being processed during the Unit #2 testing simply had higher than normal zinc content. **To gain a better understanding what is happening, zinc will now be tested annually rather than every five years as required by the facility’s air permit.**

Q: What causes zinc emissions?

A: Zinc emissions are caused by zinc in the incoming waste stream. Zinc is used a wide variety of everyday products; from galvanized metal and alkaline batteries to shampoos and deodorants. You may even have zinc in your pocket right now – a penny is 97.5% zinc. **OCRRA currently works with Covanta, the operator of the WTE facility, to keep certain materials, such as batteries and mercury containing thermometers and thermostats out of the waste stream.** You can do your part too by making sure you properly dispose of these materials. To learn more about these programs and others, visit OCRRA’s website at www.OCRRA.org

Q: Should I be concerned about the zinc result?

A: No. Zinc is a naturally occurring mineral, required for human health. Like almost all essential minerals, exposure to zinc in excess may be harmful. **The levels reported for Unit #2 are well**

below the levels determined as acceptable in the facility's Health Risk Assessment, which was part of the detailed permitting process required prior to building the WTE Facility.

Q: What is the basis for the current zinc permit limit?

A: **The current permit limit for zinc is not a health-based limit.** It is based on very limited information available during the early 1990s from other out-of-state WTE facilities. NYSDEC used a total of twelve stack test data points to develop this limit, which was incorporated into the facility's original Certificate to Operate. NYSDEC's intent was to generate facility-specific data over the first four years of operation and then replace the permit limit with a facility-specific permit limit. However, a provision in the permit stated that the permit limit could not increase. Later on, when facility-specific data was available, it indicated that an appropriate zinc permit limit for the facility would be an increase to the original permit limit. Due to the permit provision, the limit was never revised, despite the fact that data indicated future testing would likely result in a permit exceedance. In retrospect, it is evident that a facility-specific permit limit should have been established. **OCRRA is appropriately requesting that the current permit limit be revised to reflect facility-specific data, but at a level well below the Health Risk Assessment level.**

Q: What is the zinc permit limit at other WTE facilities in New York?

A: There are currently ten WTE facilities in New York State. Six out of the ten facilities do not have a zinc permit limit and therefore those facilities do not test for zinc. **This is due to the fact that zinc is not generally considered to be a significant contaminant of concern, as compared to some of the other monitored parameters.** The other three facilities have a permit limit much higher than the Onondaga County WTE facility's zinc permit limit.

Q: Does the facility conduct any other air emissions testing besides the annual stack testing?

A: Yes. **The facility has a continuous emission monitoring system (CEMS) that measures equipment performance and stack emissions.** The CEMS monitors carbon monoxide, carbon dioxide, oxygen, sulfur dioxide, and nitrogen oxides (NOx) as well as ammonia, opacity, and combustion temperatures.

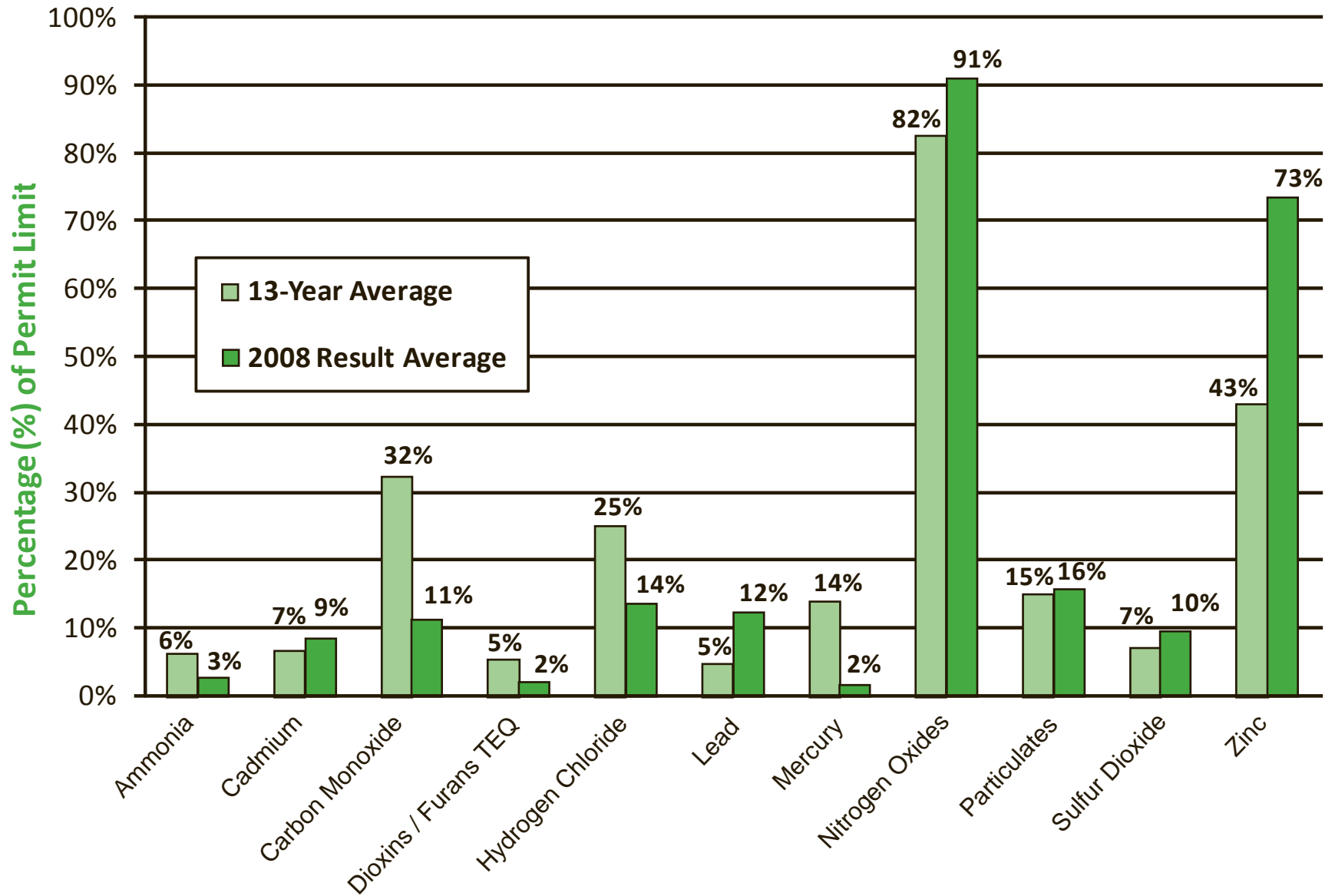
Q: What is the purpose of the semi-annual ash testing and how do the 2008 results look?

A: A representative sample of combined bottom and fly ash is collected according to NYSDEC protocols. This sample is then analyzed by an independent laboratory for leachable metals, according to EPA's Toxicity Characteristic Leaching Procedure (TCLP). TCLP analysis simulates landfill conditions (the final disposal site for the ash) and determines whether the ash exhibits hazardous characteristics. **Over the life of the facility (including 2008), TCLP analysis has always indicated that the ash is non-hazardous.**

Q: Who can I contact for more information?

A: For more detailed information on the test results please contact OCRRA's Agency Engineer, Amy Lawrence, at **453.2866** or alawrence@ocrra.org. For additional questions of OCRRA's Public Information Officer, please contact Kristen Lawton at **295.0733** or klawton@ocrra.org.

Long-term Facility Average vs. 2008 Test Results



Mercury Emissions & Air Pollution Control System Effectiveness

