



November 28, 2012

Mr. Mike Simon
Stationary Source Manager
Air Quality Division
State of Idaho
Department of Environmental Quality
1410 North Hilton
Boise, ID 83706

Dear Mr. Simon:

Dynamis is in receipt of your letter dated November 16, 2012 whereby you assert that "DEQ has determined that the potential to emit mercury emissions is greater than the annual mercury emission threshold of 25 pounds for new or modified sources". While we understand the question, it is usual and customary for topics of this nature to be addressed in a draft permit rather than a letter. Having said that, we have reviewed the tests and associated facts pertaining to our application for permit submittal, and must respectfully, but categorically, take issue with and refute the department's analysis for the following scientific and engineering reasons:

The alternate calculation proposed by DEQ is an invalid methodology. The standard method for utilizing source test data is to determine a lb/hr emission rate to be used in conjunction with the ton/hr combustion or material throughput rate, to develop a 'normalized' lb/ton emission factor. This methodology is used to remove variability in dilution air, unit efficiency, and combustion rate. The ug/dscm value in the source test applies only to the exact flow rate and combustion throughput during the test burn. To assert that the volumetric concentration measured during a source test at a different facility under a specific test burn flow rate and MSW throughput will be the emission rate at the Dynamis Ada County facility, operating under differing flow rates and material throughputs, is flawed.

Dynamis maintains that the source test data used in the initial calculations of mercury emissions are most representative of the Ada County facility waste composition of only MSW and tires. Including other tests that contained

significant fractions of material that will not be processed at the Dynamis Ada County facility could potentially introduce variability and errors. However, in an effort to account for possible but unlikely, significant variation in the waste stream and calculate potential worst case mercury emissions, Dynamis has increased the number of source tests used in the emission factor calculations to include tests with waste both typical and atypical of the proposed facility. Dynamis has also calculated revised operating scenarios and re-calculated emission factors based on refined material ratios (MSW and tires). This addresses DEQs concerns regarding tests with lower emissions being given equal weighting as higher concentration test results.

Mercury content in incoming waste has decreased substantially between the time the source tests were performed in the early 1990's and today. Typical reductions of 75% are documented due to proper hazardous waste disposal and reduced mercury content in consumer products. Reductions as high as 90% have been realized in communities with effective and aggressive hazardous waste disposal programs, such as Onandaga County, New York. Ada County currently has one of these excellent disposal programs in place; a comparison of Onandaga County and Ada County hazardous waste collection programs is shown in Table 1.

Table 1 - Comparison of Onandaga and Ada Counties

Program	Onandaga County	Ada County
Population	467,026	392,365
Total Area	793.5	1052
General HHW Collection	Two HHW collection days per year	Collection facility (at landfill) open 2 days per week, plus monthly drop off locations throughout Ada County
Battery Recycling	Battery collection boxes at various locations, once per year pick up curbside	Available at the collection facilities, Batteries Plus locations, Home Depot and Radio Shack
CFL Recycling	Available at Onandaga County hardware stores, Home Depots and Lowes	Available at Ada County Home Depot location
Thermometer/Thermostat	Drop off at HHW drop-off days	Drop off at HHW monthly drop off site or at HHW facility at landfill, exchange thermometers at St. Alphonsus

Dynamis maintains that a present day and future waste will have significantly reduced mercury content compared to waste from the early 1990's. Therefore a reduction of mercury should be applied to the source test date collected in the early 90's. Although Ada County waste is expected to have very low mercury concentrations compared to the source test waste, Dynamis has calculated potential mercury emissions using a reduction in mercury in incoming waste of 66%, which is near the low end of typical reduction percentages, shown in Table

2. Dynamis asserts that this reduction represents worst-case operation conditions for Ada County waste entering the Dynamis facility.

Table 2 - Reductions in Mercury Concentration in MSW

Source	Area	Year/Hg Concentration in MSW	Year/Hg Concentration in MSW	% Reduction
Onandaga County Resource Recovery Facility Annual Report ¹	Onandaga County, NY	1995/310 (ug/m3)	2010/30	90.3%
Quantifying Mercury in Florida's Solid Waste Page ²	Florida	1995/12 (tons)	2002/6	50%
Review: Mercury in Waste Incineration ³	Europe	1990/4.0 (mg/kg)	2002/2.0	50%
Characterization of Products Containing Mercury in MSW in the United States, 1970 to 2000 ⁴	United States	1989/709 (tons)	2000/172.7	75%
Average				66.3%

1. Onandaga County, Resource Recovery Facility, NYSDEC Part 360 Permit ID No. 7-3142-00028/00011, Title V Air Permit ID No. 7-3142-00028/00009, Annual Report of Facility Performance, Operating Year 2010, Onandaga County Resource Recovery Agency, [WWW.OCRRA.ORG](http://www.ocrra.org), Prepared May 2011

2. http://www.dep.state.fl.us/waste/categories/mercury/pages/sources_and_quantities.htm

3. van Velzen, et al. Waste Manag Res December 2002 vol. 20 no. 6 556-568

4. USEPA, 1992

Although the initial submission did not include mercury reductions due to the wet scrubber pollution control system, Dynamis is confident the scrubber will provide mercury capture and removal from the flue gas. Wet scrubbing technology is proven to significantly reduce the emission of particulate, and oxidized mercury due to the oxidizing and quenching environment present in the scrubber. Several studies, shown in Table 3, indicate wet scrubber mercury removal efficiency ranging from 62% to greater than 90%. The most recent of these studies, published in 2010, provides an inventory of studies of wet scrubber control efficiency and shows a mean removal efficiency of 77.8% with an upper and lower confidence interval of 85-68.4% respectively. Once again, Dynamis has used the lowest removal efficiency value of 68.4% from this study to account for possible poor scrubber performance and operation.

Table 3 - Wet Scrubber Mercury Control Efficiency

Source	Scrubber Control Efficiency for Mercury
K. L. Nebel and D. M. White, A Summary Of Mercury Emissions And Applicable Control Technologies For Municipal Waste Combustors, Research Triangle Park, NC, September, 1991.	Lyon-Nord, France Unit 1: Average = 82% Lyon-Nord, France Unit 2: Average = 62% Lyon-Sud, France Unit 1: Average = 88% Lyon-Sud, France Unit 1: Average = 87% Basel, Switzerland Unit 1: Average = 93.2% Basel, Switzerland Unit 2: Average = 90.8%
Heavy Metal Partitioning in a Municipal Solid Waste Incinerator, Sorum, Fossum, Evensen, and Hustad, Proceedings of the fifth Annual North American Waste to Energy Conferance, Research Triangle Park, North Carolina April 22-25, 1997	92% (volatile Hg) 87% (total Hg)
Emissions of Heavy Metal and PAH compounds from Municipal Solid Waste incinerators: Control Technology and Health Effects; Report on a WHO Meeting; Florence 12-16 October 1987; World Health Organization Regional Office for Europe, Copenhagen, 1988.	70% to 90% (vapor bound Hg)
Statistical estimate of mercury removal efficiencies for air pollution control devices of municipal solid waste incineratorsF. Takahashi, et al. Science of the Total Environment 408 (2010) 5472–5477	Upper confidence interval: 85% Lower confidence interval: 68.4% Mean: 77.8%
Average (approximate)	83%

To be clear, we are confident that emissions of mercury from the Dynamis Energy facility will fall below the IDAPA 58.01.01.215 MBACT threshold without the necessity of additional controls, other than those already proposed for acid gas and particulate matter control. Having said that, after substantial delays, in order to complete the permitting process in a timely manner, Dynamis will agree to perform an MBACT analysis for submittal to DEQ. Dynamis will also install a sorbent type monitoring/sampling system to monitor mercury emissions from the system. This technology is considered the best-proven technology to measure mercury.

It is our hope that this action will provide DEQ with an ability to confirm that adequate safeguards are in place to address such an extraordinary and unusual condition as mentioned in your letter so that the draft permit can be issued.

Sincerely,

Dynamis Energy, LLC



Christopher Durand, P.E.

cc: C. Lloyd Mahaffey, CEO
Wade Thomas, SVP, Legal and Finance
Michael Bogert, Parson Behle
Shannon Manoulian, JBR