EVALUATION OF MERCURY EMISSIONS FROM COAL-FIRED FACILITIES WITH SCR AND FGD SYSTEMS

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ABSTRACT

CONSOL Energy Inc., Research & Development (CONSOL), with support from the U.S. Department of Energy, National Energy Technology Laboratory (DOE) and the Electric Power Research Institute (EPRI), is evaluating the effects of selective catalytic reduction (SCR) on mercury (Hg) capture in coal-fired plants equipped with an electrostatic precipitator (ESP) - wet flue gas desulfurization (FGD) combination or a spray dyer absorber – fabric filter (SDA-FF) combination. In this program CONSOL is determining mercury speciation and removal at 10 coal-fired facilities. The principal purpose of this work is to develop a better understanding of the potential mercury removal "co-benefits" achieved by NOx, and SO₂ control technologies. It is expected that this data will provide the basis for fundamental scientific insights into the nature of mercury chemistry in flue gas, the catalytic effect of SCR systems on mercury speciation and the efficacy of different FGD technologies for mercury capture. Ultimately, this insight could help to design and operate SCR and FGD systems to maximize mercury removal.

The objectives are 1) to evaluate the effect of SCR on mercury capture in the ESP-FGD and SDA-FF combinations at coal-fired power plants, 2) evaluate the effect of SCR catalyst degradation on mercury capture; 3) evaluate the effect of low load operation on mercury capture in an SCR-FGD system, and 4) collect data that could provide the basis for fundamental scientific insights into the nature of mercury chemistry in flue gas, the catalytic effect of SCR systems on mercury speciation and the efficacy of different FGD technologies for mercury capture.

This document, the tenth in a series of topical reports, describes the results and analysis of mercury sampling performed on two 468 MW units burning bituminous coal containing 1.3-1.7% sulfur. Unit 2 is equipped with an SCR, ESP, and wet FGD to control NO_x, particulate, and SO₂ emissions, respectively. Unit 1 is similar to Unit 2, except that Unit 1 has no SCR for NOx control. Four sampling tests were performed on both units in January 2005; flue gas mercury speciation and concentrations were determined at the economizer outlet, air heater outlet (ESP inlet), ESP outlet (FGD inlet), and at the stack (FGD outlet) using the Ontario Hydro method. Process samples for material balances were collected with the flue gas measurements.

The results show that the SCR increased the oxidation of the mercury at the air heater outlet. At the exit of the air heater, a greater percentage of the mercury was in the oxidized and particulate forms on the unit equipped with an SCR compared to the unit without an SCR (97.4% vs 91%). This higher level of oxidation resulted in higher mercury removals in the scrubber. Total mercury removal averaged 97% on the unit with the SCR, and 87% on the unit without the SCR.

The average mercury mass balance closure was 84% on Unit 1 and 103% on Unit 2.

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LIST OF ABBREVIATIONS

acfm am Btu Ca/S cfm CO_2 CONSOL R&D CVAA DI DOE dscf dscfm EPA EPRI ESP FGD ft ft ² ft ³ gm gpm gr HCI Hg Hg ^{part} Hg ^{part} Hg ^o HNO ₃ H ₂ O H ₂ O ₂ hr ICP-AES		cold vapor atomic absorption deionized water U.S. Department of Energy dry standard cubic feet dry standard cubic feet per minute U.S. Environmental Protection Agency Electric Power Research Institute electrostatic precipitator flue gas desulphurization feet square feet cubic feet grams gallons per minute grains hydrochloric acid mercury mercury in particulate form total mercury in particulate, oxidized, and elemental forms mercury in oxidized form mercury in elemental form nitric acid water hydrogen peroxide hour
	-	
ICP-AES	-	inductively coupled plasma-atomic emission spectrometer
in	-	inch
KCI	-	potassium chloride
KMnO₄	-	potassium permanganate
L	-	liter
lb	-	pound
m	-	meter
m ³	-	cubic meter
ME	-	mist eliminator
mg	-	milligram, 10 ⁻³ gram

LIST OF ABBREVIATIONS (continued)

min		minute
mL	-	milliliter
M		
MM	-	molar, mol/L million
	-	-
mol	-	mole
ng	-	nanogram, 10 ⁻⁹ gram
N ₂	-	molecular nitrogen
NIST	-	National Institute of Standards and Technology
NO	-	nitric oxide
NO ₂	-	nitrogen dioxide
O ₂	-	molecular oxygen
O ₃	-	ozone
pm	-	afternoon
PM	-	particulate matter
ppb	-	parts per billion (10 ⁹)
ppm	-	parts per million
ppmv	-	parts per million by volume
PRSD	-	percent relative standard deviation
QA	-	quality assurance
QC	-	quality control
rpm	-	revolutions per minute
scf	-	standard cubic feet (68EF and 29.92"Hg)
scfm	-	standard cubic feet per minute
SRM	-	Standard Reference Material
temp	-	temperature
tph	-	tons per hour
TBtu	-	trillion (10 ¹²) British thermal unit
wt	-	weight
V	-	volts
VS	-	versus
°F	-	temperature in degrees Fahrenheit
<	-	less than
>	-	more than
μg	-	microgram, 10 ⁻⁶ gram
r9		

INTRODUCTION

CONSOL Energy Inc. Research and Development (CONSOL R&D) is determining mercury speciation and removal at 10 coal-fired facilities with SCR/FGD combinations (Table 1). CONSOL R&D conducted flue gas mercury (Hg) measurements on Units 1 and 2 at Plant 4 in January 2005. The two units are similar except that Unit 2 is equipped with a selective catalytic reduction (SCR) unit for NOx control. The tests were performed under U. S. Department of Energy (DOE) Cooperative Agreement No. DE-FC26-02NT41589, and the Electric Power Research Institute (EPRI) Agreement No. EP-P13687/C6820. The test program on each unit consisted of four sets of measurements across the combustion emission control system that consists of the SCR (Unit 2 only), electrostatic precipitator (ESP), and flue gas desulfurization (FGD) systems.

The mercury measurements were made using the Ontario-Hydro Flue Gas Hg Speciation Method. The testing conducted by CONSOL R&D is documented in this report.

Site #	MW	Air Pollution Control Devices	Coal	Ozone Unit
1	330	SCR / Spray Dryer / Baghouse	Bit	year round
2	245	SCR / Spray Dryer / Baghouse	Bit	year round
3	508	SCR / ESP/ Limestone FGD, inhibited oxidation	Bit	Yes
4 Unit 1	468	ESP/ Limestone FGD, natural oxidation	Bit	(1)
4 Unit 2	468	SCR / ESP/ Limestone FGD, natural oxidation	Bit	year round
5 Unit 1	1,300	SCR / ESP/ Limestone FGD, in-situ oxidation	Bit	Yes
5 Unit 2	1,300	ESP/ Limestone FGD, in-situ oxidation	Bit	(1)
6 (2)	544	SCR / ESP/ Limestone FGD, ex-situ oxidation	Bit	Yes
7 (2)	566	SCR / ESP/ Limestone FGD, ex-situ oxidation	Bit	Yes
8	684	SCR / ESP / Lime FGD, ex-situ oxidation	Bit	Yes
9	640	SCR / ESP/ Lime FGD, inhibited oxidation	Bit	Yes
10	1,300	SCR / ESP/ Lime FGD, inhibited oxidation	Bit	Yes

 Table 1. Coal-fired facilities in program

⁽¹⁾ SCR was not installed when tests were conducted.

⁽²⁾ Tests were also conducted during non-ozone seasons while flue gases bypassed SCR.

HOST UTILITY DESCRIPTION¹

Plant 4 is a 936 MW pulverized bituminous coal-fired generation facility operating two units. The plant typically burns bituminous coal containing less than 2.5% sulfur. Both units are equipped with ESP and limestone-based wet FGD to control the emissions of

¹ Per facility's Title V permit.

particulate matter and sulfur dioxide (SO₂). The FGDs are natural oxidation systems equipped with adipic acid feed to assist in SO₂ removal and are designed for 90% reduction. Unit 2 is equipped with a Siemens plate-type SCR; anhydrous ammonia is injected in front of the SCR catalyst beds to react with NOx. The SCR unit is operated year-round.

Each unit is a dry-bottom wall-fired boiler with a nominal design heat input of 4,286 MM Btu per hour. Particulate matter is removed by a six-field, cold-side ESP. The ESP has 24 ash hoppers arranged in six rows of four hoppers each, one row per ESP field. The limestone-based wet FGD system has three 50%-capacity scrubber modules; only two modules are in service at any one time. The scrubber sludge is dewatered using gravity-settling type thickeners and vacuum filters and stabilized by mixing the solids with flyash and lime. The stabilized solids are landfilled. The scrubbed flue gas exits through a 550-ft stack.

MERCURY SAMPLING RESULTS

I. Test Matrix

Each set of mercury measurements consisted of a total of four tests over three days. The test matrix is shown in Table 2. A total of 16 flue gas mercury measurements were conducted at four locations (economizer outlet, air heater outlet, FGD inlet, and stack) on each unit. The two units were tested in separate weeks. The Ontario Hydro Method (ASTM Method D-6784-02) was used to perform the measurements. Mercury measurements were performed with a net sampling time of 120 minutes. Details of sampling conditions are provided later in this report.

To calculate the material balance, CONSOL R&D and plant personnel obtained process samples (coal, coal mill rejects, bottom ash, ESP ash, limestone slurry, FGD slurry, and FGD makeup/mist eliminator wash water) simultaneously during the gas sampling periods. CONSOL R&D performed all the sample laboratory analyses; no analysis was sub-contracted out. Detailed results of analyses are included in this report.

		Flu	e Gas Sa	mpling		Process Sampling						
Date	Activity	Economizer Outlet	Air Heater Outlet	FGD Inlet	Stack	Coal	Coal Mill Rejects		·		FGD Slurry	FGD Makeup + ME Wash Water
18-Jan	Setup on Unit 1											
19-Jan	Test 1	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	
20-Jan	Test 2	Х	Х	Х	Х	х		х	Х	Х	Х	
20-Jan	Test 3	Х	Х	Х	Х	~		^	Х	Х	Х	Х
21-Jan	Test 4, Move to Unit 2	х	х	х	х	х			х	х	х	х
Week- end	None											
24-Jan	Setup on Unit 2, Test 1	х	х	х	х	х	х		х	х	х	х
25-Jan	Test 2	Х	Х	Х	Х	х	Х	х	Х	Х	Х	Х
20 0011	Test 3	Х	Х	Х	Х	~	Х		Х	Х	Х	Х
26-Jan	Test 4	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
27-Jan	Pack, Demobilize											

 Table 2. Sampling test matrix

II. Flue Gas Mercury Sampling Results

Figures 1 and 2 show the mercury speciation for the four tests conducted at each location on Units 1 (no SCR) and 2 (with SCR), respectively. All tests were conducted isokinetically. A complete listing of mercury analyses is in Appendix C. The results at each location are discussed in the following sections. The associated tables list the measured Ontario Hydro sampling train concentrations and the mercury throughput for the respective location with the concentrations applied to the stack flow rate corrected to the locations' oxygen concentration. Adjusting the mercury throughput to the stack flow rate is more accurate as this is the only location where flow could be measured accurately.

A. Economizer Outlet

Four mercury measurements were conducted at the economizer outlet (air heater inlet on Unit 1 and SCR inlet on Unit 2) on both units. Table 3 summarizes the results, which show that about 99% of the mercury was in the gas phase and about 1% of the mercury was in the particulate form (Hg^{part}). The high percentage of gas phase mercury is expected due to the gas temperature (673-714°F) at this location. About forty percent of the total mercury was in the elemental form (Hg⁰) at both units.

Date	Test	•	Concenti			Hg Flow, mg/sec				
Dale	No.		dry std c	l .			an mort land the option			
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	
1/19	Unit 1, Test 1	0.061	4.82	4.50	9.37	0.025	1.98	1.85	3.85	
1/20	Unit 1, Test 2	0.073	4.97	3.36	8.41	0.031	2.07	1.40	3.49	
1/20	Unit 1, Test 3	0.073	4.85	2.97	7.89	0.031	2.06	1.26	3.35	
1/21	Unit 1, Test 4	0.096	3.57	1.58	5.25	0.041	1.53	0.68	2.25	
Average Standard Deviation PRSD		0.076 0.014 19%	4.55 0.66 14%	3.10 1.20 39%	7.73 1.76 23%	0.032 0.007 21%	1.91 0.26 13%	1.30 0.48 37%	3.24 0.69 21%	
Data Test										
Date		_	Concenti dry std co		_		Hg Flow	, mg/sec	:	
Date	Test No.	_	Concenti dry std co Hg ⁺⁺		_	Hg ^{part}	Hg Flow Hg ⁺⁺	, mg/sec Hg⁰	Hg ^{total}	
Date 1/24		(0	ry std c	ondition	5)		-			
	No. Unit 2,	(d Hg ^{part}	dry std co Hg⁺⁺	ondition: Hg⁰	s) Hg ^{total}	Hg ^{part}	J Hg⁺⁺	Hg⁰	Hg ^{total}	
1/24	No. Unit 2, Test 1 Unit 2,	(c Hg ^{part} 0.079	dry std co Hg ⁺⁺ 5.76	ondition: Hg ⁰ 4.58	s) Hg ^{total} 10.4	Hg ^{part}	Hg ⁺⁺	Hg ^o	Hg ^{total} 4.38	
1/24 1/25	No. Unit 2, Test 1 Unit 2, Test 2 Unit 2,	(c Hg ^{part} 0.079 0.074	dry std co Hg⁺⁺ 5.76 6.11	onditions Hg⁰ 4.58 4.55	s) Hg ^{total} 10.4 10.7	Hg ^{part} 0.033 0.032	Hg ⁺⁺ 2.42 2.63	Hg ^o 1.92 1.96	Hg ^{total} 4.38 4.62	

 Table 3. Flue gas mercury speciation at the Economizer Outlet

B. Air heater outlet

Four mercury measurements were conducted at the air heater outlet location in on both units. Table 4 summarizes the results. The majority (87-96%) of the mercury was vapor-phase Hg⁺⁺. On both units, a substantial portion of the elemental mercury was oxidized in the air heater or SCR/air heater combination. Compared to about 40% elemental mercury at the economizer outlet, only 9% was elemental at Unit 1's air heater outlet and only 2.6% was elemental at Unit 2's air heater outlet. The results also show that the SCR-air heater combination on Unit 2 oxidized more mercury than the air

heater (with no SCR) on Unit 1. The elemental mercury reduction from the economizer exit to the air heater exit was 77% on Unit 1 (1.30 to 0.30 mg/sec) and 95% on Unit 2 (1.73 to 0.09 mg/sec).

Date	Test No.		Concenti dry std co			Hg Flow, mg/sec			
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}
1/19	Unit 1, Test 1	0.63	5.65	0.23	6.52	0.28	2.56	0.11	2.95
1/20	Unit 1, Test 2	0.05	6.88	0.90	7.83	0.01	3.18	0.41	3.61
1/20	Unit 1, Test 3	0.17	6.55	1.05	7.77	0.08	3.04	0.49	3.61
1/21	Unit 1, Test 4	0.13	4.62	0.38	5.12	0.06	2.18	0.18	2.41
Standard	Average Deviation PRSD	0.24 0.26 108%	5.93 1.01 17%	0.64 0.39 62%	6.81 1.28 19%	0.11 0.12 106%	2.74 0.46 17%	0.30 0.18 62%	3.15 0.58 18%
Date	Test No.		Concenti dry std co			Hg Flow, mg/sec			
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}
1/24	Unit 2, Test 1	0.27	6.97	0.19	7.43	0.12	3.20	0.09	3.41
1/25	Unit 2, Test 2	1.25	6.31	0.19	7.75	0.58	2.92	0.09	3.59
1/25	Unit 2, Test 3	0.62	6.57	0.24	7.42	0.29	3.07	0.11	3.47
1/26	Unit 2, Test 4	1.56	5.25	0.14	6.95	0.73	2.44	0.06	3.22
Standard	Average Deviation PRSD	0.92 0.59 64%	6.27 0.74 12%	0.19 0.04 23%	7.39 0.33 4%	0.43 0.27 64%	2.91 0.34 12%	0.09 0.02 23%	3.42 0.15 4%

Table 4. Flue gas mercury speciation at the air heater outlet

C. FGD inlet

Four mercury measurements were conducted at the FGD inlet location at both units. Table 5 summarizes the results. In both units, nearly 100% of the flue gas mercury was in the gaseous phase because this location is downstream of the ESP. On Unit 1, 93%

of the mercury entering the scrubber was in the oxidized form, while 98% was in the oxidized form entering Unit 2's scrubber.

Date	Test No.		ncentra std cor			Hg Flow, mg/sec				
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	
1/19	Unit 1, Test 1	2.63x10 ⁻³	6.25	0.38	6.63	1.27 x10 ⁻³	3.03	0.18	3.21	
1/20	Unit 1, Test 2	2.56 x10 ⁻³	6.52	0.27	6.79	1.22 x10 ⁻³	3.11	0.13	3.24	
1/20	Unit 1, Test 3	2.71 x10 ⁻³	7.46	0.37	7.83	1.32 x10 ⁻³	3.63	0.18	3.81	
1/21	Unit 1, Test 4	2.52 x10 ⁻³	3.43	0.46	3.90	1.23 x10 ⁻³	1.67	0.23	1.90	
Average Standard Deviation PRSD		2.60 x10 ⁻³ 8.29 x10 ⁻⁵ 3%	5.92 1.73 29%	0.37 0.08 22%	6.29 1.68 27%	1.26 x10 ⁻³ 4.55 x10 ⁻⁵ 4%	2.86 0.83 29%	0.18 0.04 23%	3.04 0.81 27%	
Date	Test No.		ncentra std cor			Hg Flow, mg/sec				
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg ⁺⁺	Hg⁰	Hg ^{total}	
1/24	Unit 2, Test 1	2.88 x10 ⁻³	7.18	0.13	7.31	1.37 x10 ⁻³	3.40	0.061	3.47	
1/25	Unit 2, Test 2	3.14 x10 ⁻³	7.91	0.13	8.05	1.49 x10 ⁻³	3.76	0.064	3.83	
1/25	Unit 2, Test 3	3.22 x10 ⁻³	7.85	0.13	7.98	1.54 x10 ⁻³	3.74	0.060	3.81	
1/26	Unit 2, Test 4	3.10 x10 ⁻³	6.35	0.15	6.50	1.50 x10 ⁻³	3.06	0.070	3.13	
Standard	Average Deviation PRSD	3.09 x10 ⁻³ 1.45 x10 ⁻⁴ 5%	7.32 0.73 10%	0.13 0.01 7%	7.46 0.72 10%	1.47×10^{-3} 3.49 0.064 3.56		3.56 0.33		

 Table 5. Flue gas mercury speciation at the FGD inlet

D. Stack

Four mercury measurements were conducted at the stack on both units. Table 6 summarizes the results. On Unit 1, elemental mercury increased by 83%, from 0.18 mg/sec at the FGD inlet to 0.33 mg/sec at the stack. On Unit 2, the elemental mercury was essentially the same, 0.06 at the FGD inlet and 0.07 at the stack. An increase of

Hg⁰ across wet scrubbers has been observed by CONSOL R&D at many other plants^{2,3}. It is not clear why an increase did not occur in Unit 2's scrubber.

		Hg Cor	centratio	on, µg/r	n ³	Hg Flow, mg/sec			
Date	Test No.		std cond	litions)			- ,	J	
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}
1/19	Unit 1, Test 1	2.26 x10 ⁻³	0.45	0.32	0.77	1.11 x10 ⁻³	0.22	0.16	0.38
1/20	Unit 1, Test 2	2.24 x10 ⁻³	0.35	0.80	1.16	1.11 x10 ⁻³	0.17	0.40	0.57
1/20	Unit 1, Test 3	2.24 x10 ⁻³	0.32	1.06	1.39	1.11 x10 ⁻³	0.16	0.52	0.69
1/21	Unit 1, Test 4	2.21 x10 ⁻³	0.26	0.52	0.79	1.10 x10 ⁻³	0.13	0.26	0.39
Standar	Average d Deviation PRSD	2.24x10 ⁻³ 2.44 x10 ⁻⁵ 1%	0.35 0.08 23%	0.68 0.33 48%	1.03 0.30 29%	1.11 x10 ⁻³ 4.79 x10 ⁻⁶ 0.4%	0.17 0.04 22%	0.33 0.16 48%	0.51 0.15 29%
	T (N	-	ocentratio		n ³	Hg	Flow, m	g/sec	
Date	Test No.		std cond					1	
		Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}	Hg ^{part}	Hg⁺⁺	Hg⁰	Hg ^{total}
1/24	Unit 2, Test 1	2.30x10 ⁻³	0.21	0.16	0.38	1.11 x10 ⁻³	0.101	0.079	0.18
1/25	Unit 2, Test 2	2.29 x10 ⁻³	0.35	0.16	0.52	1.11 x10 ⁻³	0.172	0.077	0.25
1/25	Unit 2, Test 3	2.26 x10 ⁻³	0.12	0.14	0.25	1.11 x10 ⁻³	0.056	0.067	0.12
1/26	Unit 2, Test 4	2.23 x10 ⁻³	0.16	0.10	0.27	1.10 x10 ⁻³	0.079	0.051	0.13
Standar	Average d Deviation PRSD	2.27 x10 ⁻³ 3.21 x10 ⁻⁵ 1%	0.21 0.10 50%	0.14 0.03 19%	0.35 0.12 34%	1.11 x10 ⁻³ 7.03 x10 ⁻⁶ 0.6%	0.102 0.050 49%	0.069 0.013 19%	0.17 0.06 34%

 Table 6. Flue gas mercury speciation at the stack

² DeVito, M. S., Withum, J. A., and Statnick, R. M., "Flue Gas Measurements from Coal-Fired Boilers Equipped with Wet Scrubbers," Int. J. of Environ. Pollution 17 (1/2), 2002, p. 126-142

³ Evaluation of Mercury Emissions from Coal-Fired Facilities with SCR and FGD Systems - Topical Report Nos. 1, and 4 through 9, U.S. DOE Cooperative Agreement DE-FC26-02NT41589

III. SCR/FGD System Hg Removal

Table 7 summarizes the flue gas mercury removal across the SCR/FGD system for the two units. In Unit 2 (with SCR), the air heater outlet-to-stack mercury removal ranged from 93 to 96% and the average was 95.0%. The coal-to-stack mercury removal ranged from 96 to 98% and the average coal-to-stack mercury removal was 97.1%. In Unit 1 (no SCR), the air heater outlet-to-stack mercury removal ranged from 81 to 87% and the average was 84.0%. The coal-to-stack mercury removal ranged from 85 to 90% and the average coal-to-stack mercury removal was 87.1%.

		System Mercury Reduction								
Date	Test No.	Onta	ario Hydro R mg Hg ^{total} /se	esults, ec	Coal Feed Based Reduction, mg Hg ^{total} /sec					
		Air Heater Outlet	Stack Emissions	% Reduction	Coal Feed	Stack Emissions	% Reduction			
1/19	Unit 1, Test 1	2.95	0.38	87	3.85	0.38	90			
1/20	Unit 1, Test 2	3.61	0.57	84	4.54	0.57	87			
1/20	Unit 1, Test 3	3.61	0.69	81	4.50	0.69	85			
1/21	Unit 1, Test 4	2.41	0.39	84	2.79	0.39	86			
S	Average tandard Deviation PRSD	3.15 0.58 18%	0.51 0.15 29%	84.0 2.5 3%	3.92 0.81 21%	0.51 0.15 29%	87.1 2.3 3%			
		System Mercury Reduction								
Date	Test No.	Onta	ario Hydro R mg Hg ^{total} /s	esults, ec	Coal Feed Based Reduction, mg Hg ^{total} /sec					
		Air Heater Outlet	Stack Emissions	% Reduction	Coal Feed	Stack Emissions	% Reduction			
1/24	Unit 2, Test 1	3.41	0.18	95	5.87	0.18	97			
1/25	Unit 2, Test 2	3.59	0.25	93	6.70	0.25	96			
1/25	Unit 2, Test 3	3.47	0.12	96	6.67	0.12	98			
1/26	Unit 2, Test 4	3.22	0.13	96	4.60	0.13	97			
S	Average standard Deviation PRSD	3.42 0.15 4%	0.17 0.06 34%	95.0 1.5 1.6%	5.96 0.99 17%	0.17 0.06 34%	97.1 0.8 0.8%			

 Table 7. Flue gas mercury removal

IV. Mercury Material Balance

An important criterion to gauge the overall quality of the tests is to conduct a mercury mass balance to account for the mercury entering and leaving the plant during the tests. The mercury material balance closure is the total mercury output from the plant divided by the total mercury input (expressed as %). The total mercury input is the sum of the amounts of mercury entering the system from coal, limestone slurry, and FGD make-up water. The total mercury output is the sum of the amounts of mercury output is the sum of the amounts of mercury leaving the system via coal mill rejects, boiler bottom ash, ESP hopper ash, FGD slurry, and stack flue gas.

Tables 8 and 9 summarize the mercury material balance closures for the tests conducted at Units 1 and 2, respectively. The mercury material balance closures ranged from 72% to 104% on Unit 1 and between 93 and 109% on Unit 2. The material balance closures for mercury for all individual tests are within our QA/QC criterion of 70-130% for a single test. The average material balance closure was 84% on Unit 1 and 103% on Unit 2, which are within our QA/QC criterion of 80-120% for multiple tests. The measurements, calculations, and assumptions for calculating the material balances are described later in this report.

Test No.	1	2	3	4
Total Hg Input (mg/sec)	3.91	4.60	4.55	2.87
Total Hg Output (mg/sec)	3.15	3.31	3.61	2.96
Hg Material Balance Closure (output / input)	81%	72%	79%	104%
Average Hg Material Balance Closure (%)	84%±13%			

Table 8. Mercury material balance closure, Unit 1 (no SCR)

Table 9	Mercury material balance closure, Unit 2 (with Second	CR)
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Test No.	1	2	3	4
Total Hg Input (mg/sec)	3.36	3.89	3.84	4.00
Total Hg Output (mg/sec)	3.67	4.08	4.10	3.70
Hg Material Balance Closure (output / input)	109%	105%	107%	93%
Average Hg Material Balance Closure (%)	103%±7%			

V. SCR/Non-SCR Test Comparison

At the inlet to the ESP and at the inlet to the FGD, the percentage of flue gas elemental mercury was lower in the SCR-equipped unit compared to the non-SCR unit. This is important because these two pollution control devices are efficient at removing particulate and oxidized mercury, but not elemental mercury. Table 10 compares the average mercury speciation of the flue gas in the air heater outlet (ESP inlet) duct and in the ESP outlet (FGD inlet) duct for both units.

Table 10. Comparisons of Average Flue Gas Mercury Speciation, SCR Unit vs. Non-SCR Unit, at the Air Heater Outlet and at the FGD Inlet

Mercury		l Mercury at the tlet (ESP Inlet)	Percent of Total Mercury at the ESP Outlet (FGD Inlet)		
Species	Species Unit 1 Unit 2 (with no SCR) (with SCR)		Unit 1 (with no SCR)	Unit 2 (with SCR)	
Hg ^{part}	3%	12%	0%	0%	
Hg ⁺⁺	87%	85%	94%	98%	
Hg⁰	10%	3%	6%	2%	

Mercury removal in Unit 2's FGD scrubber was different from that of Unit 1. Table 11 shows that 94-97% of the oxidized mercury exiting the ESP was removed in the FGD scrubber in both units. However, the amount of elemental mercury increased across the scrubber, and the increase was greater in Unit 1 than in Unit 2; an increase in elemental mercury in wet scrubbers has been observed in tests at other plants in this program³. The reason for the greater effect in the Unit 1 scrubber compared to the Unit 2 scrubber is not clear; scrubber sulfite concentration is believed to play a role but this has not been verified. Scrubber sulfite concentration was not measured in this test program.

Mercury		Unit 1 (with no SCR)		Unit 2 (with SCR)		
Species	FGD Inlet, mg Hg/sec	Stack, mg Hg/sec	Reduction Across FGD Scrubber	FGD Inlet, mg Hg/sec	Stack, mg Hg/sec	Reduction Across FGD Scrubber
Hg ^{part}	<0.002	<0.002		<0.002	<0.002	
Hg⁺⁺	2.86	0.17	94%	3.49	0.10	97%
Hg⁰	0.18	0.33	-83%	0.064	0.069	-8%
Total Hg	3.04	0.51	83%	3.56	0.17	95%

EXPERIMENTAL AND SAMPLING METHODS

CONSOL R&D performed flue gas mercury determinations using the Ontario-Hydro sampling method. As a quality assurance/quality control (QA/QC) measure, samples of

the coal, bottom ash, FGD slurry, limestone slurry, and ESP ash, were taken to determine a mercury balance across the system.

I. Flue Gas Sampling Locations and Sampling Points

Four sampling locations, the economizer outlet, air heater outlet (upstream of the ESP), FGD inlet, and stack outlet, were tested. Figure 3 is a flow schematic indicating the sampling locations at these units.

At each unit, flue gas exits the economizer through two ducts (designated Ducts A and B) and passes through the SCR, air heater, ESP, and FGD, before it combines to form a single flue tube at the stack. All sampling at points leading to the stack was conducted in Duct A of each unit. Individual sampling locations are detailed in the following sections.

A. Economizer outlet

On each unit, the economizer outlet consists of two horizontal, rectangular ducts, measuring 14.5 feet deep by 25 wide at the sampling plane. Eight sample ports are spaced across the top of each duct.

Preliminary pitot surveys indicated that the gas flow was straight, not cyclonic or swirling. The flue gas was sampled through the middle test port at a single point in each duct, 60 minutes per duct for each test. Parametric readings were recorded every ten minutes. Total test duration was 120 minutes. Mercury measurements were conducted with the sampling nozzle oriented parallel to and directly into the flow.

Four mercury measurements were performed isokinetically at the economizer outlet on each unit. The sample train was prepared in EPA Method 17 configuration using an instack 19 mm x 90 mm quartz-fiber thimble filter. The filter apparatus was attached to a heated probe that was connected to the impinger train with a flexible heated Teflon sample line. Figure 4 is a photograph of the mercury sampling train at the economizer outlet.

B. Air heater outlet

On each unit, the air heater outlet duct consists of four horizontal ducts, each approximately 11 feet 8 inches deep and 11 feet 8 inches wide. Six test ports are located across the top of each duct. Preliminary pitot surveys indicated that the gas flow was parallel to the duct walls.

The flue gas was sampled through the middle test port at a single point in each duct, 30 minutes per duct for each test. Total test durations were 120 minutes with parametric readings recorded every ten minutes. Mercury measurements were conducted with the sampling nozzle oriented parallel to and directly into the flow.

Four mercury measurements were performed isokinetically at the air heater outlet on each unit. The sample train was prepared in EPA Method 17 configuration using an instack 19 mm x 90 mm quartz-fiber thimble filter. The filter apparatus was attached to a heated probe that was connected to the impinger train with a flexible heated Teflon

sample line. Figure 5 is a photograph of the mercury sampling train at the air heater outlet location.

C. FGD inlet

The FGD inlet at each unit consists of two horizontal ducts leading from the ID fans to the scrubbers. A single test port was available in each duct, downstream of the induced draft fan. A single point near the center of each duct was sampled, 60 minutes per duct, for each test. A preliminary pitot survey indicated that the gas flow was parallel to the duct walls at this point.

Parametric readings were recorded every ten minutes for each test period, which was 120 minutes net sampling time. Mercury measurements were conducted isokinetically with the sampling nozzle oriented parallel to and directly into the flow.

Four mercury measurements were performed at the FGD inlet on each unit. The sample train was prepared in EPA Method 17 configuration using an in-stack 47-mm quartz-fiber disc filter. The filter apparatus was attached to a heated probe that was connected to the impinger train with a flexible heated Teflon sample line. Figure 6 is a photograph of the mercury sampling train on the FGD inlet location.

D. Stack

Both stacks are approximately 19 feet in diameter. On each stack, three points were sampled in each of four sample access ports for a total of 12 traverse points. Each point was sampled for a period of 10 minutes resulting in 120-minute tests.

Preliminary pitot surveys indicated that the gas flow was axial. Mercury measurements were conducted with the nozzle oriented horizontally, directly into the flow. Four measurements were performed isokinetically at this location on each unit. A standard EPA Method 5 sample train configuration was utilized for this location. Figure 7 is a photograph of the mercury sampling train on the stack location.

II. Flue Gas Mercury Measurements

Flue gas mercury measurements were conducted using the Ontario-Hydro mercury speciation train. A schematic of the sampling train is shown in Figure 8.

The flue gas was extracted from the duct and pulled through a heated glass-lined probe and quartz filter. Total particulate matter mass loading was calculated from the solids collected prior to and on the filter. Probe temperatures were set at 325 ± 25 °F at the SCR inlet and outlet, the air heater outlet and the FGD inlet. Probe and filter temperatures were maintained at 250 ± 25 °F at the stack. Where particle loading is high, the probe and filter are maintained as close as practical to the flue gas temperature.

Mercury collected prior to and on the filter is assumed to be Hg^{part}. The flue gas exits the quartz filter and passes through a series of chilled impingers. The first three impingers are filled with 100 mL of a 1M-potassium chloride (KCI) solution. It is assumed that these impingers capture Hg⁺⁺ in the flue gas. The next impinger is filled

with 100 mL of a 5% nitric acid and 10% hydrogen peroxide (H_2O_2) solution. The purpose of this impinger is to remove SO_2 from the flue gas to preserve the oxidizing strength of the two downstream impingers with acidic potassium permanganate (KMnO₄) solution. Mercury collected in this impinger is assumed to be Hg⁰. The next two impingers are filled with 100 mL of an acidic KMnO₄ solution. It is assumed that these impingers capture Hg⁰. The next impinger is blank to catch any excess moisture. The gas exits the impinger train through a silica gel-filled impinger that removes the moisture from the flue gas. The mercury species collected by the Ontario-Hydro sampling train component are listed in Table 12.

Train Component	Species Measured
Probe & Nozzle Rinse	Hg ^{part}
Quartz Filter	Hg ^{part}
KCI Impingers	Hg ⁺⁺
HNO ₃ /H ₂ O ₂ Impinger	Hg ^o
KMnO₄ Impingers	Hg ⁰
HCI Rinse of KMnO ₄ Impingers	Hg ⁰

 Table 12. Mercury speciation by train component

The absorbing solutions were made fresh daily. The impingers were charged and the sampling components were transported to the required locations. The sampling trains were assembled, pre-heated, and checked for pitot and sample line leaks as detailed in EPA Methods 2 and 5, respectively. After passing the leak-check procedure, the sampling probes were inserted into their respective ducts, in-stack filters were allowed to heat to stack temperature, and sampling was initiated. Leak checks were also performed during port changes.

Oxygen readings were monitored at the outlet of the sampling train using a Teledyne Model Max 5 portable analyzer (electrochemical O_2 sensor). At the completion of the sampling period, the sample trains were checked for leaks, purged for 10 min, and then disassembled. The components were transported back to the lab trailer for recovery. The mercury concentration of the individual impinger solutions was determined by cold vapor atomic absorption (CVAA) as specified in the methodology. The concentration of mercury on the solids was determined by acid digestion followed by CVAA.

The amount of mercury collected in the impinger solutions was determined as outlined in EPA Method 29 and the Ontario-Hydro Draft Method. An aliquot of the impinger solution was acidified and the mercury is determined using cold vapor-atomic absorption spectroscopy. The atomic absorption spectrometer was calibrated with commercial mercury standard. The calibration was verified using NIST Standard Reference Materials (SRM) 1641D and 1633b. The calibration was reassessed periodically by analyzing a quality control standard. The instrument was recalibrated as required. Each sample matrix was analyzed as a set and an individual calibration curve was used for each set. Depending on sample type, selected samples were spiked with 2, 5, 10, or 15 ng/ml (ppb) of mercury and reanalyzed. Spike recovery must be within \pm 30% or the sample is diluted and reanalyzed. Selected samples were analyzed in duplicate. The duplicates must be within \pm 30% or the analyses are repeated.

Where sufficient solids were collected, particulate mercury was analyzed using a 0.5-1.0 gm ash sample with the direct combustion method (ASTM Method D6722). In cases where the particulate catch was low (primarily stack filters), the entire filter sample was digested with aqua-regia in pressure vessels prior to analysis by CVAA.

III. Coal Sampling and Analysis

A. Coal samples

Plant personnel collected coal samples from coal being fed to the top of the coal bunkers. The samples were collected between midnight and 6:00 am the morning of each test day. This lead time was required because of the 6-12 hour residence time in the coal bunkers before the coal reaches the burners. Listed in Table 13 are the coal samples collected.

Unit 1 Test No.	1	2&3	4
Sample Date	1/19/2005	1/20/2005	1/21/2005
Sample I.D.	COAL-U1T1	COAL-U1T2T3	COAL-U1T4
Unit 2 Test No.	1	2&3	4
Sample Date	1/24/2005	1/25/2005	1/26/2005

 Table 13.
 List of coal samples

B. Results of analyses of coal samples

Coal samples were analyzed using a direct mercury analyzer following the procedures prescribed in ASTM Method D6722. Detailed analyses of the coal samples collected in each test are presented in Appendix D and the results are summarized in Tables 14 and 15. The mercury measured in the Unit 1 coal samples ranged from 0.066 to 0.110 ppm and in the Unit 2 coal samples ranged from 0.080 to 0.095 ppm.

	-	I	
Sample I.D.	Coal-U1T1	Coal-U1T2T3	Coal-U1T4
Sample Date	01/19/2005	01/20/2005	01/21/2005
Test No.	1	2&3	4
Analytical No.	20050682	20050683	20050684
Residual moisture, as det'd (%)	2.00	1.89	1.37
Volatile matter (%, dry)	38.08	38.40	37.32
Ash (%, dry)	7.77	8.24	11.85
Total carbon (%, dry)	77.74	77.01	74.83
Fixed carbon (%, dry)	54.15	53.36	50.83
Hydrogen (%, dry)	4.63	4.81	4.65
Nitrogen (%, dry)	1.56	1.61	1.58
Total sulfur (%, dry)	1.39	1.45	1.19
Oxygen (%, dry), by diff.	6.77	6.74	5.74
HHV (Btu/lb, dry)	13,683	13,686	13,205
HHV (Btu/lb, MAF)	14,836	14,915	14,980
Chlorine (%, dry)	0.144	0.143	0.157
Hg (ppm, as det'd)	0.091	0.110	0.066
Major Ash Elements (%, dry)			
SiO ₂	50.01	50.46	54.52
Al ₂ O ₃	27.77	26.57	26.87
TiO ₂	1.29	1.34	1.09
Fe ₂ O ₃	12.63	12.73	9.17
CaO	1.73	1.69	1.50
MgO	1.00	0.98	1.17
Na ₂ O	0.55	0.53	0.63
K ₂ O	2.28	2.29	2.90
P ₂ O ₅	0.18	0.25	0.11
SO ₃	1.68	1.62	1.24

 Table 14.
 Coal sample analyses – Unit 1 samples

Sample Description		As-fired Coal	
Sample I.D.	Coal-U2T1	Coal-U2T2T3	Coal-U2T
Test No.	1	2&3	4
Test Date	01/24/2005	01/25/2005	01/26/200
Analytical No.	20050685	20050686	20050687
Moisture, as det'd (%)	1.83	1.49	1.61
VM (%, dry)	38.57	36.26	35.46
Ash (%, dry)	8.40	8.69	8.28
Total Carbon (%, dry)	77.39	76.66	77.44
Fixed Carbon (%, dry)	53.03	55.05	56.26
Hydrogen (%, dry)	4.72	4.67	4.77
Nitrogen (%, dry)	1.52	1.46	1.53
Total Sulfur (%, dry)	1.66	1.59	1.38
Oxygen (%, dry), by diff.	6.17	6.80	6.45
HHV (Btu/lb, dry)	13,764	13,663	13,761
HHV (Btu/lb, MAF)	15,026	14,963	15,003
Chlorine (%, dry)	0.141	0.135	0.151
Hg (ppm, as det'd)	0.080	0.090	0.095
Major Ash Elements (%, dry)		•	-
SiO ₂	49.70	51.13	50.50
Al ₂ O ₃	24.10	23.98	28.16
TiO ₂	1.15	1.05	1.41
Fe ₂ O ₃	16.77	15.05	11.76
CaO	1.68	2.81	1.58
MgO	1.16	0.72	0.95
Na ₂ O	0.57	0.65	0.53
K ₂ O	2.58	1.86	2.35
P_2O_5	0.22	0.35	0.47
SO ₃	1.52	1.54	1.39
UND	0.55	0.86	0.90

 Table 15.
 Coal sample analyses – Unit 2 samples

IV. Process Sample Collection and Analysis

CONSOL R&D and plant personnel collected samples of coal mill rejects, boiler bottom ash, ESP hopper ash, limestone slurry, FGD slurry, and FGD makeup water. CONSOL R&D analyzed the samples using a direct mercury analyzer and following prescribed in the procedures of ASTM Method D6722. Detailed results of the analyses of those process samples are presented in Appendix D.

A. Coal Mill Rejects

Plant operators collected coal mill reject samples during the first test on Unit 1 and all of the tests on Unit 2. Although the mercury content of these samples is high (0.4 to 3.0 ppm) the contribution to the overall mercury balance is insignificant, since the flow rate is only about 0.5% of the coal flow rate.

Sample I.D.	Rejects U1T1	Rejects U2T1	Rejects U2T2	Rejects U2T3	Rejects U2T4
Sample Date	01/19/2005	01/24/2005	01/25/2005	01/25/2005	01/26/2005
Test No.	1	1	2	3	4
Analytical No.	20050688	20050689	20050690	20050691	20050692
Residual moisture, as det'd (%)	1.50	0.82	0.68	0.44	0.48
Volatile matter (%, dry)	35.77	28.78	30.88	26.31	26.69
Ash (%, dry)	14.88	39.74	46.20	58.31	52.38
Total carbon (%, dry)	69.43	46.83	39.74	24.51	32.41
Fixed carbon (%, dry)	49.35	31.48	22.92	15.38	20.93
Hydrogen (%, dry)	4.25	2.82	2.37	1.45	1.95
Nitrogen (%, dry)	1.32	0.81	0.66	0.38	0.53
Total sulfur (%, dry)	3.20	6.07	8.74	17.98	14.97
Oxygen (%, dry), by diff.	6.84	3.66	2.23	2.66	2.28
HHV (Btu/lb, dry)	12,413	8,456	6,899	4,502	5,954
HHV (Btu/lb, MAF)	14,583	14,033	12,823	10,799	12,503
Chlorine (%, dry)	0.085	0.074	0.060	0.040	0.040
Hg (ppm, as det'd)	0.426	0.783	2.330	2.630	3.000
Major Ash Elements (%, dry)					
SiO ₂	45.98	45.27	28.75	25.07	23.91
Al ₂ O ₃	22.24	17.97	11.82	6.85	6.99
TiO ₂	1.22	0.88	0.46	0.33	0.40
Fe ₂ O ₃	21.31	24.07	40.41	52.03	49.64
CaO	2.18	4.66	8.41	7.45	7.58
MgO	0.81	0.85	0.89	0.68	0.50
Na ₂ O	0.48	0.28	0.21	0.17	0.13
K ₂ O	1.63	1.03	0.81	0.72	0.59
P ₂ O ₅	0.35	0.22	0.13	0.04	0.04
SO_3	1.62	3.81	8.17	7.95	8.54

 Table 16.
 Coal mill reject sample analyses – both units

B. Boiler Bottom ash

Plant personnel and CONSOL personnel collected bottom ash samples at the end of the first two test days on Unit 1 (samples U1T1 and U1T2T3) and the last two test days on Unit 2 (samples U2T2T3 and U2T4). Listed in Table 17 are the results of analyses of the bottom ash samples.

	•		-	
Sample I.D.	BTMASH- U1T1	BTMASH- U1T2T3	BTMASH- U2T2T3	BTMASH- U2T4
Test No.	1	2	2&3	4
Sample Date	01/19/2005	01/20/2005	01/25/2005	01/26/2005
Sampling Time	16:30-16:40	16:30	16:00-16:30	11:15-11:45
Analytical No.	20050693	20050694	20050697	20050698
Residual moisture, as det'd (%)	0.01	0.01	0.10	0.01
Ash (%, dry)	99.73	99.99	98.16	99.03
Total carbon (%, dry)	0.39	0.20	1.93	1.12
Total sulfur (%, dry)	0.02	0.00	0.32	0.10
Chlorine (%, dry)	0.025	0.027	0.035	0.048
Hg (ppm, as det'd)	0.011	0.011	0.074	0.017
Major Ash Elements (%, dry)		-		
SiO ₂	51.91	52.37	51.02	52.96
Al ₂ O ₃	25.87	25.86	24.66	26.12
TiO ₂	1.36	1.38	1.33	1.44
Fe ₂ O ₃	13.81	14.13	14.96	12.62
CaO	1.45	1.47	1.35	1.45
MgO	0.89	0.90	0.92	0.91
Na ₂ O	0.48	0.47	0.46	0.47
K ₂ O	2.18	2.19	2.23	2.25
P ₂ O ₅	0.14	0.16	0.22	0.30
SO ₃	0.04	0.01	0.80	0.24
UND	1.87	1.06	2.05	1.24

 Table 17. Results of analyses of bottom ash samples

C. Limestone slurry

The plant's FGD operators collected a limestone slurry sample of approximately 500 mL during each test. Upon arrival at CONSOL R&D's analytical labs, the limestone slurry samples were filtered to generate a filtrate and a solid residue (i.e., filter cake). The air-dried solids and the filtrates were analyzed separately. Listed in Table 18 and 19 are the results of analyses of the limestone slurry solids samples. The mercury content of the solids of the limestone slurry samples ranged from 0.038 to 0.068 ppm. Listed in Table 20 and 21 are the results of analyses of the limestone slurry in all of

the limestone filtrate samples was below the detection limit of 1.0 μ g/L (1.0 ppb) for all but one sample (test 2 on Unit 2), which contained 1.3 μ g/L.

Sample I.D.	LS U1T1	LS U1T2	LS U1T3	LS U1T4
Test No.	1	2	3	4
Sample Date	01/19/2005	01/20/2005	01/20/2005	01/21/2005
Sampling Time	9:35	9:45	13:45	9:15
Analytical No.	20050699	20050700	20050701	20050702
% Solids in original sample	20.3	28.5	21.0	22.0
Density of original sample (g/mL)	1.08			
Residual moisture, as det'd (%)	0.60	0.60	0.73	0.76
Ash (%, dry)	56.69	56.52	56.76	56.92
Total carbon (%, dry)	11.67	11.34	11.58	11.55
Chlorine (%, dry)	0.05	0.07	0.04	0.11
Hg (ppm, as det'd)	0.044	0.045	0.038	0.063
Major Ash Elements (%, as det'd)				
SiO ₂	1.49	1.45	1.17	1.76
Al ₂ O ₃	0.15	0.22	0.16	0.18
TiO ₂	0.01	0.01	0.01	0.01
Fe ₂ O ₃	0.14	0.17	0.18	0.18
CaO	53.60	53.39	53.23	53.58
MgO	1.15	1.31	1.47	1.51
Na ₂ O	0.06	0.08	0.06	0.05
K ₂ O	0.03	0.07	0.02	0.03
P ₂ O ₅	0.08	0.10	0.09	0.10
SO ₃	0.29	0.26	0.24	0.34
UND	43.00	42.94	43.37	42.26

Table 18. Results of analyses of limestone slurry solids samples – Unit 1

Sample I.D.	LS U2T1	LS U2T2	LS U2T3	LS U2T4
Test No.	1	2	3	4
Sample Date	01/24/2005	01/25/2005	01/25/2005	01/26/2005
Sampling Time				
Analytical No.	20050703	20050704	20050705	20050706
% Solids in original sample	14.0	17.2	15.4	13.5
Density of original sample (g/mL)				1.055
Residual moisture, as det'd (%)	0.40	0.49	0.52	0.37
Ash (%, dry)	56.84	56.95	56.93	57.02
Total carbon (%, dry)	11.69	11.27	11.62	11.65
Chlorine (%, dry)	0.07	0.11	0.08	0.08
Hg (ppm, as det'd)	0.063	0.068	0.060	0.048
Major Ash Elements (%, as det'd)		-	-	
SiO ₂	1.49	1.67	1.62	1.70
Al ₂ O ₃	0.09	0.11	0.12	0.08
TiO ₂	0.00	0.00	0.01	0.00
Fe ₂ O ₃	0.11	0.11	0.13	0.09
CaO	54.88	55.01	55.15	55.01
MgO	0.78	0.91	0.95	0.70
Na ₂ O	0.04	0.05	0.04	0.03
K ₂ O	0.02	0.01	0.00	0.02
P ₂ O ₅	0.06	0.09	0.08	0.07
SO3	0.20	0.25	0.25	0.21
UND	42.23	41.79	41.65	42.09

Table 19. Results of analyses of limestone slurry solids samples – Unit 2

Sample ID	LS U1T1	LS U1T2	LS U1T3	LS U1T4
Test No.	1	2	3	4
Sample Date	01/19/2005	01/20/2005	01/20/2005	01/21/2005
Analytical No.	20050784	20050785	20050786	20050787
Hardness (ppm), calc'd	2,445	1,657	1,259	1,716
Al (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
Ca (μg/mL)	462	441	334	395
Total Iron (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
Mg (μg/mL)	313	135	103	177
Mn (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
K (μg/mL)	90.4	73.5	54.1	71.0
Ρ (μg/mL)	1.74	2.00	2.04	2.34
Si (μg/mL)	1.72	1.51	< 1.25	< 1.25
Na (μg/mL)	629	466	382	479
Cr (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
Ammonia as NH_3 (µg/mL)	< 10	< 10	< 10	< 10
NO_3 as N (μ g/mL)	0.11	< 0.02	< 0.02	0.07
CI (μg/mL)	2,150	1,475	1,225	1,575
SO₄ (μg/mL)	787	594	460	608
Hg (μg/L)	< 1.0	< 1.0	< 1.0	< 1.0

Table 20. Results of analyses of limestone slurry filtrate samples – Unit 1

		-		-
Sample ID	LS U2T1	LS U2T2	LS U2T3	LS U2T4
Test No.	1	2	3	4
Test Date	01/24/2005	01/25/2005	01/25/2005	01/26/2005
Analytical No.	20050788	20050789	20050790	20050791
Hardness (ppm), calc'd	3,692	3,668	3,515	3,969
AI (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
Ca (μg/mL)	652	659	611	698
Total Iron (μg/mL)	2.30	< 1.25	< 1.25	< 1.25
Mg (µg/mL)	500	490	483	540
Mn (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
K (μg/mL)	117.80	118.30	114.30	128.96
P (μg/mL)	1.39	2.08	3.51	2.47
Si (μg/mL)	4.87	3.73	3.48	5.53
Na (μg/mL)	844	836	824	914
Cr (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25
Ammonia as NH_3 (µg/mL)	< 10	< 10	< 10	<10
NO₃ as N (μg/mL)	3.32	< 0.02	0.07	4.17
CI (μg/mL)	3,100	2,975	3,000	3,350
SO₄ (μg/mL)	1,085	1,109	1,104	1,202
Hg (μg/L)	< 1.0	1.3	< 1.0	< 1.0

 Table 21. Results of analyses of limestone slurry filtrate samples – Unit 2

D. ESP hopper ash

CONSOL personnel collected ESP ash samples, with assistance from the plant boiler operator. There is one ESP for each unit. Each ESP is divided into six fields and there are four ash hoppers in each field. One set of six field hoppers is shown in Figure 9. About 10 lb of ash was collected using an ash sampling bucket which was lowered into the fly ash silo immediately after a row of field hoppers was "dumped" to the silo. The procedure for sampling during a test is as follows. The plant operators dumped the hoppers prior to the start of a test. About 30 minutes after the start of a test, the operators would dump the first field hoppers to the silo and a sample would be collected (sample "F1"). After the sample was collected (sample "F2"). This procedure was repeated for each field until samples from all six fields were collected. At the end of the test day, each sample was double-bagged in one-gallon plastic bags and labeled. Listed in Tables 22-25 are the results of analyses of the ESP ash samples collected during the

tests on Unit 1. ESP ash from only three of the six fields were sampled during Test 2 (Table 23) due to time limitations prior to the start of Test 3; for all other tests, ESP ash from all six fields were sampled. The mercury measured in the samples ranged from 0.098 to 0.217 ppm. Listed in Tables 26-29 are the results of analyses of the ESP ash samples collected during the tests on Unit 2. The mercury measured in the samples ranged from 0.179 to 0.271 ppm.

In tests conducted at other plants, CONSOL R&D has observed that the mercury content in the ESP ash samples tend to correlate with the carbon content in the samples. In Unit 1, the carbon content and the mercury content were correlated, with an R^2 of 0.76 for the linear regression line between ESP ash carbon concentration and mercury concentration, as shown in Figure 10. In the tests on Unit 2, however, the correlation was not very strong. Figure 11 shows an R^2 of only 0.22 for the linear regression line between ESP ash carbon concentration.

Sample I.D.	ESP Ash U1T1F1	ESP Ash U1T1F2	ESP Ash U1T1F3	ESP Ash U1T1F4	ESP Ash U1T1F5	ESP Ash U1T1F6
Electric Field No.	1	2	3	4	5	6
Test No.				1		
Test Date			01/19	/2005		
Sampling Time	11:30- 11:45	12:00- 12:10	12:20- 12:45	13:30- 14:00	14:25- 14:30	14:05- 14:15
Analytical No.	20050723	20050724	20050725	20050726	20050727	20050728
Residual Moisture (%)	0.21	0.23	0.24	0.25	0.19	0.22
Ash (%, dry)	94.32	94.90	94.73	95.38	95.36	95.38
Carbon (%, dry)	4.98	4.36	4.71	4.09	4.04	4.17
Total S (%, dry)	0.19	0.20	0.17	0.20	0.18	0.19
Chlorine (%, dry)	0.002	0.002	0.002	0.003	0.003	0.003
Hg (ppm, as det'd)	0.204	0.210	0.217	0.186	0.185	0.188
Major Ash Elements (%, dry)		-	-	-	-	-
SiO ₂	48.79	48.94	50.95	49.97	49.83	50.50
Al ₂ O ₃	26.85	26.79	26.86	26.94	26.53	26.80
TiO ₂	1.40	1.42	1.49	1.46	1.44	1.46
Fe ₂ O ₃	11.56	11.43	9.87	11.05	11.03	11.21
CaO	1.57	1.61	1.68	1.66	1.63	1.64
MgO	0.95	0.95	0.95	0.97	0.95	0.96
Na ₂ O	0.51	0.52	0.49	0.53	0.51	0.52
K ₂ O	2.38	2.37	2.31	2.37	2.33	2.34
P ₂ O ₅	0.23	0.24	0.36	0.29	0.26	0.25
SO3	0.48	0.51	0.43	0.50	0.46	0.48
UND	5.28	5.22	4.61	4.26	5.03	3.84

 Table 22. Results of analyses of ESP hopper ash samples – Unit 1, Test 1

Sample I.D.	ESP Ash U1T2F1	ESP Ash U1T2F2	ESP Ash U1T2F3
Electric Field No.	1	2	3
Test No.		2	
Test Date		01/20/2005	
Sampling Time	09:40-09:45	10:00-10:05	10:20-10:25
Analytical No.	20050729	20050730	20050731
Residual Moisture (%)	0.19	0.13	0.18
Ash (%, dry)	95.96	95.79	95.82
Carbon (%, dry)	3.66	3.82	3.74
Total S (%, dry)	0.19	0.18	0.19
Chlorine (%, dry)	0.002	0.003	0.003
Hg (ppm, as det'd)	0.162	0.166	0.098
Major Ash Elements (%, dry)		-	
SiO ₂	49.82	49.23	50.03
Al ₂ O ₃	26.35	25.79	26.61
TiO ₂	1.43	1.42	1.45
Fe ₂ O ₃	12.23	12.02	12.04
CaO	1.59	1.52	1.60
MgO	0.94	0.90	0.94
Na ₂ O	0.51	0.50	0.52
K ₂ O	2.25	2.22	2.31
P ₂ O ₅	0.23	0.21	0.20
SO ₃	0.46	0.46	0.47
UND	4.19	5.73	3.83

 Table 23. Results of analyses of ESP hopper ash samples – Unit 1, Test 2

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Sample I.D.	ESP Ash U1T3F1	ESP Ash U1T3F2	ESP Ash U1T3F3	ESP Ash U1T3F4	ESP Ash U1T3F5	ESP Ash U1T3F6
Electric Field No.	1	2	3	4	5	6
Test No.			3	3		
Test Date			01/20	/2005		
Sampling Time	14:00-14:05	14:20-14:25	14:40-14:45	14:55-15:00	15:15-15:20	15:30-15:35
Analytical No.	20050732	20050733	20050734	20050735	20050736	20050737
Residual Moisture (%)	0.16	0.09	0.12	0.07	0.07	0.12
Ash (%, dry)	96.22	96.17	96.12	96.14	96.05	95.93
Carbon (%, dry)	3.27	3.30	3.47	3.33	3.48	3.61
Total S (%, dry)	0.17	0.16	0.16	0.17	0.17	0.18
Chlorine (%, dry)	0.002	0.003	0.003	0.002	0.003	0.003
Hg (ppm, as det'd)	0.143	0.151	0.156	0.147	0.160	0.157
Major Ash Elements (%, dry)						
SiO ₂	50.79	50.15	49.86	49.83	49.67	49.46
Al ₂ O ₃	26.42	26.16	26.06	26.00	25.92	25.85
TiO ₂	1.47	1.45	1.45	1.46	1.45	1.46
Fe ₂ O ₃	11.53	11.77	11.76	11.70	11.70	11.72
CaO	1.66	1.62	1.61	1.61	1.61	1.62
MgO	0.96	0.94	0.94	0.94	0.93	0.93
Na ₂ O	0.52	0.50	0.49	0.49	0.49	0.48
K ₂ O	2.30	2.25	2.26	2.25	2.25	2.21
P ₂ O ₅	0.24	0.23	0.25	0.23	0.22	0.22
SO ₃	0.43	0.41	0.41	0.42	0.43	0.45
UND	3.68	4.52	4.91	5.07	5.33	5.60

Table 24. Results of analyses of ESP hopper ash samples – Unit 1, Test 3

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Sample I.D.	ESP Ash U1T4F1	ESP Ash U1T4F2	ESP Ash U1T4F3	ESP Ash U1T4F4	ESP Ash U1T4F5	ESP Ash U1T4F6
Electric Field No.	1	2	3	4	5	6
Test No.			2	4		
Test Date			01/21	/2005		
Sampling Time	09:20- 09:25	09:40- 09:45	10:00- 10:05	10:20- 10:25	10:40- 10:45	11:00- 11:05
Analytical No.	20050738	20050739	20050740	20050741	20050742	20050743
Residual Moisture (%)	0.11	0.11	0.14	0.05	0.05	0.13
Ash (%, dry)	96.43	96.47	96.62	96.45	96.49	96.54
Carbon (%, dry)	3.14	3.04	2.99	2.98	3.13	2.97
Total S (%, dry)	0.18	0.18	0.18	0.18	0.16	0.18
Chlorine (%, dry)	0.003	0.003	0.004	0.004	0.003	0.003
Hg (ppm, as det'd)	0.115	0.120	0.118	0.119	0.116	0.118
Major Ash Elements (%, dry)						
SiO ₂	52.31	52.00	51.53	52.02	51.64	51.70
Al ₂ O ₃	25.63	25.38	25.39	25.71	25.21	25.68
TiO ₂	1.44	1.45	1.45	1.46	1.45	1.47
Fe ₂ O ₃	10.16	10.56	10.27	10.40	10.55	10.38
CaO	1.50	1.54	1.53	1.53	1.54	1.57
MgO	0.97	0.97	0.96	0.98	0.97	0.97
Na ₂ O	0.55	0.53	0.53	0.54	0.52	0.53
K ₂ O	2.41	2.35	2.36	2.39	2.32	2.38
P ₂ O ₅	0.15	0.15	0.17	0.18	0.16	0.19
SO ₃	0.44	0.44	0.44	0.45	0.39	0.46
UND	4.44	4.63	5.37	4.34	5.25	4.67

 Table 25. Results of analyses of ESP hopper ash samples – Unit 1, Test 4

Sample I.D.	ESP Ash U2T1F1	ESP Ash U2T1F2	ESP Ash U2T1F3	ESP Ash U2T1F4	ESP Ash U2T1F5	ESP Ash U2T1F6
Electric Field No.	1	2	3	4	5	6
Test No.				1		
Test Date			01/24	/2005		
Sampling Time	13:54	14:00	14:16	14:26	14:36	14:50
Analytical No.	20050744	20050745	20050746	20050747	20050748	20050749
Residual Moisture (%)	0.17	0.17	0.21	0.15	0.15	0.04
Ash (%, dry)	93.03	93.15	93.06	93.06	93.15	93.03
Carbon (%, dry)	6.01	5.99	6.21	6.08	6.25	6.18
Total S (%, dry)	0.24	0.24	0.24	0.26	0.26	0.25
Chlorine (%, dry)	0.003	0.003	0.004	0.004	0.003	0.004
Hg (ppm, as det'd)	0.247	0.239	0.246	0.179	0.240	0.230
Major Ash Elements (%, dry)						
SiO ₂	49.86	49.30	49.63	49.65	49.92	49.65
Al ₂ O ₃	24.01	23.89	23.91	24.08	24.55	24.47
TiO ₂	1.40	1.39	1.39	1.32	1.33	1.33
Fe ₂ O ₃	10.71	10.69	10.77	10.46	10.73	10.75
CaO	1.51	1.52	1.51	1.50	1.51	1.50
MgO	0.95	0.94	0.95	0.94	0.95	0.94
Na ₂ O	0.49	0.49	0.50	0.53	0.53	0.52
K ₂ O	2.25	2.25	2.28	2.29	2.32	2.29
P ₂ O ₅	0.21	0.21	0.19	0.21	0.21	0.20
SO ₃	0.61	0.59	0.61	0.66	0.65	0.62
UND	8.00	8.73	8.26	8.36	7.30	7.73

Table 26. Results of analyses of ESP hopper ash samples – Unit 2, Test 1

	r								
Sample I.D.	ESP Ash U2T1F1	ESP Ash U2T1F2	ESP Ash U2T1F3	ESP Ash U2T1F4	ESP Ash U2T1F5	ESP Ash U2T1F6			
Electric Field No.	1	2	3	4	5	6			
Test No.		2							
Test Date		01/25/2005							
Sampling Time	10:23	10:44	10:59	11:12	11:23	11:37			
Analytical No.	20050750	20050751	20050752	20050753	20050754	20050755			
Residual Moisture (%)	0.09	0.09	0.09	0.09	0.05	0.17			
Ash (%, dry)	92.84	92.81	92.82	92.86	92.86	92.86			
Carbon (%, dry)	6.40	6.36	6.31	6.12	6.24	6.49			
Total S (%, dry)	0.26	0.27	0.28	0.26	0.25	0.25			
Chlorine (%, dry)	0.002	0.002	0.002	0.004	0.002	0.002			
Hg (ppm, as det'd)	0.246	0.268	0.268	0.262	0.251	0.245			
Major Ash Elements (%, dry)		-	-	-	-				
SiO ₂	46.66	48.96	48.76	48.64	48.43	48.92			
Al ₂ O ₃	23.67	24.50	24.42	24.33	24.23	24.30			
TiO ₂	1.28	1.34	1.34	1.33	1.33	1.34			
Fe ₂ O ₃	10.88	11.68	11.48	11.41	11.55	11.51			
CaO	1.42	1.49	1.49	1.49	1.49	1.49			
MgO	0.94	0.96	0.96	0.96	0.96	0.95			
Na ₂ O	0.49	0.51	0.51	0.50	0.49	0.50			
K ₂ O	2.24	2.30	2.31	2.29	2.29	2.30			
P ₂ O ₅	0.23	0.24	0.23	0.23	0.23	0.22			
SO3	0.64	0.67	0.69	0.64	0.63	0.63			
UND	11.55	7.35	7.81	8.18	8.37	7.84			

 Table 27. Results of analyses of ESP hopper ash samples – Unit 2, Test 2

F									
Sample I.D.	ESP Ash U2T3F1	ESP Ash U2T3F2	ESP Ash U2T3F3	ESP Ash U2T3F4	ESP Ash U2T3F5	ESP Ash U2T3F6			
Electric Field No.	1	2	3	4	5	6			
Test No.		3							
Test Date			01/25	/2005					
Sampling Time	14:35	14:35 14:49 14:59 15:10 15:24 15:							
Analytical No.	20050756	20050757	20050758	20050759	20050760	20050761			
Residual Moisture (%)	0.15	0.11	0.15	0.13	0.11	0.11			
Ash (%, dry)	92.67	92.68	92.66	92.68	92.61	92.67			
Carbon (%, dry)	6.49	6.44	6.43	6.50	6.49	6.47			
Total S (%, dry)	0.26	0.26	0.26	0.26	0.25	0.26			
Chlorine (%, dry)	0.003	0.002	0.002	0.003	0.003	0.003			
Hg (ppm, as det'd)	0.257	0.258	0.249	0.263	0.271	0.266			
Major Ash Elements (%, dry)									
SiO ₂	48.95	48.89	49.39	49.25	48.72	48.88			
Al ₂ O ₃	24.42	24.30	24.89	24.64	24.36	24.50			
TiO ₂	1.34	1.33	1.36	1.35	1.34	1.34			
Fe ₂ O ₃	11.33	11.45	11.17	11.33	11.37	11.40			
CaO	1.49	1.49	1.50	1.47	1.46	1.47			
MgO	0.95	0.96	0.97	0.95	0.95	0.96			
Na ₂ O	0.50	0.49	0.51	0.51	0.49	0.51			
K ₂ O	2.29	2.28	2.35	2.31	2.31	2.34			
P ₂ O ₅	0.24	0.24	0.25	0.24	0.24	0.24			
SO ₃	0.64	0.66	0.65	0.66	0.62	0.64			
UND	7.85	7.91	6.96	7.29	8.14	7.72			

 Table 28. Results of analyses of ESP hopper ash samples – Unit 2, Test 3

Sample I.D.	ESP Ash U2T4F1	ESP Ash U2T4F2	ESP Ash U2T4F3	ESP Ash U2T4F4	ESP Ash U2T4F5	ESP Ash U2T4F6			
Electric Field No.	1	2	3	4	5	6			
Test No.			2	1					
Test Date		01/26/2005							
Sampling Time	10:15	10:02	10:27	10:37	10:47	10:58			
Analytical No.	20050762	20050763	20050764	20050765	20050766	20050767			
Residual Moisture (%)	0.09	0.12	0.15	0.09	0.22	0.18			
Ash (%, dry)	92.95	92.96	92.96	92.98	93.02	93.02			
Carbon (%, dry)	6.09	6.10	6.03	5.97	5.90	6.03			
Total S (%, dry)	0.25	0.25	0.25	0.24	0.25	0.25			
Chlorine (%, dry)	0.003	0.002	0.003	0.003	0.003	0.003			
Hg (ppm, as det'd)	0.253	0.248	0.245	0.238	0.246	0.240			
Major Ash Elements (%, dry)									
SiO ₂	49.21	48.58	50.16	49.57	49.82	50.09			
Al ₂ O ₃	25.14	25.52	25.45	25.16	25.61	25.63			
TiO ₂	1.40	1.40	1.41	1.38	1.41	1.41			
Fe ₂ O ₃	10.38	10.45	10.43	10.30	10.25	10.41			
CaO	1.48	1.46	1.48	1.46	1.47	1.46			
MgO	0.92	0.93	0.93	0.92	0.93	0.94			
Na ₂ O	0.49	0.52	0.52	0.53	0.53	0.53			
K ₂ O	2.28	2.38	2.33	2.35	2.39	2.38			
P ₂ O ₅	0.29	0.31	0.29	0.30	0.30	0.30			
SO ₃	0.62	0.63	0.63	0.61	0.62	0.62			
UND	7.79	6.82	6.37	7.42	6.66	6.23			

 Table 29. Results of analyses of ESP hopper ash samples – Unit 2, Test 4

E. FGD slurry

Each unit has two scrubber modules in operation at all times. On Unit 1, modules A and B were in use; on Unit 2, modules A and C were in use. The scrubber blowdown from each module was sampled once during each test by CONSOL personnel.

Upon arrival at CONSOL R&D's analytical lab, each slurry sample was filtered to generate a filtrate and a solid residue (i.e., filter cake) samples. The air-dried solids and the filtrates were analyzed separately. Listed in Tables 30 and 31 are the results of analyses of the FGD slurry solids samples. Listed in Tables 32 and 33 are the results of analyses of the limestone slurry filtrate samples.

Sample I.D.	U1T1	U1T1	U1T2	U1T2	U1T3	U1T3	U1T4	U1T4		
	FGDS-1A	FGDS-1B	FGDS-1A	FGDS-1B	FGDS-1A	FGDS-1B	FGDS-1A	FGDS-1B		
FGD Module	А	В	А	В	А	В	А	В		
Test No.	,			2		3	4	4		
Sample Date	01/19/2005	01/19/2005	01/20/2005	01/20/2005	01/20/2005	01/20/2005	01/21/2005	01/21/2005		
Sample Time	13:05	13:05	11:00	11:05	15:45	15:50	11:20	11:25		
Analytical No.	20050707	20050708	20050709	20050710	20050711	20050712	20050713	20050714		
% Solids in original sample	13.0	11.1	12.9	7.4	12.8	7.0	13.1	6.9		
Density of original sample (g/mL)	1.115	1.098	1.113	1.070	1.117	1.070	1.120	1.074		
Residual moisture, as det'd (%)	4.47	4.12	4.03	5.32	4.03	5.46	4.06	5.83		
Ash (%, dry)	99.92	90.24	103.14	91.54	99.81	92.24	99.3	93.02		
Total carbon (%, dry)	0.62	2.85	0.84	2.39	0.68	2.31	0.78	2.06		
Chlorine (%, dry)	0.60	0.35	0.63	0.36	0.61	0.40	0.56	0.48		
Hg (ppm, as det'd)	0.827	0.609	0.871	0.712	0.908	0.744	0.888	0.744		
Major Ash Elements (%, as det'd)										
SiO ₂	0.74	0.79	0.87	0.73	0.77	0.74	0.86	0.77		
Al ₂ O ₃	0.11	0.08	0.14	0.08	0.12	0.10	0.14	0.10		
TiO ₂	0	0.01	0.01	0	0.01	0.01	0.01	0.01		
Fe ₂ O ₃	0.10	0.11	0.13	0.11	0.12	0.12	0.13	0.12		
CaO	41.53	43.80	42.15	43.20	40.64	41.98	41.77	41.64		
MgO	0.34	0.33	0.36	0.31	0.40	0.34	0.33	0.31		
Na ₂ O	0.24	0.16	0.25	0.16	0.30	0.20	0.23	0.19		
K ₂ O	0.06	0.04	0.06	0.03	0.07	0.05	0.06	0.06		
P ₂ O ₅	0.03	0.04	0.02	0.04	0.03	0.05	0.05	0.04		
SO ₃	50.18	41.13	49.68	41.41	49.37	41.79	49.64	43.23		

Table 30. Results of analyses of FGD slurry solids samples – Unit 1 tests

Sample I.D.	U2T1 FGDS-2A	U2T1 FGDS-2C	U2T2 FGDS-2A	U2T2 FGDS-2C	U2T3 FGDS-2A	U2T3 FGDS-2C	U2T4 FGDS-2A	U2T4 FGDS-2C
FGD Module	А	С	А	С	А	С	А	С
Test No.		1	2	2	;	3		4
Test Date	01/24	/2005	01/25	/2005	01/25	/2005	01/26	/2005
Sampling Time	12:53	12:58	10:11	10:16	14:02	14:07	09:38	9:40
Analytical No.	20050715	20050716	20050717	20050718	20050719	20050720	20050721	20050722
% Solids of original sample	9.5	10.9	10.1	11.0	9.6	10.5	8.4	9.4
Density of original sample (g/mL)	1.077	1.098	1.088	1.084	1.093	1.084		1.090
Residual moisture (%)	4.52	6.12	4.60	3.42	2.51	2.69	2.95	3.25
Ash (%, dry)	96.99	99.90	95.23	97.80	94.29	97.56	97.50	97.70
Carbon (%, dry)	1.32	0.62	1.83	0.63	1.69	0.66	0.79	0.59
Chlorine (%, dry)	0.54	0.62	0.48	0.63	0.62	0.59	0.64	0.64
Hg (ppm, as det'd)	0.607	0.562	0.592	0.562	0.639	0.575	0.592	0.616
Major Ash Elements (%, as det'd)								
SiO ₂	0.99	1.27	1.27	1.15	1.24	1.18	1.19	1.18
Al ₂ O ₃	0.06	0.12	0.07	0.06	0.06	0.07	0.07	0.05
TiO ₂	0	0.01	0	0	0	0	0	0
Fe ₂ O ₃	0.05	0.08	0.07	0.05	0.06	0.07	0.06	0.05
CaO	41.87	40.12	43.37	40.81	42.21	41.34	40.71	40.23
MgO	0.29	0.33	0.40	0.29	0.31	0.33	0.31	0.33
Na ₂ O	0.22	0.30	0.29	0.24	0.22	0.26	0.26	0.28
K ₂ O	0.04	0.07	0.05	0.04	0.03	0.03	0.05	0.04
P ₂ O ₅	0.02	0	0.03	0.01	0	0.01	0.01	0.01
SO ₃	46.67	50.62	45.43	51.29	46.15	51.73	49.97	51.01

 Table 31. Results of analyses of FGD slurry solids samples – Unit 2 tests

Sample ID	U1T1 FGDS-1A	U1T1 FGDS-1B	U1T2 FGDS-1A	U1T2 FGDS-1B	U1T3 FGDS-1A	U1T3 FGDS-1B	U1T4 FGDS-1A	U1T4 FGDS-1B
FGD Module	1A	1B	1A	1B	1A	1B	1A	1B
Test No.		1	:	2	;	3	4	1
Sample Date	01/19/2005	01/19/2005	01/20/2005	01/20/2005	01/20/2005	01/20/2005	01/21/2005	01/21/2005
Sample Time	13:05	13:05	11:00	11:05	15:45	15:50	11:20	11:25
Analytical No.	20050792	20050793	20050794	20050795	20050796	20050797	20050798	20050799
Hardness (ppm), calc'd	28,422	19,861	25,108	20,044	26,800	18,612	24,696	18,202
AI (μg/mL)	< 1.25	13.9	< 1.25	15.6	< 1.25	14.2	< 1.25	14.3
Ca (μg/mL)	3,910	2,981	3,447	3,044	3,673	2,834	3,390	2,768
Total Iron (μg/mL)	1.42	3.99	< 1.25	4.53	2.29	4.17	2.14	3.63
Mg (µg/mL)	4,526	3,012	4,003	3,018	4,279	2,798	3,937	2,738
Mn (μg/mL)	6.36	6.58	5.87	6.63	6.42	6.17	6.03	6.47
K (μg/mL)	754	506	659	505	698	472	640	454
Ρ (μg/mL)	103.3	52.9	49.4	11.7	55.8	11.0	32.1	22.3
Si (μg/mL)	27.2	50.4	25.0	56.4	27.3	53.8	23.6	52.0
Na (μg/mL)	5,021	3,336	4,384	3,380	4,635	3,175	4,259	3,038
Cr (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25
Ammonia as NH_3 (µg/mL)	< 10	< 10	< 10	10	10	< 10	< 10	10
NO ₃ as N (μg/mL)	44.0	99.5	13.8	97.5	11.2	84.2	4.26	82.5
CI (μg/mL)	32,500	24,000	34,500	21,500	33,500	22,500	33,500	20,500
SO₄ (μg/mL)	4,060	3,937	3,618	4,479	3,795	4,231	3,474	3,615
Hg (μg/L)	4.0	4.5	4.8	5.7	2.7	3.6	4.0	4.2

Table 32. Results of analyses of FGD slurry filtrate samples – Unit 1 tests

Sample ID	U2T1 FGDS-2A	U2T1 FGDS-2C	U2T2 FGDS-2A	U2T2 FGDS-2C	U2T3 FGDS-2A	U2T3 FGDS-2C	U2T4 FGDS-2A	U2T4 FGDS-2C
FGD Module	2A	2C	2A	2C	2A	2C	2A	2C
Test No.		1	2	2	;	3		4
Test Date	01/24	/2005	01/25	6/2005	01/25	/2005	01/26	/2005
Sampling Time	12:53	12:58	10:11	10:16	14:02	14:07	09:38	9:40
Analytical No.	20050800	20050801	20050802	20050803	20050804	20050805	20050806	20050807
Hardness (ppm), calc'd	24,046	25,433	21,932	29,657	20,779	27,984	26,578	23,891
Al (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25
Ca (μg/mL)	3,640	3,796	3,313	4,367	3,123	4,145	3,928	3,542
Total Iron (μg/mL)	1.98	< 1.25	1.69	< 1.25	< 1.25	< 1.25	1.61	< 1.25
Mg (μg/mL)	3,628	3,870	3,313	4,548	3,148	4,277	4,067	3,650
Mn (μg/mL)	5.30	5.73	4.64	6.91	4.37	6.42	5.68	5.60
K (μg/mL)	668	707	611	837	587	784	753	682
Ρ (μg/mL)	48.9	51.4	52.6	86.8	58.7	68.4	63.3	63.0
Si (μg/mL)	30.0	29.5	26.3	35.7	24.7	32.3	34.0	29.1
Na (μg/mL)	4,447	4,685	4,098	5,651	4,001	5,252	5,122	4,585
Cr (μg/mL)	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25	< 1.25
Ammonia as NH ₃ (μg/mL)	10	10	< 10	< 10	< 10	10	< 10	10
NO ₃ as N (μg/mL)	44.7	45.8	46.3	44.3	32.8	35.0	44.3	38.0
CI (μg/mL)	29,500	33,000	27,500	31,000	24,500	30,500	29,000	35,000
SO₄ (μg/mL)	2,882	2,897	2,673	3,336	2,566	3,150	3,218	2,788
Hg (μg/L)	< 1.0	1.9	1.3	< 1.0	1.3	1.0	1.0	1.3

Table 33. Results of analyses of FGD slurry filtrate samples – Unit 2 tests

F. FGD makeup water

FGD makeup water and mist eliminator wash water came from the thickener overflow. CONSOL R&D personnel collected an FGD makeup water sample of about 250 mL during each test. Listed in Tables 34 and 35 are the results of analyses of the makeup water samples. The concentration of mercury detected in these samples was below the detection limit of 1.0 μ g/L.

-		-		
Sample ID	FGD Makeup- U1T1	FGD Makeup- U1T2	FGD Makeup- U1T3	FGD Makeup- U1T4
Test No.	1	2	3	4
Sample Date	01/19/2005	01/20/2005	01/20/2005	01/21/2005
Sample Time	13:00	11:00	15:40	11:15
Analytical No.	20050808	20050809	20050810	20050811
Hardness (ppm), calc'd	5,091	4,585	4,483	3,781
AI (μg/mL)	0.09	0.11	< 0.05	0.06
Ca (μg/mL)	917	829	811	695
Total Iron (μg/mL)	0.10	0.13	0.07	0.08
Mg (μg/mL)	679	610	596	496
Mn (μg/mL)	0.86	0.73	0.70	0.53
K (μg/mL)	199	170	165	154
Ρ (μg/mL)	3.42	3.76	3.82	3.68
SiO₂ (μg/mL)	8.01	9.92	9.62	9.05
Na (μg/mL)	1,141	1,070	1,041	1,005
Cr (μg/mL)	< 0.05	< 0.05	< 0.05	< 0.05
Ammonia as NH_3 (µg/mL)	< 10	< 10	< 10	< 10
NO ₃ as N (μg/mL)	3.2	8.1	9.8	10.1
Cl (μg/mL)	4,500	3,950	3,900	3,250
SO₄ (μg/mL)	1,853	1,763	1,722	1,650
Hg (μg/L)	< 1.0	< 1.0	< 1.0	< 1.0

 Table 34. Results of analyses of FGD makeup water samples – Unit 1

		-	-	
Sample ID	FGD Makeup- U2T1	FGD Makeup- U2T2	FGD Makeup- U2T3	FGD Makeup- U2T4
Test No.	1	2	3	4
Sample Date	01/24/2005	01/25/2005	01/25/2005	01/26/2005
Sample Time	11:45	9:17	13:30	9:00
Analytical No.	20050812	20050813	20050814	20050815
Hardness (ppm), calc'd	17,567	20,040	16,641	13,801
Al (μg/mL)	< 0.53	< 0.53	0.81	< 0.53
Ca (μg/mL)	2,798	3,174	2,694	2,225
Total Iron (μg/mL)	0.64	0.94	0.97	0.77
Mg (μg/mL)	2,566	2,938	2,405	1,999
Mn (μg/mL)	3.55	4.14	3.52	2.93
K (μg/mL)	490	550	453	392
Ρ (μg/mL)	55.1	47.1	35.3	35.9
SiO₂ (μg/mL)	29.8	33.4	28.1	23.1
Na (μg/mL)	3,260	3,643	3,007	2,649
Cr (μg/mL)	< 0.53	< 0.53	< 0.53	< 0.53
Ammonia as NH_3 (µg/mL)	< 10	10	10	< 10
NO ₃ as N (μg/mL)	< 0.02	< 0.02	< 0.02	< 0.02
CI (μg/mL)	19,500	21,000	17,000	15,500
SO₄ (μg/mL)	3,034	3,292	2,898	2,533
Hg (μg/L)	< 1.0	< 1.0	< 1.0	< 1.0

Table 35 Results of analyses of FGD makeup water samples – Unit 2

QUALITY ASSURANCE/QUALITY CONTROL

The sampling and analysis QA/QC procedures are described below.

- Personnel specifically trained and experienced in power plant sampling methods, including the Ontario-Hydro mercury sampling method, conducted all sampling,
- The sampling equipment was maintained and calibrated as required,
- Consistent sample preparation and recovery procedures were used,
- Samples were logged and tracked under the direction of sample team Group Leader,
- Individual calibration curves were developed for each sample matrix,

- NIST Standard Reference Material (SRM) and lab QC samples were analyzed to verify calibration curves,
- Duplicates of selected samples were analyzed to assure repeatability,
- Analyses of selected "spiked" samples were analyzed to assure sample recovery, and
- Interim data were reviewed to assure sample completeness.

All samples were obtained using the procedures described in EPA Method 5 and the Ontario-Hydro mercury speciation draft method. Data were recorded on standard forms, which are included in Appendix A. The field data were reduced using standard "in-house" spreadsheets. Copies of the summary sheets are included in Appendix A. To assure consistency, all of the Ontario-Hydro train components were prepared and recovered under the supervision of a senior technician experienced in the Ontario-Hydro mercury speciation lab techniques. Copies of the recovery sheets are included in Appendix C.

The Ontario-Hydro sampling train analysis consisted of eight sub-samples. Each subsample analysis consisted of developing a calibration curve (absorbance versus mercury concentration in solution), checks of field and lab blanks, calibration checks against SRM and lab standards, selected duplicates and selected sample spikes. The laboratory summaries for each of these runs are contained in Appendix C.

A total of 346 individual Ontario-Hydro mercury determinations were completed, including 30 blank samples, 71 NIST SRM or lab QC checks, 35 sample spikes, and 34 duplicate analyses.

I. Blank Samples

A total of 30 blank liquid samples (14 reagent blanks and 4 sets of field impinger blanks) were analyzed. All of the blanks were below the detection limit (<0.2 ng/mL for all samples except KMnO₄ acid rinse, which is <1.0 ng/mL). Consequently, in this report, blank concentrations were not subtracted from any mercury determination.

II. NIST Standard Reference Material Checks

Seventy-one NIST SRM checks were conducted throughout the mercury determinations. Two standards were used in the determinations as detailed in Table 36.

NIST SRM	Standard Value (ng/mL)	Sample Fraction	Samples Analyzed	Average Result (ng/mL)	Percent of Standard	Standard Deviation (ng/mL)	Percent Relative Standard Deviation
1641D	8.0	Ontario Hydro Liquids	57	8.07	100.9	0.24	3.0
10410	0.0	Ontario Hydro Filters	8	8.23	102.8	0.046	0.6
1633b	141.0	Ontario Hydro Filters	6	145	102.6	12.9	8.9

Table 36. NIST SRM analyses

III. Spike Sample Recoveries

A total of 35 samples were spiked with a 2 or 10 μ g/L mercury standard and then reanalyzed to determine the percent spike recovery. The result of this QA/QC procedure was an average spike recovery of 91.8% recovery with a ±6.1% standard deviation.

IV. Duplicate Analyses

A total of 34 duplicate analyses were conducted periodically throughout the mercury determinations. The result of this QA/QC procedure was an average mercury determination that was within 6.6% of the original mercury determination, with a \pm 9.0% standard deviation.

V. Flue Gas Mercury Concentration Detection Limits

For liquid samples, the flue gas mercury concentration was calculated using the following equation:

$$Hg\left[\mu g / m^{3}\right] = \frac{\left(C_{imp} x V_{imp}\right)}{\left(V_{gas} x 1000\right)}$$

where:

C_{imp} = Mercury concentration of impinger solution [ng/mL (ppb)]

 V_{imp} = Liquid volume of impinger solution [mL]

 V_{gas} = Flue gas sample volume [dry standard m³]

1000= Conversion factor [1000 ng per µg]

The flue gas mercury detection limit is reduced when the flue gas sample volume is increased or liquid volume of impinger solution is decreased. The CVAA is calibrated between 0 and 20 ng/mL. Over this range, the calibration curve between absorbance and concentration is linear. The lowest concentration standard used to develop the calibration curve is 0.500 ng/mL. In addition, the detection limit of the liquid CVAA

analysis was 0.2 ng/mL for all samples except KMnO₄ acid rinse, which is 1.0 ng/mL. The prescribed sampling and recovery procedures result in final liquid volumes varying between 64 and 698 mL. The volume of flue gas collected varied between 1.083 and 2.228 dscm. The sampling variables result in sample-specific flue gas detection limit. The flue gas mercury detection limit for each sample matrix is listed in Table 37. Depending on the matrix, the flue gas mercury detection limit ranged from 0.1 to 0.6 μ g/m³.

Matrix	Maximum Liquid Volume (mL)	Minimum Gas Volume (dscm)	Flue Gas Detection Limit (µg/m ³)	
Probe Rinse	227	1.083	0.04	
KCI Impinger	698	1.083	0.13	
HNO ₃ /H ₂ O ₂ Impingers	183	1.083	0.03	
KMnO₄ Impingers	250	1.083	0.05	
HCI Rinse	100	1.083	0.09	

 Table 37. Flue gas mercury detection limits

VI. Mercury Material Balance Closure

One important criterion to gauge the overall quality of the tests is to conduct a mass balance to account for the mercury entering and leaving the plant during the time of the tests. The total mercury input is the sum of the mass flow rates of mercury entering the unit from coal, limestone slurry, and FGD makeup water. The total mercury output is the sum of the mass flow rates of mercury leaving the unit through the coal mill rejects, boiler bottom ash, ESP hopper ash, FGD slurry, and stack flue gas. Tables 38 and 39 summarize the results of the mercury material balance closure calculations. For the four tests conducted on Unit 1, the calculated mercury material balance closures ranged from 72% to 104% with an average of 84%. For the four tests conducted on Unit 2, the calculated mercury material balance closures for all individual tests are within the QA/QC criterion of 70-130% for a single test. The average mercury material balance closures of 84% and 103% are within the QA/QC criterion of 80-120% for multiple tests.

Test No.	1	2	3	4
Hg input from Coal (mg/sec)	3.84	4.52	4.48	2.78
Hg input limestone slurry (mg/sec)	0.06	0.06	0.05	0.07
Hg input from FGD makeup water (mg/sec)	0.01	0.01	0.01	0.01
Total Hg Input (mg/sec)	3.91	4.60	4.55	2.87
				-
Hg output via Coal Mill Rejects (mg/sec)	0.18	0.18	0.17	0.18
Hg output via Bottom Ash (mg/sec)	0.01	0.01	0.01	0.14
Hg output via ESP Hopper Ash (mg/sec)	0.78	0.43	0.39	0.46
Hg output via FGD Slurry Solids (mg/sec)	1.73	2.00	2.27	1.70
Hg output via FGD Slurry Filtrate *mg/sec)	0.07	0.13	0.08	0.08
Hg output via stack gas (mg/sec)	0.38	0.57	0.69	0.39
Total Hg Output (mg/sec)	3.15	3.31	3.61	2.96
Hg Material Balance Closure (output / input)	81%	72%	79%	104%
Average Hg Material Balance Closure (%)		84 ±	13 %	

Table 38. Summary of material balance closure for mercury, Unit 1.

Table 39. Summary of material balance closure for mercury, Unit 2.

Test No.	1	2	3	4
Hg input from Coal (mg/sec)	3.23	3.74	3.72	3.91
Hg input limestone slurry (mg/sec)	0.12	0.13	0.10	0.07
Hg input from FGD makeup water (mg/sec)	0.01	0.01	0.01	0.02
Total Hg Input (mg/sec)	3.36	3.89	3.84	4.00
Hg output via Coal Mill Rejects	0.16	0.48	0.54	0.61
Hg output via Bottom Ash (mg/sec)	0.03	0.05	0.05	0.01
Estimated Hg output via ESP Hopper Ash (mg/sec)	0.68	0.73	0.75	0.70
Hg output via FGD Slurry Solids (mg/sec)	2.55	2.52	2.59	2.21
Hg output via FGD Slurry Filtrate *mg/sec)	0.07	0.05	0.04	0.04
Hg output via stack gas (mg/sec)	0.18	0.25	0.12	0.13
Total Hg Output (mg/sec)	3.67	4.08	4.10	3.70
Hg Material Balance Closure (output / input)	109%	105%	107%	93%
Average Hg Material Balance Closure (%)		103 :	±7%	

HEAT INPUT-BASED MERCURY EMISSION

The heat input based mercury emission rates were calculated by using the Ontario-Hydro data and the heat input to the boiler, and the results are summarized in Table 51. The mercury emissions ranged from 1.70 to 2.27 lb/TBtu with an average emission rate of 1.77 lb/TBtu during the ozone season tests. The mercury emissions ranged from 2.01 to 3.11 lb/TBtu with an average emission rate of 2.34 lb/TBtu during the ozone season tests.

Unit 1 Test No.	1	2	3	4
Stack Hg Flow [mg/sec]	0.38	0.57	0.69	0.39
Stack Hg Flow [lb/hr]	3.01x 10 ⁻³	4.54 x 10 ⁻³	5.44 x 10 ⁻³	3.14 x 10 ⁻³
Heat Input (MM Btu/Hr)	4,490	4,370	4,330	4,350
Stack Hg Emissions (lb/TBtu)	0.67	1.04	1.26	0.72
Average Stack Hg Emissions (Ib/TBtu)		0.9)2	
Unit 2 Test No.	1	2	3	4
Unit 2 Test No. Stack Hg Flow [mg/sec]	1 0.18	2 0.25	3 0.12	4 0.13
	1 0.18 1.44x 10 ⁻³	_		-
Stack Hg Flow [mg/sec]		0.25	0.12	0.13
Stack Hg Flow [mg/sec] Stack Hg Flow [lb/hr]	1.44x 10 ⁻³	0.25 1.99 x 10 ⁻³	0.12 9.89 x 10 ⁻⁴	0.13 1.04 x 10 ⁻³

Table 40. Heat input-based mercury emission

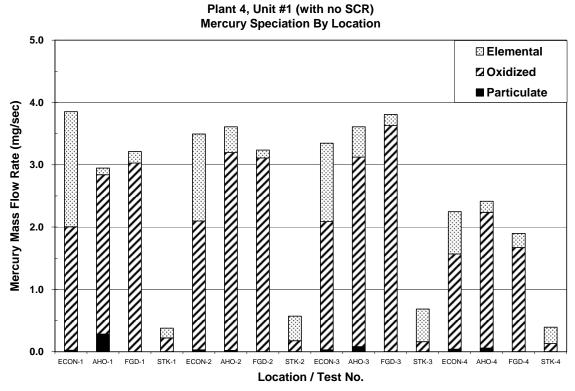
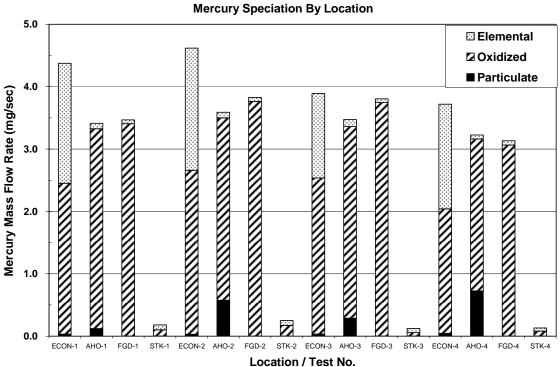


Figure 1. Mercury speciation by location, Unit 1 (with no SCR)



Plant 4, Unit #2 (with SCR)

Figure 2. Mercury speciation by location, Unit 2 (with SCR)

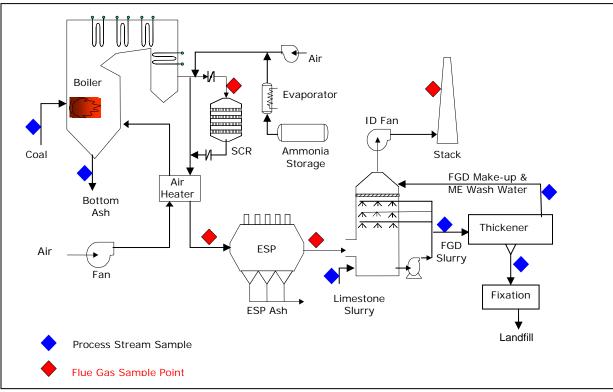


Figure 3. Process flow schematic and sampling locations



Figure 4. Economizer outlet probe and sampling train



Figure 5. ESP inlet (air heater outlet) probe and sampling train



Figure 6. FGD inlet probe (in background), sampling train, and meter box



Figure 7. Stack sampling port

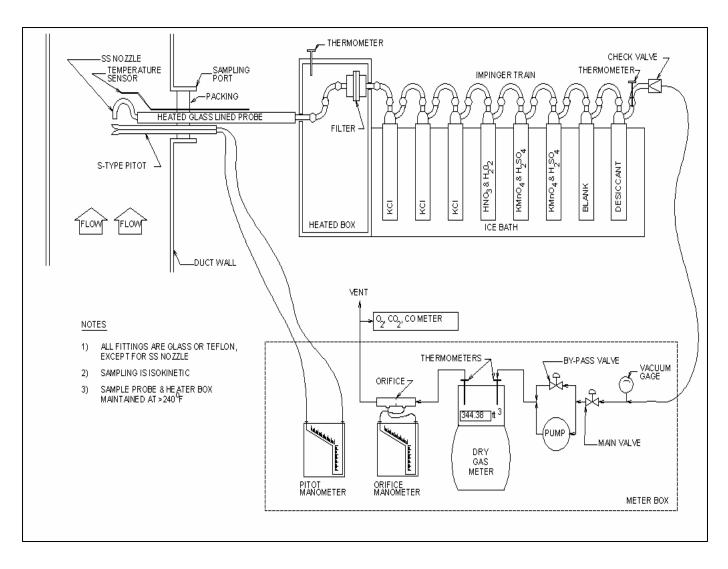


Figure 8. Ontario-Hydro sampling train schematic



Figure 9. ESP ash hoppers, showing pipes used for transferring ash to the silo

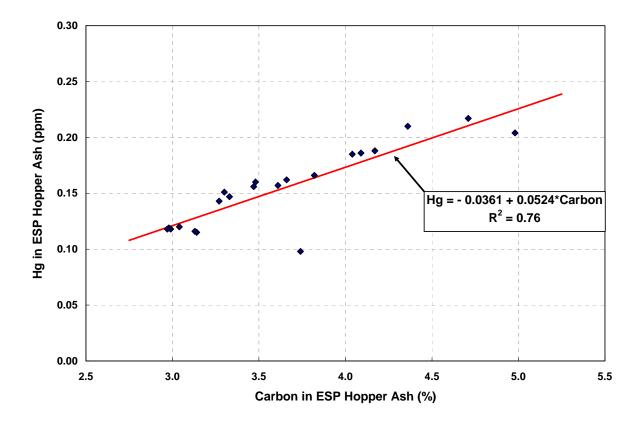


Figure 10. ESP ash mercury vs. Carbon plot, Unit 1

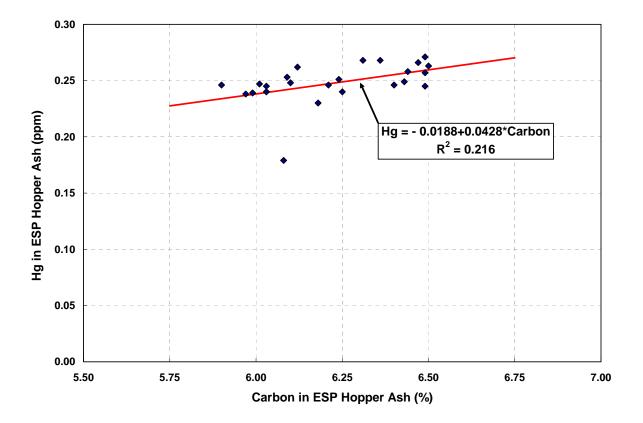


Figure 11. ESP ash mercury vs. Carbon plot, Unit 2

APPENDIX A

Mercury Sampling Data

• Field Data Sheets

1.11

Mercury Measurement Data Sheets

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TEST ID			ECON-	1		METER BOX	N-1	CAL. D	ATA: delta H		Comments:	- <u>11500</u>	EVED S	Light Kin	<u>K</u> N
PLANT		S	CR/FGD Pla	unt 4	PIT	OT TUBE DESC	.E-15	•	Y	0.987					15. APS
LOCATION			onomizer C		PRO	BE LENGTH [ft]			C(p)	0.838		@ 1130	+1140 1	<u>na Be</u>	Lew.
DATE			1 jak			OZZLE ID [inch]	3/160 0.191		BOX SETTING	325	*	SUSPELT	Sort Black	1 1 C21	~/21c-123
OPERATOR(S)		610	$/ \leq \tau$	%	H ₂ O (Assumed)			HTR SETTING	325			~p C	7~7,9%=	* .
AMBIENT TEN			90			FILTER ID	1		T X-SECTION	circ?	rect ?	other: 725 ft ²	1		
BAR. PRESS.	[" Hg]		29.90	0		K FACTOR	0.632	DUCT	DIMENSIONS	<u>2@25'x14.5'</u>	DUCTAREA	12511]	•	
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER E	XHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	io	FI (7)			вох	TEMP	0 ₂	COz
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	CFD	Ľ₽	[°F]	Ľ°₽	[% vol]	[% vol]
	1100	0					509.00			100	000			76	
		10		0,90	0.57	4.0	513,14	90	88	693	324		64	Z.G	17.3
-14		20		0.72	0.45	4.0	516.89	93	89	698	330		63	2.7	17.2
5005	/	30		0.66	0.42	4,0	520,50	96	91	697	330		63	2.7	17.2
NOC	á.	40 '	-4,26		035	4.0	523,84	9B	92	697	332		65	26	17.3
1-1	D and	50		0.80	0.50	5,0	527.63	99	94	699	318		62	2.7	17.2
1	\sim	60		0.78	0,48	6.0	531.64	101	95	694	324		60	27	17.2
				POST	<u> </u>	South C		2 10"1	+q	· ·					
					CAK C	NORTH "		10 "	119						ļ
ABTALT	1215		2				532,10		<u> </u>						
		70		1.00	0.63	5.0	536.45	104	99	711	329		63	4.0	15.9
		80		1.00	0.63	5.5	540,81	106	100	710	320		60	3.0	16.9
with the	~	90	-4,81	1.05	0,66	6.0	545.27	106	101	707	320		60	4.0	16.0
N V I	, A	100		1.05	0,66	7.0	549.73	107	101	706	331		60	3.7	16,3
D	0.	110	-4.55	1.00	0,63	7.5	554.22	107	102	707	332		61	4.1	15,9
69	(315	120		1.00	0.63	8.0	558.60	108	102	108	332		61	4.0	16.0
$\overline{\chi}$				4,00				; ¥							
		1										1			
	· · ·	1						· ·							
								A (1)	1		
AVERAGE			-4.54	0.868	0.551	<u> </u>	49.14	98.	7	702.83				3.3	16.7
	· · · · · · · · · · · · · · · · · · ·	Si	ample Train		t <u>0.010</u> ft ³					Pitot Tube	e PreTes		<u>5</u> in.	H₂O	
		Le	ak Checks	Post Test	t ft ³	@iOi	n. Hġ			Leak Checks	: Post Tes	t@	<u>S</u> ťin.	H ₂ O	
CONSOL	ENERGY.	Received	****************		<u></u>				<u>, , , , , , , , , , , , , , , , , , , </u>			NOT	E: Purge for 1	0 minutes at er	nd of sampling.

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				ONTA	RIO HYDI	RO Hg SAI	MPLING AN	D SPEC	IATION F	IELD DA	TA SHEE	тИ	<u>II</u>	1	
					.									Page	of
TEST ID			AHO-	<u> </u>		METER BOX	N-5	CAL. D	ATA: delta H		Comments:				
PLANT			CR/FGD Pla		1	TOT TUBE DESC	ES	(M)	Ŷ	1.01					
LOCATION		Air He	ater Outlet	ESP Inlet		DBE LENGTH [ft]	IZ	U	C(p)	0.846					
DATE		- / ·	19-0	5	1		\$16B 0.188		BOX SETTING	325					
OPERATOR(S	-		P. DO			%H ₂ O (Assumed)	- 3		HTR SETTING	325			·	I	
AMBIENT TEN		70) 7.96			FILTER ID K FACTOR			T X-SECTION		rect ? DUCT AREA	other:		1	
BAR. PRESS.	[" Hg]		$(\cdot 16)$		ł	KFACTOR	0.73	DUCI	DIMENSIONS	<u> </u>	DOCTAREA		_		
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METEI	RTEMP	STACK	PROBE	FILTER	LAST IMP		EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		»F]	TEMP	TEMP	BOX	TEMP	02	CO2
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	113 115	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
<i>A</i> C ()	11:00	0	700	<u> </u>			the second s	~777	67	50/	774	NA		5.2	14.9
8A-1	11:10	10	-3.95	0.45	0.42	2.0	837.11	\$72	-	<u>295</u> 296	209		65	Y.7	15.3
A-1	11:20	20		0.45	0.42	2.10	840.49	70	74	296			63	-	
- A-1	11:30	30		0.42	2.39	2.0	243.735	74	76	276	292		66	4,6	15.5
		- 36 7			(car	Chk 0.00									
	11:33 30	50					813.900								
B-1	1143	\$\$40		0.50	0.46	2.5	847.47	-75	73	Z73	297 :	1	47	4.8	15.4
13-1	1153	50		0.54	0.50	3.00	851-21	78	79	291	301	r ta na	45	4.3	15.9
B-1	12.03	60		6.54	0.50	300	854.94	80	81	291	300	Pro-	equ	4.5	15.7
					Keak clack	0.000 @	6.0	1							
	1217	đ	-				855.03	1	1	1		14 T (June 1			
C-1	1227	6070	- 8.9	0.59	0.54	3.5	858.89	8z	81	2 261	292	1999 B. U. L.	43		
C-1	1237	2008		0.65	0,60	3.0	862.94	85	83	270	304		46	4.4	15.6
C-1	12.47	180 70		0.60	0.54	3.0	866.76	87	84	ZQ	302		44	4.6	15.5
		168			(k chk		6"+10					and a line of the			
	12-55	120					8/26-90	1							
7-1	13.25	100		0.45	0,42	26	870.29	87	84	235	282		55	5%	14.4
17-1	1315	110		0.48	0.44	2,5		89	87	252			50	5.9	14.2
D-1	1325		- 9.3	0.44	0.41	25	873.88 877.12	89	84	254	281		49	5.Z	14.9
				King											
AVERAGE			-9.0	0.507	0.471		42.96	80.	¥	273.7		Y Game Mar		4.9	15.Z
		S	ample Trair	n Pre Tes	t 0.005 ft ³	@ <u>1(.</u> 2i	n. Hg			Pitot Tube	PreTes		<u> </u>	H ₂ O	
<i>9</i> ={=		Le	ak Checks	: Post Tes	t <u>7.085</u> ft ³	@_ <u>5,0</u> i	n. Hg			Leak Checks	: Post Tes	<u>.</u> 26-1 @	<u>7</u> in.	. H ₂ O	

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TEST ID		:	FGD-	1		METER BOX	10-4	CAL. D	ATA: delta H	1.983	Comments:	1				
PLANT		5	CR/FGD PI	ant 4	Pľ	TOT TUBE DESC	EIZ	19	Y	0.960]	· .				
LOCATION			FGD Inle	t	PRO	BE LENGTH [ft]	۶. ۲		C(p)	0.835	· ·					
DATE		1/	19/05		N	OZZLE ID [inch]	7/16C 0-193	FILTER	SOX SETTING	325		<u> </u>			<u> </u>	
OPERATOR(S	5)	JA.		PL D	9	6H₂O (Assumed)	. 6	PROBE	TR SETTING	325	ļ					
AMBIENT TEN			55			FILTER ID		DUC	T X-SECTION	circ ?	rect ?	other:	r -			
BAR. PRESS.	[" Hg]	24	.96			K FACTOR	1.04	DUCT	DIMENSIONS		DUCT AREA]			
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER	TEMP	STACK	PROBE	FILTER	LAST.IMP		EXHAUST	22
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0		TEMP	TEMP	BOX	TEMP	0 ₂	CO ₂	1.2:2
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]	22 12:2 Cal Cal
	11:00	0					921.60	<u> </u>		<u> </u>				1.0		
	11:10	10	5.6	1.20	1.25	5.0	927,65	71	66	268	325	1/f	47	.6.2	13.9	
	11:20	20	5.7	1.10	1.15	5,0	933,47	77	67	268	. 324	//	48	6.3	13.8	
	11:30	30	5.8	1.10	1.15	5.0	938.29	78	69	268	325		50	5.8	14.3	
	11:40	40 -	5.6	1.00	1-0\$	5.0	944.90	29	69	269	325		49	5.7	14.4	20,6 Real
	11:50	50	5.5	1.00	1.05	7.5	950.14	Co Co	71	269	375		48	6.0	14.1	
	12:00	60	517	1.05	1.10	5.0	156.14	81	7/	269	325		48	6.0	14.1	208
	12:10	70	5.6	1,20	1.75	5.0	962.21	23	72	270	325	Values V. A. T	49	5.9	14.2	
	12:20	er,	5.6	1.06	1.10	5.0	1968,10	83	73	270	325	4 1 0 0 0 0 0 0 0	49	6.0	14.1	1.5
	12:30	90	5-6	1.15	1.20	5.0	973.92	83	74	270.	325		49	5.6	14.5	20E Urt
	12:40	1.30	5.8	1,25	1.30	5.5	980,10	83	74	270'	325	1	50	5.9	14.2	
	12:50	1 60	5,8	1.20	1.25	5.5	186.20	83	-73	270	325		.57	6.0	17.1	125
	13:00	1200	5.8	1.20	1.75	5.5	992,28	84	74	270	3+5		51	6.1	14.0	23.E DK
		100														
		110													<u> </u>	1
·····	L	120						\								
																_
				(RMS)	· .)				
				1.123						1	~		1			
AVERAGE			5.68		1.175		70.68		75.7	269.3				3.96	14.14]
		S	ample Train	Pre Test	doal ston ft3	@ <u>- / 2</u> ii	n. Hg			Pitot Tub	e PreTes	<u>t_0K_@</u>				
		Le	ak Checks:	Post Test	d <u>ore slo</u> ft ³	@_ <u>~/</u> øi	n. Hg		****************	Leak Checks	Post Tes	t@	in.	H ₂ O		

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	TEST ID			STK -	Ι	×	METER BOX	N-3	CAL. D.	ATA: deita H		Comments:				
	PLANT		s	CR/FGD Pla	ant 4	P).	FOT TUBE DESC	E-11		. Y	1.026					
-	LOCATION			Stack			BE LENGTH [ft]	10		C(p)	0.806			·· · ·		
-	DATE		, ,	9.0	\sim		OZZLE ID [inch]			SOX SETTING	325					
-	OPERATOR(S)		<u> </u>		<u>، کر، ا</u>	9	6H ₂ O (Assumed)	3.5		ITR SETTING	250					
:			<u> </u>	<u>ح ~~</u> ۲۰۰۹ (FILTER ID K FACTOR	<u># 2</u> 1.67		T X-SECTION	circ ? 19 ft ID	rect ? DUCT AREA	other: 283.53 ft ²			
1	BAR. PRESS.	[Hg]		1.10	0		KFACTOR	1.0-7					$\overline{(200.00 \text{m})}$	(\mathcal{F})		
1	TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER	TEMP	STACK	PROBE	FILTER	LAST IMP	METER E	XHAUST
-	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0	F]	TEMP	TEMP	BÓX	TEMP	0 ₂	CO2
	[port-inch]	(24-hr)	[minute]	[[⊷] H₂0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[fft ³]	inlet	outlet	[°F]	[°F]	`[[°] F]	[°F]	[% vol]	[% vol]
		1100	0			<u> </u>	<u> </u>	464.60	- ~ 1		\sim \sim \sim	$\sim \sim 1$		~ ~		120
-	-10.00		10		·14	1.23	3.5	470.54	75	74	129	251	305	55	6.3	13.8
A	-33.33		20	-,4452	1.00	1.65	4	477.13	81	75	129	261	327	49	6.2	13.9
	-67.50		30		1,10	1.82	S	484.04	08	77	129	261	335	51	5.8	14.3
-					r N	REST	ART	484.16		1 40 -						1
		-														
-	-10.00		40		.70	1.15	2.5	+89.76	83	רר	127	247	307	49	3. کا	13.8
0	-33.33		50 -	.4996	1,00	1.65		496.33	85	<u>.</u> רר	127	253	322	46	5.8	14.3
ß	-67.50		60		1.10	1.82	5	503.24	26	<u>יי</u> צר	126	255	233	47	6.0	14,1
:	-07.50		00			REST		503.36	00	10	1 2 0		1-22		0,0	
					<u> </u>	12231		00.00						1		
:							3.5	508.85	84	78	125	256	329	50	6.3	13.8
	-10.00		70	2020	<u>ماما،</u>	1.10						1	229	79		$\frac{1}{1}$
C	-33,33		80	3980	· · · · · · · · · · · · · · · · · · ·	1.75	5	515.66	87	80	126	248	+~~		6.0	17.1
ļ	-67.50		90		1.10	1.82	5	522.62	90	8)	126	252	330	52	6.3	13.8
1					L.C.	RESTI	ART	522.74								
									\							
:	-10.00		100		. ¬ 8	1.30	4	528.66	27	81	126	225	329	12	6.3	13.8
5	-33.33		110 -	4651	1.10	1.82	S	535.60	89	82	126	253	328	52	6.3	13.8
D	-67.50		120		1.10	1.82	5	5+2,58	9	84	126	256	330	54	6.2	13.9
:		1320									· · ·					
	AVERAGE			-0.45	0.944	1.57		77.62	ŴĒ	2	126.8	·			6.2	14.0
	Street as	·	Si	ample Train	Pre Test	OK ft ³		n. Hg			Pitot Tube		t <u> </u>			
			Le	ak Checks:	Post Test	<u> </u>	@ <u>\0</u> i	n. Hg		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	Leak Checks	- Post Tes	t_ OK @	in.	H ₂ O	

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TEST ID			ECON-	2		METER BOX	N-1	ÇAL. D	ATA: delta H	1.976	Comments:				
PLANT		s	CR/FGD PI	ant 4	PI	TOT TUBE DESC	E-15	•	Y	0,987					
LOCATION		E	conomizer (OBE LENGTH [ft]			C(p)	0.838	· · ·				
DATE			1/20/				3/16 DIA O.A	FILTER I	BOX SETTING	325					
OPERATOR(S	•		<u>SLC/</u>	ST		%H ₂ O (Assumed)	, ,	PROBE	HTR SETTING	325					
AMBIENT TEN	MP (°F)		90			FILTER ID			T X-SECTION	circ ?	rect ?	other:	<u> </u>		
BAR. PRESS.	(" Hg]		29.19	7		KFACTOR		DUCT	DIMENSIONS	<u>2@25'x14.5'</u>	DUCT AREA	725 ft ²			
TRAVERSE	CLOCK	SAMPLE	07470				4 9;632)						[
POINT	TIME	TIME	STATIC	РПОТ HEAD	METER DIFF PRESSURE	VACUUM	METER	29 \		STACK	PROBE TEMP	FILTER BOX	LAST IMP		EXHAUST CO ₂
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	[°F]	[°F] 🖉	[°F]	I°FI	[% vol]	[% vol]
	0936	0					564.1D								
1V		10		1.00	0,63	4.0	568,50	84	87	709	320	(.50	3.7	16.3
0		20 🦯	-4.56	1,05	0,60	4.5	572.91	86	83	711	330	/	47	37	16,3
R		30		1,05	0.66	5,0	577.34	89	85	710	329	1	48	4.2	159
T		40		1,05	0.66	5.0	581.78	92	86	7/1	321		49	4.0	16.0
H		50	-4.65	1.05	0.66	6.0	586,23	94	88	7/3	321		50	38	16.2
		60		1.05	0.66	6.5	540.00	95	89	710	318		51	4.2	15,9
				POST	NORTH	LEAK (HECK	ak	O"el	0"/19		[
ļ											an a				
	1054						594.50	•							
5		70		0.90	0.56	7.0	598.71	98	94	713	320		55	3.1	16.9
0		80	- 4,49	0,80	0.50	7.0	602.68	99	94	712	320		52	3.7	16.7
<u> </u>		90		0.80	0,50	8,0	606.iA	100	95	710	330	·	52	3.7	16.3
T		100		0,80	0.50	8.5	610.60	101	96	711	330		54	3.5	16.5
H		110		0,80	0,50	9.0	614,52	102	97	712	329		54	3,6	16.4
		120		0.80	0.50	10.0	618,51	102	91	713	36		54	3.1	16.9
								a.			:	<u> </u>			1
					-					İ			\$		<u> </u>
															1
AVERAGE				0.925	0.583		50.57	92.9	¥	711.6			\perp_{Γ}	3.7	16.4
			mple Train ak Checks:	($\frac{2.2.02}{0} \text{ ft}^3$	_	n. Hg			Pitot Tube Leak Checks:	PreTest Post Test	· · · · ·		H₂O H₂O	
		10111111111111111111111111111111111111	in oneoro,	http://www.contest			*****			Lean Gleuks:	FUSLIEST		<u>, 11.</u> 		<u></u>

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TEST ID	1		AHO-	2.		METER BOX	N-5	CAL. D	ATA: delta H	2:015	Comments:				
PLANT	•	s	CR/FGD Pla		PIT	OT TUBE DESC			Y	1.511					
LOCATION			ater Outlet/			BE LENGTH [ft]	10		C(p)						
DATE			10-05			OZZLE ID [inch]		FILTER I	BOX SETTING	325					
OPERATOR(S	;)	JL,	DO, 9	K	%	H ₂ O (Assumed)	6	PROBE	HTR SETTING	325					
AMBIENT TEN	/P [°F]					FILTER ID		סטס	T X-SECTION	circ ?	rect?	other:			
BAR. PRESS.	[" Hg]	29	19			K FACTOR	0.93	рист	DIMENSIONS		DUCT AREA	<u> </u>			
														NETER	EXHAUST
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER VACUUM	METER READING		R TEMP >F]	STACK TEMP	PROBE TEMP	FILTER BOX	LAST IMP TEMP		CO ₂
POINT	TIME	TIME	PRES [" H ₂ 0]	HEAD [" H₂0]	PRESSURE [" H ₂ 0]	VAC00101	[ft ³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	 [% vol]	[% vol]
[port-inch]	(24-hr) 0735	[minute]	<u>[n20]</u>	[n ₂ v]		<u> </u>	836.000								
D-1	0945	10		0.30	0.23	0,)	888.84	58	6!	254	306	NA	55		
<u> </u>	0955	20	-9.03	0.30	0.2B	1-0	891.57	60	62	254	.291		47	5.7	14.84
D-1	1005	30		0.30	0.23	1-0	894.33	62	65	254 -	294		43	6.1	14.0
	<u> </u>	- 555	, , ,		ic che	. OK @ 7.	o "HR						1		
	10.12	\$					894.700								
C-1	1022			0.45	0.42	1.5	893.12	65	63	254	363	an an an an an	SI		
C-I	1032	50	-9.27	0.50	0.46	1.5	901.66	67	GB	270	300	1	47	5.1	15.0
C-1	1042	63		0.50	0.46	1.5	905.18	68	69	270	305		47	5.1-	14.9
			2		1 le client	-0266	O"HP								
	10:51	ø	·	0.82			955.47								
<u>B-1</u>	11:01	000		<u>ass</u>	0,6576	2.0	910:00	70	72	Z.88	327-		55		
	7/11	මහිට		10.95	0.87	2.0	914.68	72	71	293	314		5/	5.5	14.5
13-1	11Z1	20092		0.95	0.87	2.0	919.39	74	72	293	323		51	5.0	15.2
		6			1/2 diese	- 5.000 C	£								
	1/30	1287	- '				919.50								
A-1	1140	[00		0.45	0.41	1.5	922.97	73	74	Z95	274		61		
A-1	1150	110	- 3.14	0.41	0.33	1.5	926-24	74	74	299	303		55	5.4	14.6
A-1	1200	120		0.53	0.49	20	929.985	75	74	300	317		56	5.6	14.6
													<u> </u>	<u></u>	
AVERAGE			-9.16	0.516	0.497		43.215	6	377	277.0				15.4	1614.7
	•	S	ample Train	n Pre Tes	t <u>0.01</u> ft ³	0.0] 0	in. Hg			Pitot Tub	e PreTes	t @	<u>9</u> in.	H ₂ O	
		Le	ak Checks	: Post Tes	t <u>C、クロン</u> ft ³	@	in. Ág			Leak Check	s: Post Tes	t_ <u>0k_</u> @	2 <u>2</u> in.	H₂O	

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FEST ID			FGD-	2		METER BOX	N-4	CAL. D	ATA: delta H	1.983	Comments:				
LANT		s	CR/FGD PI	ant 4	Pľ	TOT TUBE DESC	E-12		Ŷ	0.960	1				
OCATION			FGD Inie	<u>t</u> .	PRO	DBE LENGTH [ft]	8	•	C(p)	0.835	1				
DATE			120 /05		Ν	OZZLE ID [inch]	3/16C 0.193	FILTER	BOX SETTING	325	1				<u> </u>
DPERATOR(S)	J.	W .		. 9	%H₂O (Assumed)	\$ 7.5	PROBE	HTR SETTING	325	<u> </u>	. 		1	
AMBIENT TEM	P [°F]	<u>ک</u>	~~~			FILTER ID		DUC	T X-SECTION	circ ?	rect ?	other:		1	O, ne
BAR. PRESS.	[" Hg]	29	.79			K FACTOR	1.06	DUCT	DIMENSIONS		DUCT AREA		_		outis outis
TRAVERSE	CLOCK	SAMPLE	STATIC	DITOT	METER DIFF	METER	METER	MEYE	R TEMP(76)	STACK	PROBE	FILTER	LAST IMP	METERI	Che.
POINT	TIME	TIME (PRES	HEAD	PRESSURE	VACUUM	READING	[c	(76) F]	TEMP	TEMP	BOX	TEMP	02 (6)	CO(14)
[port-inch]	(24-hr)	[minute]	[" H _z 0]	[" H ₂ 0]	[" H _z 0]	[" Hg]	[ft ³]	inlet .	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
	09:35	[,] 0					998.80								
	09:45	10	4.3	1,15	1.20	4.0	1004.84	7/	66	271	327	NA	50	6.0	14.1
	07:55	20	4.2	1.15	1.20	4.0	1010.82	つつ	67	270	. 325	1	48	5.9	14.2
	10:05	30	4,2	1.15	1.30	4.0	1016.75	78	67	271	326		49	5.8	14.3
	10:15	40	4.4	1.10	1.15	4.0	1022,62	78	69	271	325		51	6.0	14.1
	10:25	50	4.3	1,10	1.15	4.0	1028-47	79	61	27/	325		51	5.5	14.6
	10:35	60	4.2	1.10	1.15	4.0	1334.30	80	70	272	325		51	5.7	14.4
	10:45	70	4.5.	1.00	1.05	4.0	1039.96	63	71	272	325		51	6.3	13.8
	10:55	80	4.2.	1.00	1.05	4.0	1245,58	20 T	72	272	325	1	52	5.7	14.4
	11:05	90	t.3.	0,95	1.00	40	1051.06	70	72	273	374	· ·	52	5.9	14.2
aline.	11:15	(700)	4.2	1.00	1.05	4.0	1056.72	FI	72	273	325		53	6.0	14.1
	11225	1 100	42	0.94	1.00	4.0	1062.23	81	72	273	326		54	5.7	14.4
	11:35	1200	4.5.	1.00	1.05	7.0	1007.87	TI	73	274	326	<u> </u> . (54	5.9	122
		100													
		110													
		120						j							
											:				
										-			4.		
	······			ene			-		,					5.87	
AVERAGE			4.29	1.052	1.104		69.07		74,5	271.9					14.23
-		S	ample Train	Pre Test	deal shep ft3	@_17i	n. Hg			Pitot Tube		st <u>OR</u> @		=	
€	5	Le	ak Checks:	Post Test	deal shoft	@_ <u>/</u> ⁄i	n. Hg			Leak Checks	Post Tes	.t@	in.	H ₂ O	

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	TEST ID			STK-C	2		METER BOX	N-3	CAL. D		1.982	Comments:				
	PLANT		S	CR/FGD Pla	ant 4	PE	TOT TUBE DESC	E-11		Y	1.026					<u></u>
	LOCATION			Stack			BE LENGTH [ft]			C(p)	0.806					
	DATE			0 - 0	<u>, 2</u>			7/32A 0.2			325					
. :	OPERATOR(S		1<. (. S .	9	6H ₂ O (Assumed)			HTR SETTING	250					
	AMBIENT TEM		\sim	<u>25°</u> רי			FILTER ID K FACTOR			T X-SECTION	circ ? 19 ft ID	rect ? DUCT AREA	other: 283.53 ft ²			
:	BAR. PRESS.	[" Hg]	<u> </u>	· 1 1			K FACTOR	1.61						Ð		
	TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER		STACK	PROBE	FILTER	LASTIMP	METER E	
· -	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX	TEMP	0 ₂	CO2
	[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]		inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
:		<u>0935</u>	0		, ,		~	548.80				2.10	220			
	-10.00		10		010	1.15	3	554.34		69	129	248	328	52	ط، ط	13.6
D	-33.33		20 -	.6590	1.10	1.82	4.5	561.22	レイ	<u> </u>	128	255	332	ふス	6.2	13.9
ر _د	-67.50		30		1.10	1.82	4.5	568.18		71	128	257	334	54	6.4	13.7
			× .		L,C	REST	ART	568.30								:
	:															
	-10.00		40	`	5	1.25	3.5	574.11	76	1	128	257	330	57	6.4	13.8
~	-33.33		50 -	5194	1.00	1.65	4	580.73	- <u>-</u> 8	11	127	260	332	57	6.6	13.6
\sum_{i}	-67.50		60		1.10	1.82	5	587.73	80	72	127	261	332	59	6.3	13.9
						107	\sim						10/2 /2			
1					L,C	REST	ART	587.88	-80-	74	-+	257	372	-54-	6.5	13.7
	-10.00		70		.73	1.20	3.5	593.62	80	74	127	257	332	54	6.5	13.7
	-33.33		80 -	5058	1.10	1.82	5	600.61	84	75	127	251	332	SI	6.4	13.8
ß	-67.50		90	0-02	1.15	1.90	5	607.77	85	16	126	-	332	49	6.5	13.7
:	01.30						~	603.11						·····		
					λ.ς.	RESTI	ART	607.90	N.							
	-10.00		100		.70	1.15	3.5	613.49	83	5	126	252	325	50	6.4	13.8
	-33.33	••••	110 -	.6109	1.00	1.65	4.5	620.16	84	77	126	258	329	49	6.4	13.8
A	-67.50	•••	120		1.10	1.82	5	627.21	86	78	126	253	33)	49	6.5	13.7
1		1154														
:	AVERAGE			0.59	0.953	1.588		78.01	76.	6	127.1				6.4	13.8
:		-		ample Train	Pre Test	$0 \sqrt{ft^3}$		-			Pitot Tube		t_015@			
			Le	ak Checks:	Post Test	_ <u>_0\</u> ft³	@ <u>``O</u> i	n. Hg			Leak Checks	: Post Tes	t_ <u>0K@</u>	in.	H ₂ O	

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PLANT BCRPRD Plant PPTOT TURE DESC FLTS C <thc< th=""> C C</thc<>								· · · · · · · · · · · · · · · · · · ·				r	And A		Page	_ of
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	TEST ID			ECON-	3		METER BOX	N-1	CAL. D	ATA: delta H		Comments:	NCAK 14	vel Ken	and @	~ 1500
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PLANT		s	CR/FGD Pla	ant 4	, PII	TOT TUBE DESC			Ŷ	the second s		PAUSE	TESTE	1513	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	LOCATION		Ec		_			<i>C</i>)	•/	C(p)	0,838					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	DATE							3/15- DIA, 0.191					INSPECTE	<u>* [lenk</u>	TESTED	PIPT
BAR. PRESS. ["Hig] 29.72. K FACTOR 0.632 DUCT DIMENSIONS 2025X145" DUCT AREA 725 ft² TRAVERSE CLOCK STATIC PROT METER DIFF METER METER TEME PROT PROT <td>•</td> <td></td> <td></td> <td></td> <td></td> <td>%</td> <td></td> <td></td> <td>PROBE</td> <td>HTR SETTING</td> <td>325</td> <td></td> <td>LINES</td> <td>- CK</td> <td></td> <td>a b Antonio - A Stanton - Antonio - Antonio</td>	•					%			PROBE	HTR SETTING	325		LINES	- CK		a b Antonio - A Stanton - Antonio - Antonio
$\begin{array}{c c c c c c c c c c c c c c c c c c c $																
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	BAR. PRESS.	[" Hg]		,	12		K FACTOR	0.652	DUCT	DIMENSIONS	2@25'x14.5'	DUCT AREA	725 ft ⁻]		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER		STACK	PROBE	FILTER	LAST IMP	METER F	XHAUST
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1 1				_					(~7)						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	[port-inch]		[minute]	[" H ₂ 0]	[" H₂0]	[" H ₂ 0]	[" Hg]		inlet	outlet		ு பி	[°F]	r P	[% vol]	[% vol]
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		1335	0					623.60								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5		10		0.82	0.52	4.0	627,66	99	97	712	315		63	3.5	16.5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			20		0.82	0.52	4.0		100	97	710	324	1	60	3.2	16.8
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	U		30	-4,25	2.82	0.52	4.5	635.68	102	98	712					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	+		40 -	6 *												
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	4		50	-4.54		N.JR		643.51						1		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $						0.4%		647 41	N	<u> </u>						· -
$\begin{array}{c c c c c c c c c c c c c c c c c c c $									1-					- 62		10,0
$\begin{array}{c c c c c c c c c c c c c c c c c c c $										- 1.	<i>"</i>			+		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		1453				Varin		647-10						+		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		17-2-2			0.54	124	40		104	hI	-114	201	<u> </u>	6-7	12	150
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					ł					1				· · · · · · · · · · · · · · · · · · ·		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			80													
H 110 4.46 0.54 0.34 6.0 0.04.83 98 99 717 327 67 3.4 16.6 120 0.60 0.38 6.5 668.32 98 98 78 721 330 68 3.1 16.9 120 0.60 0.38 6.5 668.32 98 98 78 721 330 68 3.1 16.9 120 0.60 0.38 6.5 668.32 98 98 78 721 330 68 3.1 16.9 120 0.60 0.38 6.5 668.32 98 98 78 721 330 68 3.1 16.9 120 120 120 120 120 120 120 120 120 120 16.9 120 120 120 120 120 120 120 120 120 120 120 120 120 16.9 120 120 120 120 120 120 120 120 <td></td> <td></td> <td>90</td> <td>- 4 - 4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td> </td> <td></td> <td></td> <td></td>			90	- 4 - 4												
120 0.60 0.38 6.5 668.32 98 98 721 330 68 3.1 16.9 <t< td=""><td></td><td></td><td>100</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>67</td><td></td><td>16.1</td></t<>			100											67		16.1
AVERAGE -4.47 0.672 0.428 44.43 99.7 713.4 3.7 16.3	H		110	-4.46	0.54	0.34	6.0	464,83	98	99	717	327		67	3.4	16.6
AVERAGE -4.47 0.672 0.428 44.43 99.7 713.4 3.7 16.3			120		0.60	0,38	6.5	668.32	98	98	721	330		68	31	169
														1		
												;		+		
																·····
						·						<u> </u>				
	AVERAGE			-4.47	0.672	0.47.2		44.43	99	2	713.4	! 		<u>+</u>	2.7	1/2 3
			Sa				@_ <u>/0</u> ir			/		PreTect	<u> </u>	5 in.1	0 .	
Leak Checks: Post Test ft ³ @ in. Hg Leak Checks: Post Test @ in. H ₂ O								•								
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FROM 5"-> 45", ~ 30.520 LEAK PER TEN

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TEST ID		AHO- 3 SCR/FGD Plant 4 Air Heater Outlet/ESP Inlet				METER BOX	N-5	CAL. D.	ATA: delta H	2.015	Comments:				
PLANT		s	CR/FGD Pla	ant 4	PI	FOT TUBE DESC			Y	1.011	Į				
LOCATION					PRC	BE LENGTH [ft]	0		С(р)		1		, <u></u> ,		
DATE			20-0	5	N	OZZLE ID [inch]		FILTER E	BOX SETTING	325	-				
OPERATOR(S	5)	JL #	K DO		· ?	6H ₂ O (Assumed)		PROBE I	ITR SETTING	325		[1	÷
AMBIENT TEN	MP [°F]					FILTER ID	11		T X-SECTION	circ ?	rect?	other:	1	ļ	
BAR. PRESS.	[" Hg]	22	12		,	K FACTOR	0.93	DUCT	DIMENSIONS		DUCT AREA				
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER	TEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0	F]	TEMP	TEMP	вох	TEMP	02	CO2
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³]	inlet	outiet	[°F]	[°F]	[[°] F]	[°F]	[% vol]	[% vol]
	13:35	0					435,44				1 -			4" . 1	
A-1	1345	10		0.65	0.60	2.0	939.41	78	18	298	286	NA	49	5.4	14.8
A-1	1355	20	-9.29	0.65	0.60	2.0	943.51	81	So	299	289		46	5.1	14.9
A-1	1405	30		065	0.60	2.0	947.556	82-	81	299	290		46	5.5	14.g ·
		4			the dred	OK @ Tinty	4								/
	1414	56		p.15	0.41	Ų	947.702	80-	- <u>49</u>	-74					
B-1	1424	6040		0 000	0.37	1.5	951.21	80	19	294	294		51	5.4	14.7
3-1	1434	Ÿ	- 8.55	0.48	0.44	2.0	954.73	81	D	294	310	4 jung Au Thai	49	4.9	15.2
13-1	1444	60	Ť	0.48	0.44	2.0	968.243	83	83	291	319		49	5.1	149
					reak de	KOKQ6.	Ha								
	1450	Ð		52			958.33Z					a) a service			
C-1	1500-	3070		0,50	0.248	2.0	96/96	84	81	267	300		55	<u> </u>	
C-1	1510	\$5 H	8:48	0.5%	0.52	3.0	965.70	86	86	275	306		45	4.8	15.4
C-1	1520	15895		0.56	0.52	20	969.317	86	86	275	317		48	5.0	14.9
		120		lea	a check ?	pk@7inz	11								,
	1529	1200					969.431	Λ. 						1	
7-1	1539	g)x	1	0.42	0.39	1.5	972.61	83	85	254	303		60		
7-1	1549	10 000	- 7.23	0.42	0.39	1.5	976.05	85	85	257	323		47	5.6	14.5
D-1	1559	120	-	0.38	0.35	1.5	979.295	87	87	258	323		47	5.3	14.8
														<u> </u>	<u> </u>
AVERAGE			-8.90	0.514	0.478		43.506	83	. D	Z80.3		. 1		5.2	14.9
		S	ample Trair		t <i>⊡_000</i> ft³		n. Hg			Pitot Tub		t_ <u>O'</u> @) <u>7</u> in.	H ₂ O	
		Le	ak Checks	: Post Tes	t <u> ク. 600</u> ft ³	@_ <u></u> i	n. Hg			Leak Checks	s. Post Tes	t_ <u></u> 6	7 in.	. H₂O	

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TEST ID			FGD-	3		METER BOX	N-1	CAL. D	ATA: delta H	1.983	Comments:			<i>.</i>	·	-
PLANT		5	CR/FGD PI	ant 4	PI	TOT TUBE DESC	E-12		Y	0,960						-
LOCATION			FGD inle			DBE LENGTH [ft]			C(p)	0.835						-
DATE			1/20/05		N	OZZLE ID [inch]	3/16C 0.193	FILTER I	BOX SETTING	325						-
OPERATOR(S	•		This		9	%H ₂ Ο (Assumed)	7.5	PROBE	HTR SETTING	325		1		T	<u> </u>	
AMBIENT TEN	· ·		68			FILTER ID		DUC	T X-SECTION	circ ?	rect ?	other:	1	į	a escalib	- 7
BAR. PRESS.	[" Hg]	نہ	19.72			K FACTOR	1.05	DUCT	DIMENSIONS		DUCT AREA]		calib Cheele	
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METER	RTEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST	ĺ
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX	TEMP	02	CO ₂	1
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H₂0]	[" H₂0]	[" Hg]	[ft ³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]	
	13.36	0					074.80								<u> </u>	
	13:46	10	5.6	1.25	1.30	4.0	81.10	75	71	274	325	NA	57	5.8	14,3	
	13:56	20	5.5	1.25	1.30	4.0	87.40	So	72	273	.375		55	6.0	14.1	
	14:06	30	5.8	1.75	(.30	4.0	97.65	83	74	273	325		52	6,2	13.9	208
	14:16	40 -	5.6	1.25	1.30	40	99.89	84	75	274.	305		50	6.0	14.1	1
	17:26	50	5.3	1.25	1-30	40	100,12	25	75	274	325		49	5.5	14.6	20,8 OK
	14:36	60	5.6	1.25	1-30	4.0	112,36	86	>7	774	325		50	5.9	14-2	1
	14246	70	5.8	1.10	1.15	4.0	118.27	86	マフ	274	325		51	5,8	14.3]
	17:56	80	5.7	1.20	1.25	4.0	124.18	87	78	274	325		51	5.8	183] .
	15:06	90	5.6	1 22	125	4.0	130,47	88	78	775	326		S,	5-7	17.4]
	15:16	(#0)	5,3	1.20	1.25	4.0	136.54	84	79	275	325	surve i ranna	52	6.2	13.9	12099 0/7
	15:26	(10	5.3	مجر !	1-25	4.0	142-57	89	80	275	325		51	6.0	14.1	
	15:36	120	5.8	1,20	1.25	4.0	148.62	79	e de la constancia de l	275	325			5.3		089 0K
		100													<u> </u>	
		110														
		120						١								_
															1	
]
													1			1
	-			(2Ms)									1			
AVERAGE			5,58	j.216	1.267		73,82		80,7	274,2	<u></u>	1		5.85	14.25	=
<u> </u>		Sa	mple Train			@_ <u>∽/</u> ii	n. Hg	<u>,</u>		Pitot Tube	PreTes	st	<u>~ 8</u> in.			
			ak Checks:	Post Test	1 OKLON ft3	@ <u>~ </u>	ո. Hg			Leak Checks:		st <u>っぺ</u> @	_	H ₂ O		
CONSOL	- Energy.	<u></u>	- / <u>a</u> -		ALLO LA	- 10 <i>-</i>	i-01	#51.2	<u></u> 7	<u></u>	****************************	NOT	E: Purge for 10) minutes at er	nd of sampling	ان ا-ل
		(In ST	-rest	451	"~Y~ "											

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:	TEST ID			STK -	X Z		METER BOX	N-3	CAL. D	ATA: delta H	1.982	Comments:				
	PLANT		s	SCR/FGD Pla	ant 4	Pľ	TOT TUBE DESC	E-11		Y	1.026					
	LOCATION			Stack	~ ~ ~		BE LENGTH [ft]	10		C(p)	0.806					<u> </u>
-	DATE		1	<u>20 -</u>				7/32A 0.2			325			,		
	OPERATOR(S)		<u>K</u>	$\frac{C}{\sqrt{3}}$	3.5.	¢	6H ₂ O (Assumed)	31- 53		HTR SETTING	250					
:	AMBIENT TEM BAR. PRESS.			$\frac{5}{3}$			FILTER ID			T X-SECTION	circ ? 19 ft ID	rect ? DUCT AREA	other: 283.53 ft ²			
	DAR. PRESS.	[[]]	<u> </u>	1.12	`		K FACTOR	<u>ا</u> ها، ۱					200.00 11	Ē		
	TRAVERSE	CLOCK	SAMPLE	STATIC	РПОТ	METER DIFF	METER	METER	METER	TEMP	STACK	PROBE	FIETER	LASTIMP	METER E	EXHAUST
	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0	F]	TEMP	TEMP	вох	TEMP	0 ₂	CO2
i.	[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³]	inlet	outlet	[°F]	[°F]	[°F]	[[°] F]	[% vol]	[% vol]
•		1335	0			_		633.00								
-	-10.00		10		.73	1.20	3.5	638.78	<u> </u>	רר	127	255	325	55	6.3	12.9
A	-33.33		20 -	ما 253.	1.05	1.75	4.5	645.67	83	78	127	259	333	20	6.2	14.0
÷ 1	-67.50		30		1.10	1.82	5	652.72	86	78	127	252	333	20	5.9	14.2
	-						1									
					L.C.	RESTA	RT	652.85								
:	-10.00		40)		.70	1.15	3.5	658.47	86	80	127	257	330	52	[، جا	14.0
~	-33.33		50 -	.5375	1.10	1.82	5	665.52	89	81	127	259	1231	52	6.1	14.0
B	-67.50		60		1.15	1.90	5	672.73	90	81	126	254	331	SZ	6.2	14.0
				2				······								
					L.C.	REST	ART	672.86								
1	-10.00		70		.73	1.20	4	678.68	87	82	125	ンナレ	327	154	6.1	14.0
	-33.33		80 -	.6511	1.05	1.75	S	685.58	90	83	126	253	333	SS	6.2	14.0
C	-67.50		90		1.10	1.82	S	692.64	90	83	126	256	334	56	6,0	14.1
							-									
					L.C	REST	ART	692.77	V.				-			
	-10.00		100		حا جا ،	1.10	3.5	698.35	89	84	127	255	330	55	6.1	14.0
Ø	-33.33		110 -	.5822	1.10	1.82	S	105.43	ሻአ	84	126	255	331	53	6.3	13.9
:	-67.50	1	120		1.15	1.90	5	712.70	92	84	124	256	329	54	6.1	14.0
		1553														
	AVERAGE			-0.58	0.958	1.60		79.31	84.	5	126.3				6.1	14.0
:				ample Train			@ <u>\Q</u> i				Pitot Tube		OK@		H₂O	
÷ /			Le	ak Checks:	Post Test	\underline{O} ft ³	@ <u>\ O</u> i	n. Hg		1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	Leak Checks	Post Tes	t_ <u>```K@</u>	<u> </u>	H₂O	

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TEST ID	4	L	ECON-	4		METER BOX		CAL. D	ATA: delta H	1.976	Comments:	MOST	STABLE	flow	5
PLANT		s	CR/FGD Pla	ant 4	PI	TOT TUBE DESC	E-15		Y	0.987		DURING	they	TEST,	RELATIK
LOCATION		E	conomizer (BE LENGTH [ft]			C(p)	0.838		TE	<u>575 /-</u>	<u>-23. (</u>	
DATE			1/21/0		N	OZZLE ID [inch]	3/6", 0.191"	FILTER F	BOX SETTING	325					
OPERATOR(S)	6		τ	%	H ₂ O (Assumed)		PROBE I	HTR SETTING	325		,		I	
AMBIENT TEN	ιΡ [°F]		90			FILTER ID			T X-SECTION	circ ?	rect ?	other:	ļ	r	
BAR. PRESS.	[" Hg]					K FACTOR		DUCT	DIMENSIONS	<u>2@25'x14.5'</u>	DUCT AREA	725 ft ²]		
		T	i		r	• • • • • • • • •	-632					<u> </u>	T		
TRAVERSE POINT	CLOCK TIME	SAMPLE TIME	STATIC PRES	PITOT HEAD	METER DIFF PRESSURE	METER VACUUM	METER READING	6		STACK	PROBE	FILTER BOX	LAST IMP		CO ₂
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	[°F] ()	[°FIZ	[°F]	TEMP [°F]	[% vol]	[% vol]
	D900	0		<u> </u>	L	1	618,60								
		10		0.95	0.60	3.5	682.80	84	83	714	325		67	3.7	16.3
		20	-4:36	0.95	0.60	4.0	687.02	89	85	716	330		56	3.7	16,3
R		30		0.95	0.60	4.5	691.23	89	85	7/3	315		55	3.6	16.4
$\overline{}$		40	-4.58	1.00	0.63	50	695.54	89	85	714	315		54	3.5	16.5
1		50	,	1.00	0.63	6.0	699,85	89	87	7/3	320		54	3.6	16.4
		60		1.00	0.63	7.0	704.15	90	87	7/3	322	1	55	3.3	167
				POST	NORTH	LEAK	CHECK	~ 0.01							
1. 17 894 8. 2.				PRE	South	11	1240	61		11		\vdash			
	1017			1865	30079		20150					$\left \left \right \right $		1	
	1013						704,50	~	00		224	+		2	
3		70		0.90	0,56	4.5	108,60	91	89	715	330	$ \rightarrow $	51	3,6	16.4
0		80	443	690	0,56	50	17/274	93	91	713	315		50	3.6	164
0		90	· · · ·	0.95	0.60	6.0	716.98	94	92	713	315		48	40	159
<u> </u>		100		0.95	060	1,0	721,18	94	93	715	316		50	3,1	16,9
H		110	-4.23	090	0,56	86	7725.30	95	93	714	319		51	44	15,8
	•	120		690	0,50	815	129.42	95	94	715	320		52	3.7	163
				l l					a .					1	
-											:				
													1		
				•											
AVERAGE			4.40	0.945	0.594		50.47	89.	2	714				3.7	16.4
	131	7 ^{s.}	ample Train	Pre Test			n. Hg			Pitot Tube	PreTes	O	-	H₂O	
		Le	ak Checks:	Post Test	- <u>0</u> ft ³	@_ <u>[0</u> _i	n. Hg		1 	Leak Checks:	Post Tes	t @	in.	H ₂ O	
CONSOL	energy./	· · · · · · · · · · · · · · · · · · ·					<u> </u>	<u></u>	<u></u>			NOTE	E: Purge for 10	minutes at er	d of sampling.

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TEST ID			AHO-	4		METER BOX	N-5	CAL. D	ATA: delta H		Comments:				
PLANT		s	CR/FGD Pl	ant 4	- , Pľ	TOT TUBE DESC			Y	1.0:1					
LOCATION		Air He	ater Outlet	ant 4 (ESP Inlet ن	ut PRC	BELENGTH [ft]	17		C(p)						
DATE		1-6	200		N	IOZZLE ID [inch]		FILTER I	BOX SETTING	325					
OPERATOR(S	5)	JC	CR 7	0.	9	%H ₂ O (Assumed)		PROBE	HTR SETTING	325					
AMBIENT TEN	MP (°F)					FILTER ID			T X-SECTION	circ ?	rect ?	other: 54.44	1		
BAR. PRESS.	[" Hg]	24.	65		Į	K FACTOR	0.93	DUCT	DIMENSION8	(113× 4	DUCT AREA	<u> </u>			
TRAVERSE	СГОСК	SAMPLE	STATIC	РПОТ	METER DIFF	METER	METER	METER	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	вох	TEMP	02	CO2
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	['≿H _z 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
	0900	0					984.415								<u> </u>
D-1°	0910	10		0.41	૦-પા	2.0	487.78	55	54	254	326	NA	51		
D-1	0920	20	-8.94	$\mathcal{O}, \forall \mathcal{A}$	0.41	2.0	991.12	35	57	254	.327		45	60	14.1
D-1	0930	30		0.44	7.41	2.0	994.443	58	59	Z54	325		44	5.8	14.3
		æ			Leak chi	ep skal	904								
e-t	0337	50					994.560							4.	
C-1	09.47	_80 tv		0.44	0.41	Z.0	997.800	.59	63	Z59	324	- The second	50		
C-1	0957	50	- 8.67	0.41	0.33	2.0	1001.000	63	64	270	324	- bak Kiri Poore	44	4.7	15.4
C-1	(007)	- 60		0.41	0.33	2.5	1004.237	64	65	270	325	4 10.1910-04-0	44		
			÷		lank	dreade O	KeG"NI								
	10:13	Ð		57			(004.360								
3-1	10:23	80.70		0.49	0.253	2.5	1008,17	65	68	285	324	L della O press	51		
T3 - (10:33		-8.95	0.62	0.58	3.0	1012.14	68	69	293	322		49	5.0	15.1
13-1	10:43	19090		0.62	0.53	3.0	1016.113	70	71	293	325		SI		
		1770	1			check of	26"19								
	0:50	1-29					016.25	X X							
A-1	11:00	100		0.51	0.47	2.5	@1019.85	76	73	294	322		60		
A-1	11:10	110	-9.10	0.51	0.47	2.5	1023.39	73	73	301	316		54	53	14.8
A-1	11:20	120	1	0.51	2.47	30	1027.016	74	75	301	318	1	54	4.9	16.2
<u> </u>				0.491										1	
AVERAGE			8.92	0.456	0.458		42.229	68	1.3	277.3				5.3	14.8
		1	ample Trair	n Pre Tes	t_0,720_ft ³	@ <u> ((</u>)	in. Hg			Pitot Tub	e PreTes			H ₂ O	
=		Le	eak Checks	: Post Tes	t <u>0.00ರ</u> ft ³	@ <u>5</u> i	in. Hg			Leak Check	s: Post Tes	t@	in.	H ₂ O	

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TEST ID			FGD-	4		METER BOX	NY	CAL. I	DATA: delta H	1.983	Comments:					
PLANT		s	CR/FGD PI	ant 4	PI	TOT TUBE DESC	E-12		Y	0.960						
LOCATION			FGD Inle		7	OBE LENGTH [ft]			C(p)	0.835						
DATE			121/09	2			3/160 0,193	FILTER	BOX SETTING	325						
OPERATOR(S			TAN			%H ₂ O (Assumed)		PROBE	HTR SETTING	325		1		I		
			57		-	FILTER ID			CT X-SECTION		rect ?	other:				
BAR. PRESS.	[" Hgj	<i>}</i>	9.65		J	K FACTOR	1.06	DUCT	DIMENSIONS		DUCT AREA					
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	RTEMP	STACK	PROBE	FILTER	LAST IMP	METER E	XHAUST	
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0	F] (75)		TEMP	BOX	TEMP	02 (6)	CO ₂ (14)	
[port-inch]	(24-hr)	[minute]	["H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³]	inlet	outlet	темр 272 [°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]	
	09:00	0					155.20									
	09.12	10	5.5	1.20	1.25	4.0	161.43	65	62	.270	325	NA	51	5.9	14.2	
	09:20	20	5.6	i.20	1.25	4.5	167,50	69	63	270	. 325	{	51	5.9	14.2	,
	09:30	30	5.6	1.20	1.25	4.0	173.54	72	64	270	325		52	6.0	14.1	
	09:40	_40 ·	517	1,30	1.35	4.5	179.86	74	65	270	Sas		53	5,7	14.4	109 OK
	69.50	50	5.6	1:30	1.35	4.5	186.19	75	66	270	325		5 à	5.9	14.2	-10
	10:00	60	5.6	1.30	1.35	4.5	1\$2.50	っつ	67	270	325	-	52	5,7	14.4	
	(0)10	70	5.7	1:15	1.20	4.5	198.70	78	68	271	324	andro f y ma	52	5,6	14.5	12 6 Geod
	10:20	हर	5-6	1.15	1.20	1.5	204,79	79	69	2-71	325	2	54	5.9	14.2	
	19:30	90	5.5	1.15	1.20	4.5	710.86	80	69	272	-325	a i i dana di s	54	5,7	14.4	
	10:40	(79	5.6	1.20	1.25	14.5	716.95	81	70	272	325		55	5.9	14.2	
	10:50	1,502	5.8	1.20	1.25	4.5	223.14	81	7/	272	325		55	5.8	14.3	
	11:00	120	5.8	1.20	1.75	4.5	229.15	82	. 72	273	325	-	56	5.9	14-2	
		100				· ·										
		110														
		120						· · · ·								
											:					
· · · · ·							·····									
				(ruc)												
AVERAGE			5.63	1,212	1.763		73,95		71,8	270.9				5.83	H.38	
	-		mple Train ak Checks:		UK, ft ³	@ <u>-!]</u> ir @ir	n. Hg n. Hg			Pitot Tube			~~	H ₂ O		
CONSOL	e Nedriv	<u>1919-1920-1920-1920-</u>	<u> </u>	*******		*****			<u>111</u> 1111111111111111111	Leak Checks:	Post Test			H ₂ O		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	₩ 7 7 7 7 7 7 7 8 2 8 2	Par	+ - +2	st pir	Norman +	GF 10 M	~ @ A I	1=1.0				NOTE	: Purge for 10	minutes at end	l of sampling.	
		γ @ >	5 C C	- <del>•</del> • • • •	1 m y		-									

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:	TEST ID	1		STK -	1 TES	イキチ	METER BOX	2-3	CAL. E	ATA: delta H	1.982	Comments:				
i	PLANT			SCR/FGD PI	ant 4	Pi	TOT TUBE DESC			Y	1.026					
÷	LOCATION			Stack		4	DBE LENGTH [ft]			C(p)	0.806				<u> </u>	
	DATE		1-21	-05			IOZZLE ID [inch]	7/324 0.2		BOX SETTING	325					
	OPERATOR(S	•	K.C	<u>.                                    </u>	SO BA	B. ,	%H _z O (Assumed)		PROBE	HTR SETTING					1	
	AMBIENT TEM		~ 5	30				#5		CT X-SECTION		rect ?	other:		l	
	BAR. PRESS.	[" Hg]		.65			K FACTOR	1.67	DUCT				283.53 ft ²			
	TRAVERSE	CLOCK	SAMPLE	STATIC	РІТОТ	METER DIFF	METER	METER			STACK	PROBE	FILTER		METER E	THAUST
-	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX	TEMP	O ₂	CO ₂
	[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
ł		<u> </u>	0					718.50								
	-10.00		10		.73	1.20	2.5	724.28	ZL	コン	127	247	328	46	6:5	13.7
$\hat{\mathbf{D}}$	-33.33		20 -	.665)	1.10	1.82	5	731.28	רר	コス	127	- <u>2</u> 50	333	46	6.1	14.0
	-67.50		30		1.15	1.90	2	738.49	80	73	126	250	333	4 b	<i>.</i> , <i>)</i>	14.0
														ſ		
					L.C.	RESTI	ART	738.61								
:	-10.00		40		51.	1.20	2.5	744.38	78	73	126	251	330	ナン	6.1	14.0
C	-33.33		50 -	.5008	1.05	1.75	5	751.25	81	74	126	257	330	49	5.9	14.2
	-67.50		60		1.10	1.82	5	758 29	82	75	126	JSZ	331	51	1.0	14.0
÷				2												
					$\lambda$ ,C,	RESTI	ART	758.40								
:	-10.00	-	70		.76	1.25	4	764.27	81	75	126	255	330	らん	6.2	14.0
ß	-33.33		80 -	.5228	1.10	1.82	5	271.33	83	76	126	254	1221	53	6.1	14.0
С,	-67.50		90		1.15	1.90	2	778.56	85	רר	127	223	332	48	6.2	14.0
				1 1	1											
-					LIC.	RESTR	ART	07.871	ŕ		· · · · · · · · · · · · · · · · · · ·				·	
	-10.00		100		.76	1.25	4.	184.57	84	78	127	255	327	40	6.2	14.0
	-33.33		110 -	4812	1.10	1.82	S	791.60	86	78	127	254	331	46	6.2	14.0
A	-67.50	_	120		1.15	1.90	5	798.83	85	80	127	259	332	47	6.)	14.0
-		1115														
	AVERAGE		_	-0.54	0.982	(.64	1	79.96	1B.	4	176.5				6.2	14.0
-			Sa	ample Train		<u> </u>					Pitot Tube	PreTest	<u>0K</u> @		H ₂ O	
4.5			Lea	ak Checks:	Post Test	<u></u> ft ³	@_ <u>\O</u> _i	n. Hg		1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	Leak Checks:	Post Test	<u> </u>	<u> </u>	H₂O	

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#### SCR/FGD Hg SAMPLING PROGRAM, PLANT 4 - ONTARIO HYDRO SAMPLING TRAIN DATA

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Location		Econ Out	AirHtr Out	FGD Inlet	Stack	Econ Out	AirHtr Out	FGD Inlet	Stack	Econ Out	AirHtr Out	FGD Inlet	Stack	Econ Out	AirHtr Out	FGD Inlet	Stack
Location		Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1	Unit 1
Date		19-Jan	19-Jan	19-Jan	19-Jan	20-Jan	20-Jan	20-Jan	20-Jan	20-Jan	20-Jan	20-Jan	20-Jan	01/21/2005	01/21/2005	01/21/2005	01/21/2005
Start Time		1100	1100	1100	1100	935	935	935	935	1335	1335	1335	1335	900	900	900	900
Stop Time		1315	1325	1300	1320	1154	1200		1154	1553	1559		1553	1113	1120	1100	1115
Test Number		ECON-1	AHO-1	FGD-1	STK-1	ECON-2	AHO-2	FGD-2	STK-2	ECON-3	AHO-3	FGD-3	STK-3	ECON-4 OH-Ho	AHO-4 OH-Hg	FGD-4 OH-Hg	STK-4 OH-Hg
Sample Type		ÓH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	OH-Hg	0.987	1.010	0.960	1.026
Y factor of dry gas meter		0.987	1,010	0.960	1.026	0.987	1,010	0.960	1.026	0.987	1.010	0.960	1,026			73.95	79,96
Gas Volume	- ft ³	49.14	42.96	70.68	77.62	50.57	43.22	73.82	78.01	44,43	43.51	69.07	79.31	50.47	42.23		
Delta H of dry gas meter	- "H ₂ 0	0.55	0.47	1.18	1.57	0,58	0.50	1.27	1.59	0.43	0.48	1.10	1.60	0.59	0.46	1.26	1.64
Meter Temperature	- °F	98.7	80.3	75.7	82.0	92.8	68.7	80.7	76.6	99.7	83.0	74.5	84.5	89.9	65.3	71.8	78.4
C Factor of pitot tube	-	0.838	0,846	0.835	0.806	0.838	0.846	0.835	0.806	0.838	0.846	0.835	0.806	0.838	0.846	0.835	0.806
Nozzle Diameter	<ul> <li>inches</li> </ul>	0.191	0.188	0.193	0.214	0.191	0.188	0.193	0.214	0.191	0.188	0,193	0.214	0.191	0.188	0.193	0.214
A n (area of nozzle)	- ft ²	0,00020	0.00019	0.00020	0.00025	0.00020	0.00019	0.00020	0.00025	0.00020	0.00019	0.00020	0.00025	0.00020	0.00019	0.00020	0.00025
Area of Stack (Single of Dual)	- ft ²	725.0	544.4		283.5	725.0	544.4		283.5	725.0	544,4		283.5	725.0	544.4		283.5
H ₂ O Weight	- gm	90.7	76.4	114.1	239.2	91.5	71.7	107.5	243.3	77.3	74.0	124.9	241.4	90.1	89.7	121.6	245.3
Sample Time	<ul> <li>minutes</li> </ul>	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Barometric Pressure	- "Hg	29.96	29.96	29.96	29.96	29.79	29.79	29.79	29.79	29.72	29.72	29.72	29.72	29.65	29.65	29.65	29.65
Static Pressure	- "H ₂ 0	-4.54	-9.00	5.68	-0.45	-4.57	-9.16	5.58	-0.59	-4.47	-8.90	4.29	-0.58	-4.40	-8.92	5.63	-0,54
% Oxygen	-	3.3	4.9	6.0	6.2	3.7	5.4	5.9	6.4	3.7	5.2	5.9	6.1	3.7	5.3	5.8	6.2
% Carbon Dioxide	-	16.7	15.2	14.1	14.0	16.4	14.7	14,3	13.8	16.3	14.9	14.2	14.0	16.4	14.8	14.3	14.0 79.8
% N ₂ + CO	-	80.0	79.9	79.9	79.8	79.9	79.9	79.8	79.8	80.0	79,9	79.9	79.9	79.9	79.9	79.9	
Stack Temp (Dry Bulb)	- °F	702	274	269	127	712	277	274	127	713	280	272	126	714	277	271	127
Stack Temp (Wet Bulb)	- °F							l									
"S" sample (rms vel head)	- ™H₂0	0.868	0.507	1.123	0.944	0.925	0.516	1.216	0.953	0.672	0.514	1.052	0,958	0.945	0.491	1.212	0.982
Dust Wt.	- gm	5.300	1.638	0.0024	0.0002	6.576	0,698	0.0004	0.0030	6.039	2.135	0.0115	0.0012	7,128	1.597	0.0134	0,0017
Sample Volume	<ul> <li>DSCF</li> </ul>	45,94	42,49	67.13	77,95	47.52	43.44	69.09	78.69	41.12	42.47	65.21	78.66	47.45	42.51	70.04	80.02
Sample Volume	<ul> <li>dscm</li> </ul>	1,301	1.203	1.901	2.208	1.346	1.230	1,957	2.228	1,164	1.203	1.847	2.228	1.344	1.204	1.984	2.266 29.61
ABS ST PRES	- "Hg	29.63	29.30	30.38	29,93	29.45	29.12	30.20	29.75	29.39	29.07	30,04	29.68	29.33	28.99	30.06	
ABS ST TEMP	- °R	1162	734	729	587	1172	737	734	587	1173	740	732	586	1174	737	731	587
H ₂ O - % by Vol	vapor	8.5	7.8	7.4	12.6	8.3	7.2	6.8	12.7	8.1	7.6	8.3	12.6	8.2	9.0	7.6	12.6
Water Volume	<ul> <li>std ft³</li> </ul>	4.27	3.60	5.37	11.27	4.31	3.38	5.06	11.46	3.64	3.49	5.88	11.37	4.24	4.22	5.73	11.55
Dry Molecular Weight	<ul> <li>Ib/ib-mole</li> </ul>	30.80	30.63	30.50	30.49	30.77	30,57	30.52	30.46	30.76	30.59	30.51	30,48	30.77	30.58	30.52	30,49
Wet Molecular Weight	<ul> <li>Ib/Ib-mole</li> </ul>	29.71	29.64	29.57	28.91	29.71	29.66	29.67	28.88	29.72	29.64	29.47	28.91	29.72	29.44 33.6	29.57 37.9	28.91 41.7
% EXCESS AIR	-	18.5	30.3	39.4	41.7	21.3	34.4 0.928	38.9 0.932	43.6 0.873	21.2 0.919	32.7 0.924	38.8 0.917	40.7 0.874	21.3 0.918	0.910	0.924	0.874
Dry Mole Frac	•	0.915 0.085	0.922	0.926 0.074	0.874 0.126	0.917 0.083	0.928	0.932	0.873	0.919	0.924	0.083	0.126	0.082	0.090	0.924	0.126
Wet Mole Frac. Gas Velocity, Direct	- ft/sec	76.69	47,33	68,16	77.95	79.73	47.99	71.26	78.69	68.07	48.07	66,57	78.66	80.82	47.10	71.25	80.02
ACFM	- 10300	3,336,140	1,546,234	0	1,326,070	3,468,059	1,567,764	0	1,338,659			0	1,338,148	3,515,756		0	1,361,284
DSCFM (FGD inlet = Air Heater Ou	rtlet)-	1,372,962	1,004,537	1,004,537	1,042,760	1,410,646	1,014,161	1,014,161	1,044,777	1,202,357	1,005,445	1,005,445	1.044.352	1,422,593		971,175	
DSCFM (rounded)		1,373,000	1,004,500	1,004,500	1,042,800	1,410,600	1,014,200	1,014,200	1,044,800	1,202,400	1,005,400	1,005,400	1,044,400	1,422,600		971,200	1,059,800
DSCMM		38,882	28,448	28,448	29,531	39,950	28,721	28,721	29,588	34,051	28,474	28,474	29,576	40,288	27,504	27,504	30,014
Excess Air Free DSCFM	-	1,156,179	769,023	718,075	733,425	1,160,915	752,129	727,867	724,845	989,500	755,286	721,611	739,541	1,170,747	724,896	701,662	745,410
CALCULATED FIRING RATE:																i <u>-</u>	
Dry	- Ib/min	8,648	5,752	5,371	5,486	8,710	5,643	5,461	5,438	7,424	5,667	5,414	5,549	9,028	5,590	5,411	5,748 5,828
Wet	- Ib/min	8,825	5,870	5,481	5,598		5,752	5,566	5,543	7,567 445,436	5,776 340,002	5,518 324,842	5,655 332,914		5,668 335,406	5,486 324,656	
Dry Wet	- Ib/hr	518,885	345,132 352,176	322,267 328,844	329,156 335,873		338,580 345,103	327,658 333,970	326,298 332,584	445,436 454,017	340,002	324,842	332,914 339,327	541,699	335,406	324,656	
CALCULATED FIRING RATE:	- Ib/hr	529,474	332,176	əz <b>ə</b> ,844	JJJ,8/3	J34,008	343,103	333,970	ə⇒ <b>∠,</b> ⊋¢4	434,017	340,331	331,100	443,361		540,005	323,103	
Dry	- tons/hr	259.4	172.6	161.1	164.6	261.3	169.3	163.8	163.1	222.7	170.0	162.4	166.5	270.8	167.7	162.3	172.4
Wet	<ul> <li>tons/hr</li> </ul>	264.7	176.1	164.4	167.9	266,3	172.6	167.0	166.3	227.0	173.3	165.6	169.7	274.6	170.0	164.6	174.8
HEAT INPUT:																	
MM Btu/hr	-	7100	4722	4410	4504	7152	4634	4484	4466	6096	4653	4446	4556	7153	4429	4287	4554
PARTICULATE LOADING:											1						
Grains/DSCF	-	1.7799	0.5946	0.0006	0.0000	2.1356	0,2480	0.0001	0.0006			0.0027	0.0002		0.5797	0,0030	
ib/hr	-	20,955	5,122	5	0.35	25,830	2,157	1	5.27	23,363		23.5	2.11	28,273		24.6	2.98
Ib/MM Btu	-	2.95	1.08	0.00	0.00	3.61	0.47	0.00	0.00	3.83	1.44	0,01	0.00	3.95	1.09	0.01	0.00
		40.000		05.040	0.5 5-5-	40.000	07 000		20.007	36,704	28,016	26,767	27,432	64,191	39,745	38,472	40.870
Ash Production	lb/hr	40,317	26,817	25,040	25,575		27,899	26,999 1	26,887 5.27	36,704 23,363	28,016	26,767	27,432 2.11	28,273	4,828	36,472	40,870
Bagouse Ash Bottom Ash		20,955	5,122 21,695	5 25,035	0.35 25,575	25,830 17,232	2,157 25,742	1 26,998	5.27 26,882	23,363	21,331	23 26,744	27,430	20,273	4,020	38,447	40,867
Percent Fly Ash		52,0%	19,1%	25,035	23,573	60.0%	23,742	20,550	20,002	63.7%	23.9%	0.1%	0.0%		12.1%	0.1%	
		52.0%	13,170	0.0%	0.076	00.0%	7.775	0.0 %	0.0 %	<b></b>	20.076		/4				
% ISOKINETIC	-	101.71	99,66	99.05	70.79	102.39	100.91	98.12	71.32	103.96	99.53	100.92	71.32	101.39	103.14	100.26	71.50
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Impinger Components Wts & Volumes	ECON-1	AHO-1	FGD-1	STK-1	ECON-2	AHO-2	FGD-2	STK-2	ECON-3	AHO-3	FGD-3	STK-3	ECON-4	AHQ-4	FGD-4	STK-4
Fitter Wt. g	5.2995	1,6375	0.0024	0.3278	6.5763	0.6981	0.0004	0.3375	6.0387	2,1345	0.0115	0.3303	7,1277	1.5973	0.0134	0.3297
ppb Hg	15	462	<5.0	<5.0	15	80	<5.0	<5.0	14	98	<5.0	<5.0	18	95	<5.0	<5.0
total ug	0.08	0.76	<5.00E-03	<5.00E-03	0,10	0.06	<5.00E-03	<5.00E-03	0.08	0.21	<5.00E-03	<5.00E-03	0.13	0,15	<5.00E-03	<5.00E-03
ug/dscm	0,06	0.63	<2.63E-03	<2.26E-03	0.07	0.05	<2.56E-03	<2.24E-03	0.07	0.17	<2.71E-03	<2.24E-03	0.10	0.13	<2.52E-03	<2.21E-03
Probe Rinse volume, ml	177	143	64	109		120	77	105		121	135	111	227	88	127	109
Analytical Hg, ng/ml	<1.0	1.0	<1.0	<1,0	<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ug/dscm	<0.14	0.12	<0.03	<0,05	<0,14	<0.10	<0.04	<0.05	<0.15	<0.10	<0.07	<0.05	<0.17	<0.07	<0.06	<0,05
							80		115	118	112	NA	173	139	107	NA
Heated Umbilical Line Rinse volume, ml	75	98	84	NA	111	106 5,1	<1.0	NA	<1.0	<1.0	<1.0	AN I	<1.0	<1.0	<1.0	
Analytical Hg, ng/ml	<1.0	1.7	<1.0		<1.0				<0.10	<0.10	<0.06	I	<0.13	<0.12	<0.05	
ug/dscm	<0.06	0.14	<0.04		<0.08	0.44	<0.04		<0.10	<0.10	×0.06		<b>V.13</b>	~0.12	<0.03	
KCi volume, mi	537	528	559	680	537	524	555	683	526	523	566	684	537	539	562	690
Analytical Hg. ng/ml	11.2	12.3	21.0	1.3	11.9	14.9	22.7	1.0		14.6	23.9	0.9	8.2	9.9	11.7	0.7
ug/dscm	4.62	5.40	6.17	0.40	4.75	6.35	6.44	0.31	4.61	6.35	7.32	0.28	3.28	4.43	3.32	0.21
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Nitric/Peroxide volume. ml	176	174	175	177	175	173	175	177	175	175	176	175	174	175	176	175
Analytical Hg, ng/ml	0.5	<0.2	<0.2	<0.20	0.5	0.9	0.4	<0.20	0.4	0.3	0.2	0.2		<0.2	<1.0	<0.20
uq/dscm	0.07	<0.03	<0.02	<0.02	0.07	0.13	0.04	<0.02	0.06	0.04	0.02	0.02	0.05	<0.03	<0.09	<0.02
KMnO4 volume, ml	244	243	244	245	246	242	243	246	245	246	247	245	245	245	247	244
Analytical Hg, ng/ml	23.2	0.4	2.4	2.3	17.3	3.5	1.4	6.3	13.4	4.5	2.0	9.1	8.0	1.3	2.6	4.3
ug/dscm	4.35	0.08	0.31	0.26	3.16	0.69	0.17	0.70	2.82	0.92	0.27	1.00	1.46	0.26	0.32	0.46
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KMnO4-Acid Rinse volume, ml	100	100		100	100	100	100	100		100	100	100	100	100	100	100
Analytical Hg, ng/ml	<1.0	1.5		<1.0	1.8	<1.0	1.1	2.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0
ug/dscm	<0.08	0.12	<0.05	<0.05	0.13	<0.08	0.06	0.09	<0.09	<0.08	80.0	<0.04	<0.07	<0.08	<0.05	<0.04
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Particulate, ug/m ³	0.0611	0.6287	2.63E-03	2.26E-03	0,0733	0.0454	2.56E-03	2.24E-03		0,1739	2.71E-03	2.24E-03	0.0955	0.1260	2.52E-03	2.21E-03
Particulate, mg/sec	0.0251	0.2843	1.27E-03	1.11E-03	0.0305	0.0209	1.22E-03	1.11E-03		0.0808	1.32E-03	1.11E-03	0.0408	0.0594	1.23E-03	1.10E-03
Percent of Total	0.6519	9.6464	0.0396	0.2947	0.8721	0.5801	0.0376	0.1939	0.9202	2.2388	0.0346	0.1615	1.8169	2.4600	0.0647	0.2807
Oxidized Fraction, ug/m ³	4.8164	5.6543	6.2523	0,4498	4,9711	6.8841	6.5191	0.3536	4,8521	6.5466	7.4582	0.3262	3.5746	4.6204	3,4330	0,2612
Oxidized Fraction, mg/sec	1.9800	2.5568	3.0279	0.2214	2.0666	3,1758	3.1077	0.1744	2.0580	3,0420	3.6274	0.1608	1.5282	2.1779	1.6718	0.1307
Percent of Total	51,3863	86,7578	94.2470	58.5185	59.1385	87.9653	96.0454	30,5640	61.4972	84.2812	95.2679	23.4682	58.0243	90.1879	88.0609	33.2360
Elemental Fraction, ug/3	4.4954	0.2343	0,3790	0.3166	3.3614	0.8964	0.2659	0.8011	2.9652	1.0471	0.3678	1.0615	1.5848	0,3767	0.4629	0.5226
Elemental Fraction, mg/sec	1.8480	0.1060	0.1836	0.1558	1.3974	0,4135	0.1267	0.3950	1.2577	0.4865	0.1789	0.5232	0.6775	0.1775	0.2254	0.2614
Percent of Total	47,9618	3,5958	5.7133	41.1869	39.9894	11.4545	3.9170	69,2421	37.5827	13.4800	4.6976	76.3703	30.1588	7.3521	11.8744	66.4833
Total ug/m ³	9,3730	6.5173	6.6340	0,7687	8,4058	7.8260	6.7876	1,1569	7.8899	7.7676	7,8287	1.3899	5.2549	5,1231	3,8985	0.7860
Total mg/sec	3.8531	2.9471	3.2127	0.3783	3.4945	3.6103	3,2356	0.5705	3.3465	3,6094	3,8076	0,6851	2,2466	2.4149	1.8985	0.3932
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			Axial Flow	Check	2 - 5 × 105 		1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
Location	FOON OUT	Duct Ht, "			Barometric	30.15	
Date	1/18/05	Duct ID,"		<b>_</b>	Static		- -
Time	1530	Duct Area		_ft ²	Dry Bulb		
Tube I.D.		% O ₂	·		Wet Bulb		
C-Factor		% CO ₂			% H ₂ 0		
Operator	<u>(s)</u>	% N ₂		_	W.M.Wt		
	PORT/	DISTANCE	TEMP		VELOCITY	Null	
	POINT	[" From Wall]	[°F]	[" H ₂ O]	[Ft/Sec]	Angle	
				-			
	South						
\ \		11/2/		620			-40
) AM		/3(	710	0.32			-4:0 -4,0 -4,8
2)		FUI (8-10"	718	0.47			- 4.0
3	······································	1011 (0-10	10	0.150			-4,8
	01						
	1/0R+1+				0.95		
12		13	716	0.16			11
A A		·/2	724	0.925			-4,1
3		FUL 18-10")	730	0.74			- 5.1
	· · ·						
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						· · · ·	
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1						
	Average						
1	Maximum	- -					
<u>د :</u>	Minimum						
	SDEV						

DATA SUMMARY	
Velocity, [fps]	
acfm	
scfm	
dscfm	
Ex Air Free cfm	
Est. MM Btu/hr Heat Input	
Est. Firing Rate, lb/hr	

() Canton Meke Box N-1 Y = 0.987 AH = [.976 E-15 = 0.838 3/16 D=0.121 K=0.632

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	<b>.</b> .		Axial Flow	Check			
Location	AHO 1-19.05	Duct Ht, "			Barometric		
Date	1-19.05	Duct ID,"			Static		•
Time		Duct Area		ft ²	Dry Bulb		
Tube I.D.	•	% O ₂			Wet Bulb		
C-Factor		% CO ₂			% Η ₂ 0		
Operator	r(s)	% N ₂	- 11.4	_	W.M.Wt		
	PORT/	DISTANCE	TEMP	DELTA P	VELOCITY	Null	
	POINT	[" From Wall]	[°F]	[" H ₂ O]	[Ft/Sec]	Angle	
	A - 1		299	0.72			
	Z		300	0.30			- 8.2
	3		307				
	4		300	0.72			
							-
	B-1		292 293	0.79 0.55			-
	2.	· · · · · · · · · · · · · · · · · · ·	293			·	2
	4		293 293	0.50			-
	L.		212	0			
	C - 1		271	0.92			
	2		271	0.62			
	3		271	0.62			-8.3
	4		27	a.76			
	1						_
	<u> </u>		256	0.65		~	
	2		255	0.54			8:3
	3		256	0.27			
	<u> </u>		255	0.63			
						·	
			·····				
				-			-
							-
	<u> </u>						4
	Average	*					
	Maximum	· · · ·					
	Minimum	· · · · · · · · · · · · · · · · · · ·					
	SDEV						

ESP 3  $\nabla$ A HO T

DATA SUMMARY	/
Velocity, [fps]	
acfm	
scfm	
dscfm	
Ex Air Free cfm	
Est. MM Btu/hr Heat Input	
Est. Firing Rate, Ib/hr	

N=5 y=1,011 AH@=2,015 E=0.846 3/16 B=2,007 0,188 FC0.93

-		1	Axial Flow	Check		· ·	
Location Date	F-GPIN 1-18-05	Duct Ht, " Duct ID,"		-	Barometric Static	30.15	
Time	·	Duct Area		ft ²	Dry Bulb		
	3-54	% O ₂		-	Wet Bulb		
C-Factor		% CO ₂		-	% H₂0		
Operator		% N ₂	· · · · · · · · · · · · · · · · · · ·	-	W.M.Wt	· · · · · · · · · · · · · · · · · · ·	
	PORT/	DISTANCE	ТЕМР	DELTA P		Null	]
	POINT	[" From Wall]	[°F]	[" H₂O]	[Ft/Sec]	Angle	
	81	6	220 (	1,23	Use thisp		
				751	Je hosp		1
1 Sorth	· · · · ·			1.27			-
	 			1.15	·····		
	4'		263	0.90			
	<u> </u>	<u></u>	277	0.12			
	7	)	275	0.14			
	6		276	0.15			
and a	<u>S`</u>		7.76	0108		- 198	
South	4/1		276 .	C		. ⁻ 2	
-							
		·					-
		~				\$: 	
-						,,,,,,, _	
1							
						· · · · · · · · · · · · · · · · · · ·	
			· · ·				
· .							
	Average						
	Maximum	-					
	Minimum						
	SDEV						

DATA SUMMARY	/
Velocity, [fps]	
acfm	
scfm	
dscfm	
Ex Air Free cfm	
Est. MM Btu/hr Heat Input	
Est. Firing Rate, lb/hr	

N-4 Y = 0.960 AHE= 1.983 E-12= 0.835 3/16C= 0.193 K= 1.04

1			Axial Flow	Check			
Location	Stack	_ Duct Ht, "			Barometric	30.15	
Date	1-18-05	Duct ID,"			Static	-0.	5603
Time 14	45-1500	Duct Area	<u></u>	ft ²	Dry Bulb		
	S-19'S-5			•	Wet Bulb		
<b>C-Factor</b>		% CO ₂			% Η ₂ 0		
Operator	(s) \<. C., <u>B</u> . S	5. % N ₂	· .		W.M.Wt		· · · · · · · · · · · · · · · · · · ·
	PORT/	DISTANCE	TEMP	DELTA P	VELOCITY	Null	
	POINT	[" From Wall]	[°F]	[" H ₂ O]	[Ft/Sec]	Angle	
1	A-1	10.0	123.3		.5466		
	A-2	33.3	123,2		1.275		5054
	A-3	67.5	122.5		1.427		
						1.05 ¹⁵	가 문 
	B-1	10	123.7		15092	ده. ^{معرب} معنون	
	B-2	33.3	122.8		1.301		4255
	B-3	67.5	124.0		1.413	· · · · ·	* =
	C-1	10	1216		.1729	+2",7300	
	C-2	33.3	1209		1.337	+2-17200	7538
	C-3	67.5	122.8		1.292	· · ·	1220
1							
	D-1	10	124.2	······	,1002	· ·	
	D-2	33.3	124.1		1.243		556X
	D-3	67.5	123.2		1.268		
	· .						
			123.025		1.04		
	Average				1.056		
11	Maximum				(RMS)		
	Minimum SDEV						
							x

DATA SUMMARY	
Velocity, [fps]	
acfm -	
scfm	
dscfm	
Ex Air Free cfm	
Est. MM Btu/hr Heat Input	
Est. Firing Rate, lb/hr	

B 0 ELEV. P,

N-3 Y=1.026 AH@=1.982 E-11=0.806 7/22K=0.214 K=1.67

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				4	1		i							Page	of
TEST ID			ECON-	1		METER BOX	N-1	CAL. E	DATA: delta H		Comments:				
PLANT			CR/FGD PI		PI	TOT TUBE DESC			Ŷ	0.981					•••••
LOCATION				Dutlet #2	PRC	BE LENGTH [ff]			C(p)						
DATE			124/05			IOZZLE ID [inch]		FILTER	BOX SETTING	325					
OPERATOR(S)		- 6	SLC/N	14	9	6H ₂ O (Assumed)		PROBE	HTR SETTING	325			n		
AMBIENT TEM			60	~		FILTER ID			CT X-SECTION	circ ?	rect ?	other:			
BAR. PRESS.	[" Hg]		29.9	2	l	K FACTOR	0-632	DUCT	DIMENSIONS	2@25'x14.5'	DUCT AREA	725 ft ²	]		
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER E	
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		of ()	TEMP _	TEMP	BOX	TEMP		CO ₂
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H₂0]	[" H ₂ 0]	(" Hg)	[ft ³ ]	inlet	outlet	[°F] ()	[°F]	[°F]	[°F](4)	[% vol]	[% vol]
	1130	0					739.10				<u> </u>			4.3.	15.1
N O	<i>í</i>	10		0.60	0.38	3.0	142.46	63	60	671	325	<i></i>	49	CB*	@01
0	_ ¥	20	-4,50	0.60	0,38	3.0	745.81	66	62	.674	320	1	49	4.2	15,8
R		30		0.60	0.38	3.5	749.18	69	64	675	320		51	4,2	15;8
T		40	-4.20	0.60	0,38	4,0	752.56	71	65	675	320		52	4.3	15.7
<u> </u>		50		0.60	0.38	4.0	755,93	73	. 67	677	323		53	4.2	15,8
		60		0.60	0.38	4,5	759,33	74	69	679	323		53	4,3	15,7
				POST N	BRT1+	EAK C	HELK OF	< - C	@ 10	~ 1/g					
						<b>_</b>	β.			7					
	1241		÷				759.45								
5		70		0.65	0.41	4.5	762.94	75	71	685	327		55	3.1	16.9
-0		80	-458	0,70	0.44	5,0	760.50	.77	72	688	323		54	3.0	16,9
<u> </u>		90		0.70	0.44	6,0	770.22	78	73	.687	322		56	2.8	171
T		100	-443	\$,70	0,44	6.5	113,86	79	74	689	318		56	2.9	17.0
H		110		0.70	0,44	7.0	777.51	79	14 .	689	327		5%	3.0	17.0
		120		0.72	0.45	6.0	.781.14	80	75	690	322		57	30	17.0
											:	)	1		
1 C S											1.				
						·		<b></b>			·				
AVERAGE			-4.4	0.647	0.408		41.92	71.	3	681.6	·			3.6	16.7
		Sa	mple Train	Pre Test	$\underline{0}$ ft ³		n. Hg			Pitot Tube	PreTest	<u>0</u> @	in. ł		
		Lea	ak Checks:	Post Test	<u>0</u> ft ³	@ _ <b>_//</b> ir	n. Hg		\$1, <u>1</u> ,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	Leak Checks:	Post Test	<u> </u>	<u>5</u> in. ł	l₂O	

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TEST ID			AHO-	1	]		74	1			٦			Page 🧾	of \
PLANT	٠		CR/FGD PI			METER BOX	>	CAL. I	DATA: delta H Y	2.015	Comments	:			
LOCATION	-	<u> </u>		/ESP Inlet	.L.	OBE LENGTH [ft]	10		•		-				
DATE			24.05		-	NOZZLE ID [inch]			C(p) BOX SETTING	205	-	<u></u>			
OPERATOR(S	5)		LR D		7	%H ₂ O (Assumed)			HTR SETTING	}					
AMBIENT TEN	MP [°F]	42				FILTER ID			CT X-SECTION		rect ?	other:		1	
BAR. PRESS.		29.0	72		1	K FACTOR			DIMENSIONS		DUCT AREA			1	
					<b>_</b>					·		L	_]		
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		oF]	TEMP	TEMP	BOX	TEMP	Oz	CO2
[port-inch]	(24-hr) 11:30	[minute] 0	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ] 31.765	īnlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
D-1	1			- 11-		-			~ 2	1			1.	<u>1</u>	1
	11:40	10		.0:45	0 0	2.0	35,060	51/	58	-265	246	1.JA	46		
D-1	11:50	20		0.44	0.39	2.0	38,320	ک ک	58	.246	.248	a and	43	6.3	13-8
<u>n-1</u>	12:00	30	-	6.44	0.34	2.0	41.596	55	59	265	258-		44	6.3	13.8
		499		,	:	lask de	- 0.00 4"	1-1-2							
	12070	ja Bi				·····	. 41.800	Ű						1	
C-1	101217	20 4U		0.60	6.54	ZIS	15	53	59	- 279	303		50		
C-1	1227	50	- (Z: <i>i</i> );		.0.52	2.5	49.29	61	60 .	231	301		46	4.7	15.22
C·I	1237	60	•	0.53	0.52	25	53.022.	63	60 .	232	326	a de la companya de la	47	4.3 .	15.3
			.*		120	K clack O	206 Hr								
	12:5°	20	·				53.150				1	The second se			
73-1	13:00	20 70		0.70 -	0.63	2.5	57.23 .	EX	62	-299	313		51		
73-1	1310	ණිට්ට	-13.15	0.70	7.63	3.0	61.31 .	65	63 .	299	320		46	4.4 -	15.7
13 - 1	(320	( <b>1</b> 983)	-	0.67	0.60	3.5	65300.	657	65.	299	325		46	4.4 -	15.7
		140	-		leak	check of	e @7"1-6								
	1329	-125					65.400	\ \ \							
A-1	1339	120	•	0.43	0:39	2.0	63.67 .	66	-67	. 7.91	326		55		
A-1	1349	110	- 12.95	.0.40	0.36	2.0	71.86	G	63 .	302	324		52	5.0	15.1
A-1	1359	126		0.40	0.346	Z.0 .	75.052.	-72	71	30 i	323		53	4.3	15.3
											1			<u> </u>	1
AVERAGE			-12.97	0.527	0.478		42.855	62.	. 4	Z85, 8			<u> </u>	5.1	14.15.0
<b>.</b>	23	1	mple Train	Pre Test	<u>ට,උ</u> ුුුටා ft ³		ı. Hg			Pitot Tube	e PreTes	t <u>54</u> @	<u> </u>	H ₂ O	i fa
		Lea	ak Checks:	Post Test	<u>0.000</u> ft ³	@_ <u>5_</u> ir	n. Hg			Leak Checks			,	H ₂ O	

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NOTE: Purge for 10 minutes at end of sampling.

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TEST ID	· ·		FGD-	1		METER BOX	N-4	CAL.	DATA: delta H	1.583	Comments:					•
PLANT			SCR/FGD P	lant 4	] рі	TOT TUBE DESC	5-54		Ŷ	0.960	1	· · ·				-
LOCATION			FGD Ini			OBE LENGTH [ft]	6	1	C(p)	9,807	1.	•,				-
DATE		1	12410	5	<b>۱</b>	OZZLE ID [inch]	\$ 3/16	FILTER	BOX SETTING		1					-
OPERATOR(	•	<u> </u>	mi			%H₂O (Assumed)	7.5	PROBE	HTR SETTING		1					-
AMBIENT TEI			53			FILTER ID	1	עס	CT X-SECTION	circ ?	rect ?	other:		]		
BAR. PRESS.	[" Hg]		29.9	2		K FACTOR		DUC	T DIMENSIONS		DUCT AREA		1	4	Ozen Cali	्र
TRUCTOR					, <b></b>		1,03(5)	_			-	· · · · ·	-		Ch (1) (42	· fe
TRAVERSE POINT		SAMPLE	STATIC	PITOT HEAD	METER DIFF PRESSURE	METER VACUUM	METER			STACK	PROBE	FILTER	LAST IMP		EXHAUST	] d
[port-inch]	(24-hr)	[minute]	["H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]		READING [ft ² ]		[0F]	TEMP	TEMP	BOX	TEMP	O ₂	CO2	
	11:30	0	L 1.201	1 1 11201	L 1120]	[" Hg]	238,10	inlet	outlet	[°F]	[°F]	[ [°] F]	[°F]	[% vol]	[% vol]	
North	11:40	10	8.6	0.86	0.73	3.0	1	17	1	· · · · · · · · · · · · · · · · · · ·						
			6.5	0.00			242.81	63	56	285	323	326	51	6.0	14.1	4
	11:50	20	- (	1	0.773	3.0	247.50	69	58		-315	326	49	6.0	14.1	
ļ	12:00	30				3,0	257.21	73	60		325	326	50	4.0	14.1	21,0 CUT
- Alton	12:10	40		/		3.0	+56.89	74	63	7	324	325	51	6.0	14.1	100
	12.20	50			2	3.0	261.60	フク	65	(	325	325	52	6.0	14.10	
	12;30	60			7	3.0	208-22	78	66		324	326	ラス	6.0	14.1	2il
19 N. 19							28.12			1		0-0-05	<u> </u>	. 8-0	11-1 30	Re al
111. 12		già da la											1			1
and a second	12:45					· · · · · · · · · · · · · · · · · · ·	266.50									
Sonth	12:55	70	8.5	1.15	1,20	3.0	\$72,58	ファ	68	153	379	3.(	.50		14.8	{
	13:05	80	612	i (-1 <u>-</u> )	<u> </u>	3.0	778,59			[55]	323	326		5.2		-
	13:15	90	/			3,0 3,0	284.57	81	69	1		375	76	5.2	14.8	J.,
1 ¹¹	13:25		<u> </u>					83	69	<u>    (                                </u>	326	325	47	5.2	14.8	21.0
		100		1		3.0	290.52	85	71		327	325	47	5.2	148	
	13:35	110		<u> </u>		<u>3</u> .0	296.56	86	72		324	325	47	5,2	14.8	
	13:45	120		1	/*	30	302.56	86	73	<u> </u>	325	325	48	5,2	14,5	208 0K
							36.06									CR
·											:			,		1
											·. ·	·			1	1
				ms												1
AVERAGE			8.5	1.00	0,965		64,18		71.8	219			1	5.6	14.45	+
		Sa	mple Train	Pre Test	druge , ft3 (	@12in				Pitot Tube	DraTect	NA @	lin	<u></u> H₂O		
		Lea	ak Checks:	Post Test	lead shorts (	@ <u>i</u> -@in	-			Leak Checks:				H₂O H₂O /		
	ONSOI ENEDOV						<u> </u>		<u>kanan na sana sana sana sana sana sana s</u>		100000000000	<u></u>				
		10570	rej	ar pur	ye ton	10 4	0014-11	. 0				NOTE	: Purge for 10	minutes at en	d of sampling	

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:	TEST ID			STK -	2 TES	1#1	METER BOX	N-3	CAL. D	ATA: delta H		Comments:				
:	PLANT		s	CR/FGD PI	ant 4	PI	TOT TUBE DESC			Y	1.026					
•	LOCATION			Stack		PRO	DBE LENGTH [ft]	108		C(p)						
	DATE			<u></u>			IOZZLE ID [inch]		FILTER I	BOX SETTING	325					
	OPERATOR(S	,	L_1.		<u> <u></u></u>	9	6H ₂ O (Assumed)		PROBE	HTR SETTING	250				I	
	AMBIENT TEN		~	+ 6 C			FILTER ID			T X-SECTION	circ ?	rect?	other:		l	
	BAR. PRESS.	[" Hg]		<u>9 - 9 C</u>	)		K FACTOR	1.59		DIMENSIONS			283.53 ft ²			
	TRAVERSE	CLOCK	SAMPLE	STATIC	ΡΙΤΟΤ	METER DIFF	METER	METER			STACK	PROBE			METER E	THALIST
	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX	TEMP	0 ₂	CO ₂
	[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H _z 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
:		1130	0					808.30								
	-10.00		10		570	1.10	3.5	813.79	69	حاحا	127	253	328	49	5.9	14.2
	-33.33			:5832	1.00	.1.59	ナンい	820.27	・フト・	5	127	257	331	らん	5.9	14.2
D	-67.50		30		1,05	1.67	న	826.92	77	500	125	ጉሪጋ	33)	57	5.9	14.2
					L.C.	RESTR	IRT	827.03								
:	-10.00		40		07.	1.10	2.5	832.51	76	6	125	226	320	5	6.0	14.1
c	-33.33		50 ~	.7267	1.00	.1.59	4.5	839.02	78	20	125	235	325	47	5.9	14.2
	-67.50		60		-1.05	1.67	5	845.76	80		124	256	331	49	5.8	14.3
					~		~	<u></u>		<u>, , , , , , , , , , , , , , , , , , , </u>		<u> </u>		<u> </u>		
-					L.C.	RESTI	ART	.845.90								
1	-10.00		70		73	1.15	3.5	851.48	۶۲	フス	125	226	325	49	6.0	14.1
	-33.33		80 ~	.6246		1.67	<u>ہ</u>	858.02	. 81	22	125	220	330	5	5.8	14.3
ß	-67.50			<u>, an io</u>	1.10	1.74	$\overline{\langle}$	865.05	- 82	54	124	256	332	57	5.8	
	-01.50		90		1.10		<u>~</u> ~	600.00	85			120	222	2 F	$  \Delta \cdot \Delta $	14.3
i.					1	OFST		21 210								
					L.C.	REST	3.5	865.15		211		> < >	220	<u> </u>		
•	-10.00		100	55.33	10		<u> </u>	870.68	80		124	253	329	52	6.0	14.1
A	-33.33		110 -	.5543	1.00		<u>_ స</u>	877.21	81	74	124	252	329	54	5.9	14.2
:	-67.50	12115	120		1.10	1.74	5	884.05	83	75	124	254	331	58	5.8	14.3
		1345	 	[												ļ
	AVERAGE			-0.62	0.924	1.48		75.400	74.	7	124.9				5.9	14.2
	<b>r</b>	<b></b>		mple Train							Pitot Tube	PreTest	<u>0K@</u>	<u> </u>	H₂O	
			Le	ak Checks:	Post Test	$\circ$ $ft^3$	@ ii	n. Hg 		<u>1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:1:</u>	Leak Checks:	Post Test	<u> </u>	<u></u> in.	H ₂ O	

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TEST ID			ECON-			METER BOX		CAL. I	DATA: delta H	1,976	Comments:				
PLANT		s	CR/FGD PI	ant 4 📲 🖉	Pi	TOT TUBE DESC		Ð	Ŷ	0.987					
LOCATION		E	conomizer (			DBE LENGTH [ft]			C(p)						
DATE		L	1/25/	05	, N	OZZLE ID [inch]	3/16 0.191	FILTER	BOX SETTING	325					
OPERATOR(S	•	6	E/m	LF	9	%H ₂ O (Assumed)		PROBE	HTR SETTING	325					
AMBIENT TEM			75		-	FILTER ID		טעס	CT X-SECTION	circ ?	rect ?	other:			
BAR. PRESS.	(" Hg]		29.19		1	K FACTOR	0.632	רסטס	DIMENSIONS	<u>2@25'x14.5'</u>	DUCT AREA	725 ft ²			
TRAVERSE	CLOCK	SAMPLE	STATIC	РІТОТ		····	<u> </u>	r							
POINT	TIME		PRES	HEAD	METER DIFF PRESSURE	METER VACUUM	METER READING			STACK TEMP A		FILTER BOX	LAST IMP		EXHAUST
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet		[°F]	[°F]		O _z (	CO ₂
	902	0				L 51	793.90		Outiet		r.1				[% vol]
		10		0,66	0,42	3.0	797,46	70	66	673	324	· · ·	68	3,5	16.5
AD		20	-4,47		0.41	3.0	800.95		66						1
10		-		0.62				72		675	326	<u>}_</u>	67	3.6	16.4
		30	1		0,40	3.5	864.40	73	68	676	318		64	3,6	16.4
		40	-4.65	1.62	0,40	4.0	807.89	74	GB	676	328		62	3.7	16.3
<u></u>		50		0.62	0,40	4.5	811.35	74	69	676	318		6	3.6	16.4
		60		0.62	OAO	5.0	-814,84	75	70	676	320		61	3.6	16.4
								u-v			10"H				
			POST	-5 <del>224</del> 5	1 PRE-T	NORTH	LEAR C	ncore	or-	- <del>- 0</del>	10 19				
in the second	1009						815,00								
		70		0.50	0,32	3,0	818.16	76	72	669	318		62	4.5	15.6
D		80 *	-4.72	0,50	0.32	3,5	821.29	77	72	671	324	<u>}</u>	60	4.6	15,5
R		90		0.50	0.32	4.0	824.44	78	73	672	321	<u> </u>	<del>;</del>		
-		·	- 4.54	0.50	0.32			79					60	4.5	15.6
H		100				4.0	827.60		74	670	318	·	60	4.5	15.6
- <del>1.</del>		110		0.50	0.32	4.5	830,76	80	75	671	320		59	4.5	15,5
		120		0,50	0,32	5,0	833.92	80	75	671	321		59	4.6	15.5
· .											:	)			
AVERAGE		-	4.00	0.564	0.363		39.86	73	. Z.	673			I	41	160
·		Sai	mple Train	Pre Test		@ <b> O</b> ir	n. Hg		I	Pitot Tube	PreTest	0 @	<u> </u>	( 1 /	
	-	Lea	k Checks:	Post Test	ft ³ (	@ir				Leak Checks:	Post Test		<u>6</u> in. F	-	
CONSOLE	Nepay	<u></u>		<u>(1999): 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1997; 1</u>		*****	<u></u>		<u>1997-1998</u>	Alexandra and a second	in our rest				

NOTE: Purge for 10 minutes at end of sampling.

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TEST ID	i.		AHO-	ĩ		METER BOX	N.5		ATA: delta H	2.215	Comments:				<u>_</u>
PLANT		5	CR/FGD PI	ant 4	Pľ	TOT TUBE DESC			Y	1011	4				
LOCATION				ESP Inlet	Z PRC	DBE LENGTH [ft]		-	C(p)						
DATE			5-17			OZZLE ID [inch]	<u> </u>	1	BOX SETTING	325	-				
OPERATOR(S		JL	LK L	10	9	6H2O (Assumed)		1	HTR SETTING	325				٦	
AMBIENT TE		29.	77			FILTER ID		-	CT X-SECTION	circ ?	rect ?	other:		]	
BAR. PRESS.	. [ˈhɡ]		14			к ғастор	1. 10		DIMENSIONS		JUUCI AREA				
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST
POINT	ТІМЕ	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[(	»F]	TEMP	TEMP	вох	ТЕМР	0 ₂	COz
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H₂0]	[" Hg]	[ff ³ ]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
1 1	0900	0			<i></i>	-	· 3/1.150		$\sim$	201	700		1.77		
4.1	0915	10		0.59	0.53	2.0	84.99	51	.52	. 235	302	NA	41	.5,5	14.7
A-1	0920	20	- 13.13	0.57	0:53	2.0	89.66	54	53	29B	.234		40	#5.4	14.7
A-1	0930	30		0.59	2.53	Ζ.Ο	92.400	56	55	296	234		40	5.4	14.7
		æ				leck chen	KOKES"	419				-			
	0935	5 <b>7</b> 2					42.500	0							
13-1	0945	et 1		0.59	3.53	Z.J	76	55	56	235	300		44		
B-1	0955	57	\$ 13.50		0.53	25	49.93	53	57	294	311		41	4.6	15.5
13-1	1005	63		059	0.53	Z.5 .	103.653	65 .	53	294	304	4 0 0 0 0	42	4.6	15.5
				-											
	1015	7,67				•.	103.740					e navde m			
C-1	1025	8077		0.500	0.46	2.5	107.29	S.	60 .	270	302		46		
C-1	1035	# m	-13.00	0.50	0.45	2.5	110.765	61	61	276	369	ere da Andrea	44	5.0	15.1
C-1	1045	12090		0.47	3.42	25	114.245	62	61	277	312	- Printally Brow	44	4.9	15.Z
		*50				leck ded	DECSIN	H.				- Aura Boureu			
	1043	429				-	114.310								
D-1	1053	100		0.50	0.455	Z.5	117.903	GZ	61	255	317		48	1	
D-1	1103	110	-13.48	0.47	0:47	2.5	121.31	63	63	Z63	319		46	6.2.	14.0
5-1	1118	120		0.47	0.42	2.5	124.714	Get	63	264	314		46	6.2	1410
														5.3	
AVERAGE	·		13.30	0.538	0.483		43.317	5 <i>3.</i>	5	279.6				2.8	14,8
		Sa	ample Train		C. 750 ft ³		n. Hg			Pitot Tub	e PreTes		S in	H₂O	
		Le	ak Checks	Post Test	<u></u> ft ³	@_ <u>-4.5_</u> i	n. Hg			Leak Checks	: Post Tes	t <u></u> @	7 in	H ₂ O	

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		WIT	- 2	UN 14		RO Hg SAI		D SPEC	IATION F	IELD DA	IA SHEE	- 1		Page /	of /
TEST ID		<u> </u>	FGD-	2	]	METER BOX	A14	CAL	DATA: delta H	1983	Comments:			. ugu <u>.</u>	
PLANT			SCR/FGD PI		Pi	TOT TUBE DESC		UAL A		0,960					
LOCATION		<u> </u>	FGD Inle		4	BE LENGTH [ft]	6		С(р)	0.807	•				
DATE		11	25/05				63/16 0,185	FILTER	BOX SETTING	325	-			•	·····
OPERATOR(S	5}		-sw			H ₂ O (Assumed)	7.15		HTR SETTING	325		Without a l	-		2 arr - 11 5 - 11 1 - 12
AMBIENT TEN	VIP [°F]		55			FILTER ID	2		CT X-SECTION	circ.?	rect ?	other:			
BAR. PRESS.		29	.79			K FACTOR	2,826,756		DIMENSIONS		DUCT AREA				
			<u> </u>				(S) (N)	)			3	L	1		
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	R TEMP	STACK	PROBE	FILTER	LAST IMP	METER E	XHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING.		oF]	TEMP	TEMP	BOX	TEMP	O ₂	CO2
[port-inch]	(24-hr)	[minute]	[" H _z 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
	09:00	0					309.70				_				
South	09:10	10	8,4	1.17	1.05	4.0	315-35	65	58	150	323	325	43	5,5	14.6
	09:20	20	$\int $		(	4.0	320,92	72	62		.323	325	43	5,5	14-6
	69:30	30				4.0	326.47	77	63	<u> </u>	324	325	76	5,1	14.7
	09:40	40			1	4.0	332,08	79	65	/	329	325	47	5,4	14.7
	09:50	50				4 0	337.68	50	66		324	325	49	5,5	14.6
	10,00	60	-1	l	(	4.9	343,29	82	68		375	325	49	5.5	14.6
				,			33.59				•				
·			land (	lech: lec	n sby 3 -	104			7967						
	10:15		-				343.60								
No. Th	10:25	70	8.9	0.78	0.59	2.5	347.96	76	69	776	329	325	47	6,0	14.1
	10:35	80	r-			2.5	352.23	79	70	Ċ.	328	3.25	47	6.0	14.1
	10:45	90		5		7-5	356,52	81	1-71	<u> </u>	328	325	47	6.0	141
	10:55	100	<u>\</u>	· {		25	360,77	87	72		323	325	48	6.1	140
	i1:05	110				25	365.02	73	7.3		324	325	49	6.0	14.1
	11:15	120			Ĵ	2.5.	369.26	83	74		328	326	49	6.0	14.1
			/				(25,60)					- -			
•••						-				I					
											¥.				
				RAS											
AVERAGE			8.65	0.963	0.82		5925		72,9	213				5.74	14.36
		Sa	ample Train	Pre Test	dead shatt	@_ <u>/O_</u> ir	n. Hg			Pitot Tube	e PreTes		in.	H ₂ O	
- Le			ak Checks:	Post Test	dend shaps	@ <u>[</u> 2_ir	n. Hg			Leak Checks	: Post Tes	t <u></u> @	in.	H ₂ O	
CONSOL	energy.	10,+.	- te s +				OAH= (	. 0				NOTE	E: Purge for 10	minutes at en	id of sampling.

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TEST ID			STK -		イキン	METER BOX		CAL. D	ATA: delta H		Comments:				
PLANT LOCATION		S	SCR/FGD Pla	ant 4	1	ITOT TUBE DESC			Y	1.026					
DATE			Stack	15	1	OBE LENGTH [ft]			С(р)						
OPERATOR(S				$\frac{1}{3}$	1	NOZZLE ID [inch]	·		BOX SETTING						
AMBIENT TEN	•		500		/	%H ₂ O (Assumed) FILTER ID			HTR SETTING					1	
BAR. PRESS.			20		4	FILTER ID K FACTOR			T X-SECTION		rect?	other:	[_]	1	
	[ 119]	<u> </u>		<u> </u>	J	K FACTOR	1.27		DIMENSIONS	19 ft ID		283.53 ft ²	(F)		
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER			STACK	PROBE		LASTIMP	METER E	EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[0	•F]	ТЕМР	TEMP	BOX	TEMP	0 ₂	CO ₂
[port-inch]	(24-hr)	[miņute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
	0000	Ö					889,90								
-10.00		10	i	10	1.10	3.5	895.40	69	ط کا.	127	253	329	チッ	6.2	13.9
-33.33		20 -	.7326	1.05	1.67	4.5	402.04	-74	.68	126	257	233	49	. 6.1	14.0
-67.50		30		1.10	·1.72	5	908.83	$\cdot$ $\gamma$ $\gamma$	_ م	126	258	333	49	6.)	14.0
				L.C.	REST	ART	49.809								
-10.00		40		01,	1.10	2.5	914.46	רר	06	126	えらえ	329	46	. ۲. ک	14.0
-33.33		50 ~	. [مام.	1.10	1.72	5	921.23	80	7	126	257	330	J L	6.0-	14.1
-67.50		60		1.15	1.80	5	928.22	. 81 .	72	.124	253	221	J G	0, ی	14.1
_			5												
				L.C.	REST	ART	928.34								
-10.00		70		والحا.	1.05	7	933.71	· 79 ·	27	126	224	309	44	6.1.	14.0
-33.33		80 -	.+87.	1.05	1.67	4.5	440.43.	81	74	126	246	322	44	6.0	14.1
-67.50	_	90		1.10	1.72	S	447.23.	82	JF	.124	256	329	46	6.0	)4.1
													, •		
				L.C.	RESTA	ART	947.35	Ĭ							
-10.00		100		.73	1.15	3.5	952.98	81	75	125	244	326	46	6.0	14.1
-33,33		110 -	.706	1.05	1.67	5	459.70	83	75	125	256	331	49	5.9	14.2
-67.50		120		1.10	1.72	5	966.53	$\frac{3}{48}$	76	124	255	330	51	5.9	14.2
	רווו												~ '		111
AVERAGE			-0.647	0.948	1.508		76.ZB	75.	5	125.4				6.0	14.1
			mple Train	Pre Test		 @\ᢕ_ir			Ľ	! <u>( こうって</u> Pitot Tube	ProTect	015@	1 7 in 1	H ₂ O	<u> //·/</u>
			ak Checks:				•			Leak Checks:		<u> </u>	$\underline{}$ in.	-	
<b>b</b>		1941-1944-19 <u>71-1</u> 931	<u>. 1919 (1919) (1919) (1919)</u>		<u>, , , , , , , , , , , , , , , , , , , </u>		<u>anan ang</u> ananan d			1011010101010101010101					

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TEST ID			ECON-			METER BOX	<u>N-(</u>		ATA: delta H		Comments:				
PLANT		s	CR/FGD PI	ant 4 # 2	PIT	OT TUBE DESC		E-15	Ŷ	0.981					
LOCATION		Ed	conomizer (		PRO	BE LENGTH [ff]	Ű		C(p)						
DATE			1/25/0		N	OZZLE ID [inch]	3/14 DA 0.191	FILTER I	BOX SETTING	325					
OPERATOR(	5)		GLC 11	n_F	%	H ₂ O (Assumed)		PROBE	HTR SETTING	325		1			
AMBIENT TE	MP [°F]		75			FILTER ID	6	סטס	T X-SECTION	circ ?	rect?	other:	<u> </u>		
BAR, PRESS	. (" Hg]		29.7	6		K FACTOR	0.632	рист	DIMENSIONS	<u>2@25'x14.5'</u>	DUCT AREA	725 ft ²			
	· ·····									· · · ·					
TRAVERSE	CLOCK	SAMPLE TIME	STATIC PRES	PITOT HEAD	METER DIFF PRESSURE	METER VACUUM	METER READING			STACK	PROBE TEMP	FILTER BOX	LAST IMP		EXHAUST
[port-inch]	(24-hr)	[minute]					READING [ft ³ ]				(°F) (Z)	[°F]	[°F]	0 ₂	
[port-inch]	1255	0	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	838.70	inlet	outlet	[1]-	<u>ے ب</u> ار ا	( L'J		[% vol]	[% vol]
N				150	1 20	2.		Di	-10	1.70	200	,	<u>r</u> -1	11	1-0
		10		0.50	0,32	3,0	841,88	-81	-78	672	320		53	4.2	15.8
0	· · · · · · · · · · · · · · · · · · ·	20	-4.53		0.32	3,0	845,02	.83	79	673	318		52	4.0	160
R		30		1),49	0.32	3.5	348.16	84	BO	673	322		5 <b>3</b>	4.0	16.0
	:	40		0,49	D.31	3,5	851,28	85	80	674	320		53	3.9	16.1
H		50	-4.56	0,49	0,31	4.0	854.49	.86	81	673	325		55	4.0	160
		60		0,49	0.31	4.0	857,56	86	81	674	327		54	3.9	16,1
1 2				POST .	-NORTH )	PRE-S		1	hECK	OK-	oe.	ALO "HA		<u> </u>	
				1051	10 GRITI				mc			119			
	1404						857.70								
S				220	<u> </u>	An		· n_	. 01	1-11	71-	<u> </u>	52	- 11	110
		70	1 -	0.70	0,44	4.0	861.38	81	83	676	327			3,2	16.8
<u> </u>		80	-4,77	0.68	0,43	5,0	665.04	.08	83	676	32B		50	3.1	16,9
<u> </u>		90		0,76	0.44	5.5	368,74	89	84	677	325		50	3.0	16.9
LT		- 100 ~	-4.79	0,70	0,44	6.0	872.40	90	84 .	677	317		51	3.1	16.9
1+		110		0,10	0.44	6,5	876,11	90	85	675	318		51	3.0	16.9
		120		0,70	0.44	7.5	819,18	91	blo	617	328		52	31	16,9
				0110				╎╴╸╸╃╶╃╺╼╸╧					~~~		10,1
			-												<u> </u>
·	•							 	· · · · · ·						
· · · · · · · · · · · · · · · · · · ·										1					<u> </u>
		[	-11.1	1.0500	-7-1		1000	 	17	(-2) (7)					
AVERAGE	1			0.590	0.376		40.94	84	>	674.8		<u> </u>		3.5	16.4
			mple Train				n. Hg			Pitot Tube		<b>_</b>	<u>6</u> in.		
		Le	ak Checks:	Post Test		ا <u>ر ر ا</u> س	n. Hg		1940-1940-1940-1940-1940-1940-1940-1940-	Leak Checks:	Post Test	a <u>aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa</u>	<u>6</u> in.		

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TEST ID			AHO-	3	V	METER BOX	N-5	CAL. D	ATA: delta H	2.015	Comments:			·	
PLANT			CR/FGD PI			TOT TUBE DESC			Y	1.011					
LOCATION		Air He	ater Outlet/	ESP Inlet 🕏		BE LENGTH [ft]	10	^	C(p)						
DATE			25-0		N	OZZLE ID [inch]	manager and the second s	FILTER E	BOX SETTING	325					
OPERATOR(S		<u>J</u>	<u>LR 70</u>	/	9	6H ₂ Ο (Assumed)	<u></u>		ITR SETTING	325		· · · · ·			
AMBIENT TEN			16			FILTER ID			T X-SECTION	circ ?	rect ?	other:	1	Ø	
BAR. PRESS.	[" Hg]					K FACTOR	0.90	DUCT	DIMENSIONS		DUCT AREA		]	¥	
TRAVERSE	CLOCK	SAMPLE	STATIC	рпот	METER DIFF	METER	METER	METER		STACK	PROBE	FILTER	LAST IMP	METER E	XHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	·····	F]	TEMP	TEMP	BOX	TEMP	0 _z	CO2
[port-inch]	(24-hr). 1255	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³] [29.198	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
5		0				_	7	<i>i</i>	/ 7	511	<i></i>	<u>н с N</u>			
D-1	1305	10	-	0.50	24.00	2.0	132.72	.65	63	265	326	NA	67		
D-1	1315	20	-13.07	0.43	0.43	Z.0	136.15	69	: (A	264	.324		52	:5.7	14.4
<u>P-1</u>	1325	30		0:50	0.45	Z.0	139.7469	71	<u>וכ</u>	261	305		52 .	6.1 -	14-0
		Æ			ical-	dick OK	es?								
	33>	50					139.770		·.						
2-1	(3+0	@+b		0.85	0.76	3.0	144.15	74 .	74 .	274	312		55		
C-1	350	50	-13.35	0.85	0.74	3.5	148.75	26	79 -	279	304		52.	4.9	15.2
C-/	1400	60		0:85	0.76	4.0 .	153.238	77 .	73.	279	301		53	4.3	15.3
			2				· · · · · · · · · · · · · · · · · · ·								
	1407	7.6-					153.350	-							
3-1	1417	2870		0.82	0.73	3.5	157.85	·778	77 .	290	305	-to go a factor	57.		
13-1	1427	9580	-13.5	0,70	0.72	4.0	162.23	. 81	78	297	292	The state of the s	54	4.8	15.3
13-1	1437	1000		080	0.72	4.5	166.821	- 23	So.	297	286	an a	53	4.9	15.2
	•	110										liver Black opp			
	14/2	1-250					166.930	Υ.						4	uest:
4-1	1452	100		0.62	0:56	3.0	170.905.	84	81 .	302	305		57		207
A-1	1502	110		0.56	0.50	3.0	174.680	84	50	302	314		57	5.5	14.7
A-1	1512	120	5	0.58	0.52	3.0	178645.	83	78	302	316		57	5.4	14.7
								,					<i>i</i>		
AVERAGE			13.31	0.676	0,613		49.146	76.	3	2846				5.3	14.9
<b>9</b>		Sa	mple Train	Pre Test	<u>, a</u> ft ³	@ <u> 2</u> ii	n. Hg			Pitot Tube		<u> 0 k @</u>		H ₂ O	
		Le	ak Checks:	Post Test	<u> この</u> の ft ³	ii	n. Hg			Leak Checks:	Post Test	<u> 61-</u> @	<u> </u>	H₂O	

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TEST ID			FGD-	3	]	METER BOX	NY	CAL.	DATA: delta H	1,983	Comments:				
PLANT		s	CR/FGD PI	ant 4	PI	TOT TUBE DESC	5-54		Ŷ	0.960					
LOCATION			FGD inie		PRO	BE LENGTH [ft]	6	/	C(p)	0.807					
DATE			1251	05	. N	OZZLE ID [inch]	63/16 0.185	FILTER	BOX SETTING	325					
OPERATOR(S			JAW		9	%H ₂ Ο (Assumed)		PROBE	HTR SETTING	325				1	
AMBIENT TEN			000/	-	-	FILTER ID		טם	CT X-SECTION	circ ?	rect ?	other:			
BAR. PRESS.	[" Hg]		29,75			K FACTOR	C.E.28 0.824 N) (S)	DUC	T DIMENSIONS	L	DUCT AREA				
TRAVERSE	CLOCK	SAMPLE	STATIC	PITOT	METER DIFF	METER	METER	METE	RTEMP	STACK	PROBE	FILTER	LAST IMP	METER	EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		oF]	TEMP	TEMP	BOX	TEMP		CO ₂
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
	12:55	0	-			_	375.00								
North	13:05	10	9,2	0.79	0.65	2.0	379,56	78	74	284	323	325	57	6.0	14.1
· <u> </u>	13:15	20		ſ		7.0	384.06	84	75		. 329	325	52	5,9	14,2
	13:25	30		)		2.0	388.59	86	77		ろみつ	326	54	5.8	14,3
	13:35	40 -		(		2,0	393.09	87	78	(	328	325	51	5,8	14.3
	13:45	50			(	2,5	397.62	88	78		325	325	53	5.9	14.2
	13:55	60			j	2.0	402114	89	79		327	324	54	5.9	14.2
							27,19	)							
		leak c	eck:	had shy	@ /0"										
	14:15			,-			702.40								
South	14:25	70	8,8	1,12	0.92	2.5	407,68	87	70	305	328	325	55	5,4	14.7
	14:35	80	1	/		25	413.01	90	80	j	327	376	51	5,4	14.7
	14:45	90		******		7.5	418.32	92	81		323	375	52	F. 4	14.7
	14:55	100				2.5	423,63	93	82	(	326	321	52	514	14.7
·	15:05	110			1	25	429.00	94	83		326	. 325	53	5.4	14.7
	15:15	120		-	1 .	2-5	434,36	95	84		324	325	54	5.3	14.8
							31,96)								
											:				1
				(							•				· · ·
				(RMS/									-		
AVERAGE			9,0	0.948	0.785		59,10		83.9	294.5			 	5,63	14.47
	_	Sai	mple Train	Pre Test	kerl stry ft3		l. Hg		<u></u>	Pitot Tube	PreTest	NA @	in.	H ₂ O	
		Lea	k Checks:	Post Test	elent stopft3	@in	. Hg			Leak Checks:		NA @		H₂O	
CONSOL	INERGY.	105t-+	est a	i- Ju~	le for i	o hito	0 AH=1.0	<u></u>	<u>:+:+:+:+:+:+:+:+:+:+:+:+:+:+:+:+:+:+:+</u>	<u>1999</u> 0707070707070707070707	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	NOTE	Purge for 10	minutes at en	d of sampling.

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	TEST ID			STK -	<u> </u>	ST #3	METER BOX	~-3	CAL. D	ATA: delta H	<u>1.982</u>	Comments:				
:	PLANT		s	CR/FGD PI	lant 4	Pľ	TOT TUBE DESC			Y	1.026					
-	LOCATION			Stack			BE LENGTH [ft]			C(p)						
-	DATE			5-0			OZZLE ID [inch]		FILTER I	BOX SETTING	325					
	OPERATOR(S			<u> </u>		9	%H ₂ Ο (Assumed)		PROBE	HTR SETTING	250					
	AMBIENT TEM						FILTER ID			T X-SECTION	circ ?	rect ?	other:			
-	BAR. PRESS.	[" Hg]	<u>ک</u> ,	$\hat{H} \cdot \mathcal{I}$	۵	]	<b>Ř</b> FACTOR	1.59	DUCT	DIMENSIONS		· ~~	283.53 ft ²			
	TRAVERSE	CLOCK	SAMPLE	STATIC	РІТОТ	METER DIFF	METER	METER			STACK	PROBE			METER E	YUAUET
	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX			
-	[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³]	j inlet	outlet	[°F]	[°F]	[°F]	[°F]	- [% vol]	[% vol]
		1255	0					912.40								
	-10.00		10		, TO	.1.10	3.5	977.96	76	ッナ	127	257	329	46	60	.14.1
	-33.33		20 -	<u>.482</u>	1.10	1.72	5	984.74	. 80	.74	126	251	331	46	5.9	.14.2
D	-67.50		30		1,15	1.80	Υ Λ	991.76	- 83	בר	125	256	329	49	5.8	14.3
-			-													
:					L.C.	RESTA	27	.991.90								
:	-10.00		40		1.73	1.15	3.5	497.58	82	ר	126	229	316	46	60	14.1
C	-33.33		50 -	.775	.1.10	- <b>\</b> . ] J	5	004.36	.84	- 76	125	252	329	44	5,9.	14.2
-	-67.50		60		.1.15	· 1.80	S	011.36	.86	77	123	254	155	46	5.9	14.2
								:								
;					L.C	REST	ART.	011.49								
	-10.00		70		-76	1.20	4	017.23	587	. 77	コンチ	254	ふんし	43	6.3	13.8
ß	-33.33		80 -	.636	1.10	1.72	5	024.06	82	- 77	123	251	328	39	6.3:	13.8
-	-67.50		90		1.15	1.80	2	531.07	·84	.78	124	256	330	41	· 6.2	13.9
•														-	<b>``</b>	
•					L.C.	RESTR	ART.	031.20	١.							
	-10.00		100		5	1.20	Ŧ	037.00	84	80	125	25-2	329	46	6.2	13.9
A	-33.33		110 ~	<u>،5۱۶</u>	1.10	1.72	2	043.82	87	80	125	248	329	46	6.0	14.1
	-67.50		120		1.15	1.80	<u>ہ</u>	050.84		- 81	125	250	332	46	6.0	14.1
i		1533												· · · · · · · · · · · · · · · · · · ·		
	AVERAGE			-0.521	0.987	1.561		78.04	80,	Z	124.8				6.0	14.)
	ور		Sa	mple Train		OK ft ³					Pitot Tube		<u> </u>	] in. I		
-	te i		Lea	ak Checks:	Post Test	$0 \leq ft^3$	@_ <u>\O</u> ir	n. Hg		*****	Leak Checks:	Post Test	<u> </u>	<u>)</u> in. I	-	

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TEST ID			ECON-			METER BOX		CAL. [	DATA: delta H		Comments:				
PLANT		s	CR/FGD PI	ant 4-#2	PI	TOT TUBE DESC	E-15		Y	0.987					
LOCATION		E	conomizer (			OBE LENGTH [ft]			С(р)						
DATE			1/26/0		, N	OZZLE ID [inch]	3/12°DIA 0.191'	FILTER	BOX SETTING	325					
OPERATOR(S	)		Gic/	MLF		%H ₂ O (Assumed)		PROBE	HTR SETTING	325					
AMBIENT TEN			75			FILTER ID		DUC	CT X-SECTION	circ ?	rect ?	other:			
BAR. PRESS.	[" Hg]		29.7	3		K FACTOR	0.632	DUCT	DIMENSIONS	2@25'x14.5'	DUCT AREA	725 ft ²			
TRAVEROF	01.001/						· · · · · ·								
POINT	CLOCK TIME	SAMPLE	STATIC PRES	PITOT HEAD	METER DIFF PRESSURE	METER VACUUM	METER READING			STACK	PROBE	FILTER BOX	LAST IMP		EXHAUST
[port-inch]	(24-hr)	[minute]	[" H ₂ 0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft ³ ]	inlet	outlet			[°F]		O ₂ [% vol]	
	837	0	L	1201	1 1201	rai	387,10	mer	outiet			r.1	[.]4		[% vol]
5		40		-0,64	0,40	3,0	890.59	-	76	691	325	1	/	· 3,8	110
		10	-443					.79				_/	65		16,2
0		20	-443		0,40	3.0	894.07	: 81	77	691	325		65	3.7	16.3
U		30		0.64	0.40	3,5	897.57	83	78	691	323		65	3,8	16.2
T		40 [·]	-4.50	0.62	0,39	4.0	901.04	85	79	691	320		64	3,7	16.3
Н		50		0.64	0.40	4.5	904.55	RG	81	691	320		63	3.7	16,3
		60		0.64	0.40	5.0	908.09	87	<u><u>S</u>I</u>	6.91	211		63	3.7	16.3
				POST	-South /	PRE-NOR		CHECK	or -	0.010	511. 11.				
								~//~ ~/~		0 0 10	179				
	944						908.30		[ ]						
N	<u>· / .</u>			-0.50	0.32	3.0	911.49	81	83	684	322		1-1	45	150
0		70	-1 3/1			4.0							67	-	15.6
		80	-4.34		0.32		914,69	88	83	684	323		63	4.4	15.7
R	-	90		0.50	0,32	4.0	917,88	89	84	684	317	· .	64	4,3	15,8
		100	-4.69	0.50	0,32	4.5	921.08	90	85	685	320		64	4.4	15,7
H		110		0.50	0.32	5.0	924.27	90	86	687	326		65	4,3	15.8
		120		0,50	0.32	5.0	927.48	91	86	.686	317		65	4.3	15.8
													42	- 7.2	13.0
											:	)-			
		1									······				
															<u> </u>
		l					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<del>,</del>					ļ		<u> </u>
AVERAGE			-4.47		0.359		10.17	84.	Ø	688				4.1	16.0
	<u>₩</u>	1	mple Train				n. Hg			Pitot Tube	PreTest	<b>0</b> @			
		Le: Contraction	ak Checks:	Post Test	ft ³	@_ <u>ˈ(O_</u> iı	n. Hg		*****	Leak Checks:	Post Test	@	<u>5</u> in. 1	H₂O	

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TEST ID			AHO-	4		METER BOX	JU-5	CAL. D	ATA: delta H	2.015	Comments:				
PLANT		s	CR/FGD PI			TOT TUBE DESC			Y	1.0!			· · · ·		
LOCATION			ater Outlet	ESP Inlet		BE LENGTH [ft]			C(p)						
DATE			1-95	<del>.</del>		OZZLE ID [inch]			SOX SETTING	325					
OPERATOR(S		100	LR D	/	3	6H ₂ O (Assumed)	·(-		ITR SETTING	325					0
		79.	-2			FILTER ID			T'X-SECTION	circ ?	rect ? DUCT AREA	other:		1 X(	- 7
BAR. PRESS.	[" H <b>g</b> ]	17.	10			K FACTOR	0.90	BUCI	DIMENSIONS		JUUCI AREA			05	
TRAVERSE	CLOCK	SAMPLE	STATIC	ρπότ	METER DIFF	METER	METER	METER	TEMP	STACK	PROBE	FILTER	LAST IMP		EXHAUST
POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING		F]	TEMP	TEMP	BOX	TEMP	0 ₂	CO ₂
[port-inch]	(24-hr) 835	[minute]	[" H _z 0]	[" H _z 0]	[" H _z 0]	[" Hg]	[ft²] 184.100	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
Δ.	and the second se	0			)/			<i>r</i> ~	<u></u>	. 302	202	YTNA	47	5.4	1113
A-1	843	10	in -	0.50	0.45	2.0	187.525	57	58		293	9104		<u> </u>	14.7
A-1	355	20	-1320.	0.49	0.44	2.0	190.892	57	58	30.2	. 293	ļ	47	5.4	14.1
A-1	Q35	30		0.47	0.42	2.0	174.345	59	. 60 .	304	291	ļļ	47		ļ
		æ	v .		)en	k chick 0	Lesinth								
	0910	,30					194.6.50								·
B-1	920	15040		.0.77	0.69	ふら	193.845	. 61	63	237	294	al 439 maana	51	4.6	15.6
3-1	930	T)		0.20	0.72	4.0	203. NS	. 65 -	65	301	2.89	rin-veç o si	49	4.5.	15.6
3-1	940	(j)		10.77	0.69	4,5	207.652	67	66	301	295		49	4.5.	15.6
	//					at clean		H a							12.3
	942	to			/-		207.800								
C-1	956	8570	1979 - 1940	0.82	.0.73	4.0	212.214	.68	68	278	313		52	· · ·	
Col	1006		-13.34	0.82	3.73	5.0	216,61	.70	69	.284	223	dia and a second	19	.4.6	15.5
C-1	1016.	10071	(7-97	0.02		5.0	221.023	. 70	70	· Z}S	281		52	4.6	15.5
	10160	1		0.000			2		.0					410	13,5
		120			14	il deet (	PEQ 7int								
-	62	120					.721.300								
D-1	1032	100		0.45	12:41	2.5	224.73	.71	.71	270	<u>288</u>		55	5.8	74.3
D-1	1242	110		0:45	.48	3.D	225,07	72	71	270	280	-	54	5.8	14.3
D-1	1052	120	-13.53	·6.41	.ij]	3.0	231,526	72	72	270	284	-	54	5.8	14.3
				<u> </u>			·				<u> </u>		<b>.</b>		
AVERAGE			-13.37	0.623	0.569		46.751	65	.9	ZB7.8				5.1	15.0
		Sa	ample Train	Pre Test	0.000 ft ³		n. Hg		-	Pitot Tub		OK @		H ₂ O	
		Le	ak Checks	Post Test	<u>0_000ft</u> 3	@ <u>7</u> i	n. Hg			Leak Checks	: Post Tes	<u>ok</u> @	<u>l</u> in.	H ₂ O	

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NOTE: Purge for 10 minutes at end of sampling.

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TEST ID			FGD-	4		METER BOX	N4	CAL.	DATA: delta H	1.983	Comments:			· • 3•	
PLANT		s	CR/FGD PI	ant 4	PI	TOT TUBE DESC	5-54			0.960					
LOCATION			FGD Inle	et	PRO	DBE LENGTH [ft]	6,			0.807					
DATE			26/03		4	OZZLE ID [inch]	133/16 0.185	FILTER	; BOX SETTING	325	-				
OPERATOR(	5)		JAN			%H ₂ O (Assumed)	7.6	PROBE	HTR SETTING	325					
AMBIENT TEI			60			FILTER ID			CT X-SECTION	circ ?	rect?	other:		]	
BAR. PRESS.	[" Hg]	Ž	9.7	5	J	K FACTOR	0,805 0,848	DÚC	T DIMENSIONS		DUCT AREA			-	
TRAVERSE	0.00%				<u></u> .		(5)						-		
POINT	CLOCK TIME	SAMPLE TIME	STATIC PRES	PITOT HEAD	METER DIFF PRESSURE	METER VACUUM	METER READING			STACK	PROBE	FILTER	LAST IMP		EXHAUST
[port-inch]	(24-hr)	[minute]	[" H₂0]	[" H ₂ 0]	[" H ₂ 0]	(" Hg]	[ft ³ ]	l inlet	oF] outlet	TEMP [°F]	TEMP [°F]	вох [°F]	TEMP [ [°] F]	0 ₂	CO ₂
	08:35	0		<u> </u>	1 201	L (191	441,00	inter	ouler	1.1	[,]	1,1	[ [,]	[% vol]	[% vol]
South	08:45	10	8.3	1.17	0.94	3.0	446,38	71	65	305	325	327	47	5,5.	14.6
	08:55	20	7	/	1	3.0	451.76	78	67	/	. 326	326	47	1	
	09:05	30	-(	- (		3.0	457.14	83	69		328	325		5.4	14.7
	69:15			}	1		462.51			//	324		51	5.4	14.7
	09:25	40 -	(	/	(	3.0		86	72			325	52	5,4	14.7
<u></u>	09:35	50				3.0	167.96	87	74		328	325	79	5.4	17.7
	0(, ))	60		(	<u> </u>	3-0	473.36	89	76		324	326	50	5.4	14.7
		leal c	lech:	ledd S.	kep	(	\$2.36								
				010	11										
North	09,55						473.60								
	10:05	70	8.6	0,82	0.70	3.0	478.44	84	78	285	321	325	.48	6.2.	13.9
	10:15	80	1	(	6	2.5	483.16	88	78	7	379	324	46	6.0 -	14,1
	10:25	90				2.5	487.95	90	80		329	325	47	6.1	140
	10:35	100		(	/	2.5	492-73	90	80		3歲7	326	49	6.0	14.1
	10:45	110		(	(	7.5	497.49	91	81		323	325	49	6,0	14.1
	10:55	120	)	j	$\rightarrow$	2.5	502.24	22	81	$\rightarrow$	323	326	49	5.9	14.2
							28.64					000			17.4
											:		 		
				1, 0)											ļ
			8.45	Mrs/	0 2 2		11.00					******	1		1.0 20
AVERAGE			-	0,987	0.82		61.00		80.4	295		- 11.4		5.73	14.38
	<u>z_</u>		mple Train	Pre Test	dend Stopft ³	@ <u>/v</u> ir @ / 2 ir	ז. <b>Hg</b> אומ			Pitot Tube		NA @		H₂O	
	B		k Checks:	Post Test	derd step ft3	<u>ir</u> ir	ь пд разветение			Leak Checks:	Post Test	<u></u> @		H ₂ O	
CONSOL	-NERGT.A	i- ner	ze ha	- 10 n	in ØA	H=1.0						NOTE	: Purge for 10	minutes at er	nd of sampling.

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	TEST ID			sтк - 🕽	2 TES	フォチ	METER BOX	N-3	CAL. D	ATA: delta H	1.982	Comments:				
	PLANT		s	CR/FGD PI	ant 4	Pl	FOT TUBE DESC	E-11		Y	<u>1.026</u>					
	LOCATION			Stack		PRO	BELENGTH [ff]			С(р)						
	DATE		1-2	<u>6</u> -C , B ++ 0 ++ 0	) 5		OZZLE ID [inch]			BOX SETTING	325				· ··· · · · · ·	
-	OPERATOR(S)		<u> </u>	<u>, B</u>	<u>. S .</u>	%	6H ₂ O (Assumed)			HTR SETTING	250			·		
:	AMBIENT TEM			<u>&gt;4</u>			FILTER ID			T X-SECTION	circ ?	rect ?	other:			
:	BAR. PRESS.	(" Hg]	L	173			K FACTOR	1.59	$\frown$				283.53 ft ²			
	TRAVERSE	CLOCK	SAMPLE	STATIC	ΡΙΤΟΤ	METER DIFF	METER	METER	 METER		STACK	PROBE			METER E	YHAUST
	POINT	TIME	TIME	PRES	HEAD	PRESSURE	VACUUM	READING	[o		TEMP	TEMP	BOX	темр	02	CO ₂
	[port-inch]	(24-hr)	[minute]	[" H₂0]	[" H ₂ 0]	[" H ₂ 0]	[" Hg]	[ft³]	inlet	outlet	[°F]	[°F]	[°F]	[°F]	[% vol]	[% vol]
		<u>0835</u>	0					056.80								
	-10.00		10		.76	1.20	2.5	062.56	5	حاحا	126	221	240	55	6.)	14.0
~	-33.33	w ;	20 -	·. 142	1.10	1.72	4.5	069.34	73	68	125	244	291	49	S.9	14.2
A	-67.50		30		-1,15	1.80	5	076.27	75	69	125	259	317	47	5.9	14.2
-																
					$\mathbf{X}, \mathbf{C}$	RESTA	IRT	076.40								
-	-10.00		40		576	1.20	3.5	082.12	74	20	127	255	328	46	6.1	14.0
0	-33.33		50 -	.809	1.10	ンンン	Ľ٦	088.93	78	1	127	258	333	79 ·	۱. ک	14.0
ß	-67.50		60		1.15	1.80	S	095.92	80	フム	127	250	332	50	6.0	14.1
-				•												
-					L,C.	REST	ART	096.05						-		
	-10.00		70 .		- 8 L	1.30	5	102.00	81	74	128	255	329	50	6.1	14.0
	-33.33		80 -	.650 .	1.10	1.72	5	108.88	83	75	126	257	331	ナナ	0.و/	.14.1
C	-67.50		90		115	1.80	2	115.91	85	76	127	258	232	++	0. یا	14.1
:					L, C.	RESTA	ART	116.04	<b>x</b>							
	-10.00		100		-16	1.20	4	121.84	83	76	126	251	327	44	0.يا	14.1
	-33.33		110 -	.635	1.10	1.72	న	128.67	60	78	127	256	330	46	5.9	14.2
0	-67.50		120		1.15	1.80	5	135.70	86	78	127	256	330	47	5.9	14.2
-		1057											:			
-	AVERAGE			6.709	1.001	1.58Z		78.51	76		126.5				6.0	14.1
:	<b></b>	100		ample Train							Pitot Tube		OK@	~	H ₂ O	
			Le	ak Checks:	Post Test	_ <u>_0 \</u> < ft³	@i	n. Hg			Leak Checks	Post Test	<u>oK@</u>	$\frac{1}{1}$ in.	H ₂ O	

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SCR/FGD Hg SAMPLING PROGRAM, PLANT 4 - ONTARIO HYDRO SAMPLING TRAIN DATA

Location		Econ Out	AirHtr Out	FGD Inlet	Stack		_	FGD Inlet				FGD Inlet		Econ Out	AirHtr Out		Stack
Date		Unit 2 01/24/2005	Unit 2 01/24/2005	01/24/2005	Unit 2		Unit 2 01/25/2005 0	Unit 2 1/25/2005 0			Unit 2 01/25/2005	Unit 2 31/25/2005 (	Unit 2 01/25/2005	Unit 2 01/26/2005	Unit 2 01/26/2005		Unit 2 01/26/2005
Start Time		1130	1130	1130	1130			900				1255		835	835		835
Stop Time		1341	1359	1345	1345	1109		1115		1304	AI.	1515	1533			1055	1057
Test Number Sample Type		ECON-1 OH-Hg	PHO-1 PH-HO	FGD-1 OH-Hg	STK-1 OH-Hg	ECON-2 OH-Hg		FGD-2 OH-Hg		ECON-3 OH-Hg	_	CHHG OHHG	STK-3 OH-Hg			PED-4	STK4 OHHg
Y factor of dry gas meter -		786.0	1.010	096.0	1.026	0.987		0.96.0		0.987		0.96.0	1.026	1	0	0.960	1.026
Gas Volume Delta H of dry gas meter	#, # H,0	41.92 0.41	41.92 42.86 64.18 0.41 0.48 0.97	64.18 0.97	75.40	39.86 0.36	43.32 0.48	59.25 0.82	76.28	40.94	49.15 0.61	59.10 0.79	78.04 1.56	40.17 0.36	46.75 0.57	61.00 0.82	78.51
Meter Temperature		71.3	62.4	71.8	74.7	73.2		72.9		84.3	76.3	83.9	80.2		65.9	80.4	76.1
C Factor of pitot tube	inchoe	0.838	0.846	0.835	0.806	0.838		0.835		0.838	0.846	0.835	0.806		0.846	0.835	0.806
A n (area of nozzle)		0.00020	0.00019	0.00019	0.00025	0.00020		0.00019		0.00020	0.00019	0.00019	0.00025		0.00019	0.00019	0.00025
Area of Stack (Single of Dual) - ft ²		725.0	544.4		283.5	725.0				725.0	544.4		283.5		544.4		283.5
	gm	78.1	15.6	99.D		83.7	72.4			78.7	87.3	98.3	245.8		85.9	105.4	256.4
Sample Time Barometric Pressure -	- Hg	021 29.92	28.82	021 29.92	120 29.92	071 29.79	021 29.79	62.62		29.76	23.76	021	29.76		17. 17. 17. 17. 17. 17. 17. 17. 17. 17.	021	27.62
Static Pressure	ч H ₂ 0	4.40	-12.97	8.50		4.60	-13.30			4.66	-13.31	9.00	-0.52		-13.37	8.45	-0.71
% Oxygen % Carbon Diovido		9.9 1 1	5.1	5.6	6 G F	4.4	0 10 10 10		6.0	3.5	5.3	5.6	6.0		5.1 5	5.7	9.0
% N ₂ + CO		80.0	0.01 0.67	80.0	6.67	79.9	6.67	79.9	19.9	80.1	79.8	6.67	79.9	29.9	79.9	1.9.9	6.67
Stack Temp (Dry Bulb) -	ĥ	682	286	219	125	673	280		125	675	285	295	125		288	295	127
Stack Temp (Wet Bulb) "S" sample (rms vet head) -	۴. ۲.	0 647	0.527	1 000	10 D 27	0 564	0.538	0 065	0 048	0 500	0.576	870 0	0 987	0 566	0.672	0.087	* 004
Dust Wt.	gm	5.4040	1.1700	0.0005	0.0080	5.3862	2.3996	0.0001	0.0055	5.6593	2.7024	0.0011	0.0081	6.0508	5.5082	0.0002	0.0040
Sample Volume	DSCF	41.14	43.78	61.29	76.64	38.81	44.39	56.20	77.09	39.01	48.66	54.87	78.11	38.26	47.15	56.95	79.11
ABS ST PRES	-Hg	29.60	28.97	30.55	29.87	29.45	28.81	30.43	29.74	29.42	28,78	30.42	29.72	29.40	1.435	30.35	₹ 8 8 8
ABS ST TEMP	çc	1142	746	679	585	1133	740	673	585	1135	745	755	585	1148	748	755	587
	vapor		U, 1		871	76	5 3	2.5	4771	20.0	2.7		47 20	2.0	2.7	9.U	7.51
Dry Molecular Weight	b/ib-mole	30.5	30.60	30.54	30.51	30.72	30.58	30.53	30.50	30.76	30.60	30.54	30,50	30.72	30,60	30.53	30.50
Wet Molecular Weight	lb/lb-mole	29.72	29.66	29.65	28.91	29.55	29.68	29.66	28.92	29.66	29.61	29.57	28.88	29.62	29.61	29.53	28.84
% EXCESS AIR		20.5	31.9	36.1 1 9 2 9	38.8	24.1 N 908	33.6 0 929	37.0 0.920	39.8	19.8	33.6	36.1 1 977	39.8 0 871	24.1	31.9	37.0	39.8
Wet Mole Frac.		0.082	0.075	0.071	0.128	0.092	0.071	0.070	0.126	0.087	0.078	0.078	0.129	0.087	0.079	0.080	0.132
Gas Velocity, Direct	ft/sec	65.65 2 0 0 0 0 0 0 0		61.81	76.64	61.39	49.33	60.56	60"11	62.76 2 720 000	55.58	63.66	78.11	61.89	53.51	65.09	79.11
DSCFM	÷	2,000,000,2		1 012 944	1,503,784	2,5/U,524 1 111 988	1,028,839	U 1 028 839	1 027 702	2,730,058 1 140 529	2/C'CL2(1)	U 1 141 944	1,328,192	2,692,060 1 110 785	1, 147, 528	U 1 092 071	1.040,803
DSCFM (rounded)	<del>,</del> .	1,199,300	1,012,900	1,012,900	1,025,100	1,112,000	1,028,800	1,028,800	1,027,700	1,140,500	1,141,900	1,141,900	1,037,900	1,110,800	1,092,100	1,092,100	1,042,600
DSCMM Evenes Air Even DSCFM		33,964	28,687	28,687	29,032	31,492	29,137	29,137	29,105	32,300	32,340	32,340	29,394	31,457	30,927	30,927	29,526
CALCULATED FIRING RATE:		40.1'7 <u>26</u>	5	ccc, 147		10,000	105,101	047 ⁴ 04 J	900'70'		005'700	505,000	105'501	1000'7500	toninzo	CCT HE	COTICAL
	lb/min	7,413	5,719	5,538	5,494	6,758	5,806	5,657	5,539	7,179	6,444	6,320	5,594	699'9	6,167	5,932	5,552
	ib/hr	700',		332,257	329,666	405,461	0,034 348,346	339,414	332,348	430,720	386,642	379,206	335,659	400,156	369,997	355,946	333,115
Wet	lb/hr	453,090	349,511	338,451	335,812	411,594	353,615	344,548	337,375	437,235	392,490	384,942	340,736	406,704	376,051	361,771	338,566
CALCULALED FIKING KALE: Dry	tons/hr	222.4	171.6	166.1	164.8	202.7	174.2	169.7	166.2	215.4	193.3	189.6	167.8	200.1	185.0	178.0	166.6
Wet	tons/hr	226.5	174.8	169.2	167.9	205.8	176.8	172.3	168.7	218.6	196.2	192.5	170.4	203.4	188.0	180.9	169.3
MEAT INFUT: MM Btu/hr		6.122	4.723	4.573	4.538	5.540	4.759	4.637	4.541	5,885	5.283	5.181	4.586	5.507	5.092	4.898	4.584
PARTICULATE LOADING:					-									•			-
Grains/DSCF		2.0267	ç	0,0001	0.0016	2.1415	0.8340	0.0000	0.0011	2.2386	0.8569	0,0003	0.0016	2.4405	1.8024	0.0001	0.0008
IbMM Btu -		3.40	92.0	0.00	0.00	3.69	1.55	0.00	0,00	3.72	1.59	0.0	0.00	4.22	3.32	0.00	00.0
Ash Production	lb/hr	37,363	~	27,910	27,692	35,235	30,271	29,495	28,881	37,430	33,599	32,953	29,169	33,133	30,636	29,472	27,582
Bagouse Ash Bottom Ach		20,841		1 000	14 27 £70	20,419	7,357	0 100	10	21,891	8,390	30 050	14.24 20.455	23,245	16,878	1	6,97 97 575
Percent Fly Ash		55.8%		%0.0	0.1%	58.0%	24.3%	%0.0	%0.0	58.5%	25.0%	0.0%	0.0%	70.2%	55.1%	%0.0	%0.0
" ISOKINETIC		104.28	101.84	100.12	70.79	106,09	101.67	93.14	71.03	103.97	100.40	97.84	71.27	104.69	101.73	96.70	71.85
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Impinger Components Wts & Volumes	ECON-1	AHO-1	FGD-1	STK-1	ECON-2	AHO-2	FGD-2	STK-2	ECON-3	AHO.3	FGD-3	STK-3	ECON-4	AHO-4	FGD4	STK-4
Filter Wt., g	5.4040	1.1700	50005	0.3278	5.3862	2.3996	0.0001	0.3375	5.6593	2.7024	0.0011	0,3303	6.0508	5.5082	0.0002	0.3297
ppb Hg	17	283			15	653	<5.0		16	314	\$5.0	5.0	19	379	8.8	\$5.0
total ug	0.09	0.33		5.00	0.08	1.57	<5.00E-03		0.09	0.85	<5.00E-03	<5.00E-03	0.11	2.09	<5.00E-03	<5.00E-03
ug/dscm	0.08	0.27			0.07	1.25	<3.14E-03	<2.29E-03	0.08	0.62	<3.22E-03	<2.26E-03	0.11	1.56	<3.10E-03	<2.23E-03
											•					
Prope Kinse volume, mi	182	160		109	0/1	126	101	001	198	123	32	117	166	128	104	116
Analytical Hg, ng/mi	<u>0</u> ₽	1.6	1.5	1.7	₹ 10	÷	₽. V	1.7	<u>0</u> . V	0.12	07	Q.1.0	Q.1. 2	4.0	1.0	1.9
ug/dscm	<0.16	0.21	0.09	60'0	<0.15	0.11	<0.06	0.08	<0.18	60.0>	<0.06	<0.05	<0.15	<0.10	<0.05	0.10
Heated Umbilical Line Rinse volume, ml	121	148	109	AN	38	209	88	Ą	106	130	121	AN	88	129	88	AN
Analytical Hg, ng/ml	1.7	2.5	0.15		3.5	1.5	2.1		1.3	1.1	2.6		22	2.6	1.4	
ug/dscm	0.18	0.30	<0.06		0.31	0.25	0.12		0.12	0.10	0.20		0.18	0.25	0.08	
KCi volume, mi	523	524			539	523	535	672	525	529	543	687	522		550	869
Analytical Hg, ng/ml	12.1	15.3			11.5	14.3	23.0	6.0	11.9	16.6	24.7	20.2	8.8		18.2	0.2
ug/dscm	5.43	6.47		<0.12	5.64	5.95	7.73	0.28	5.66	6.37	7.58	<0.05	4.24	4.90	6.21	<0.06
Nitric/Peroxide volume, mi	175	175			175	175	177	183	176	176	175	176	175	175	175	175
Analytical Hg, ng/ml	2.7	0.2			0.2	<u>40.2</u>	010	<0.20	40.2	40.2	Q 10	<0.20	0.3	<0.2	<0.2 40.2	<0.20
ug/dscm	0.41	<0.03			0.03	<0.03	<0.02	<0.02	<0.03	<0.03	<0.02	<0.02	0.05	<0.03	<0.02	<0.02
	274	245			946		ų	170		010	070	1			140	1
	147		1+7 7	***	9 <del>;</del>	ţ	ą :	2	<del>1</del>			241		747	147	147
	2'n' '			2.2	0.5				2			5			7.0	4
ng/ascm	4.09	\$0.05		0.10	4.43	0.08	0.03	0.08	3.08	0,15	<0.03	0.07		\$0.0¥	0,03	0,04
KMnO4-Acid Rinse volume. ml	100	100		100	100	1001	100	100		100	100	100	10		100	
Analytical Ho. no/mi	1	1.5		20				14		v V	- -	÷		10		V
ug/dscm	60.0×	0.12	0.08	<0.05	50 [.] 0⊽	60.0	0.08	0.06	0.13	20.0≻	0.07	0.05	0.14	ľ	60.0	v
											·					
Particutate, ug/m ³	670,0	0.267	2.88E-03	2.30E-03	0.074	1.245	3.14E-03	2.29E-03	0.082	0.616	3.22E-03	2.26E-03	0.106	1.563	3.10E-03	2.23E-03
Particulate, mg/sec	0.0331	0.1227	1,37E-03	1.11E-03	0.0316	0.5774	1.49E-03	1.11E-03	0.0344	0.2881	1.54E-03	1.11E-03	0.0463	0.7255	1.50E-03	1.10E-03
Percent of Total	0,76	3.60	0.04	0.61	0.68	16.09	0.04	0.44	0.88	8.29	0.04	0.89	1.25	22.50	0.05	0.84
Oxidized Fraction, ug/m ³	5.76	6.97	7.18	0.21	6.11	6.31	7.91	0.35	5.96	6.57	7.85	0.12	4.57	5.25	6.35	0.16
Oxidized Fraction, mg/sec	2.4182	3.2022	3.4043	0.101	2.6272	2.9227	3.7620	0.172	2.5000	3.0720	3.7437	0.056	1.9954	2.4351	3.0622	0.079
Percent of Total	55.29	93.86	98.19	55.71	56.89	81.42	98.29	68.69	64.25	88.43	98.39	45.20	53.67	75.51	97.71	60.12
Elemental Fraction, ug ²	4.58	0.19	0.13	0.16	4.55	0.19	0.13	0,16	3.23	0.24	0.13	0.14	3.84	0.14	0.15	0.10
Elemental Fraction, mg/sec	1.9226	0.0365	0.0613	0.079	1.9595	0.0894	0.0641	0.077	1.3568	0.1138	0,0598	0,067	1,6765	0.0641	0.0701	0.051
Percent of Total	43.96	2.54	1.77	43.68	42.43	2.49	1.67	30.86	34.87	3.28	1.57	53.91	45.09	1.99	2.24	39.04
Total ug/m ³	10.43	7.43	7.31	0.38	10.73	7.75	8.05	0.5166	9.28	7.42	7.98	0.2544	8.52	6.95	6.50	0.2673
Total mg/sec	4.3739	3.4117	3.4670	0.182	4.6183	3.5896	3.8276	0.251	3.8912	3.4739	3.8050	0.12	3.7182	3.2247	3.1338	0.132
									•	•		F		,		•

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FGA in Aitot Survey Offeet = 36"

1/24/05

North Port w/ offict 11

64 16 52" 5 " 44 30'

Static = 8,56 " Angle 285 F 0,8557 0° .) () 2-86 0,8460 0 285 (175 285 Ø,

South Port

64 28" 16" 58 " 5" Y1 " 30

Spakie = 8,51;

 $\mathcal{D}^{o}$ 

 $\partial^{2}$ 

 $o^{2}$ 

150°F 1,195 157°F 1.080 153°F 1,10 152

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,		Axial Flo	w Check			
Location Stat		יי חו <u>י</u>		Barometric Static	29.65	<u> </u>
			ft ²			
Time <u>1400-</u>		Агеа	IL	Dry Bulb		
Tube I.D. <u><u></u></u>	<u>53</u> %O ₂		<b>.</b>	Wet Bulb	<u> </u>	
C-Factor K.C.	<u>B.S.</u> % CO	-		% H ₂ 0		
Operator <u>(s)</u>	% N ₂	· · · · · · · · · · · · · · · · · · ·		W.M.Wt		
POR	RT/ DISTA	NCE   TEMP	DELTA P	VELOCITY	Null	1
POI	NT [" From	Wall] [°F]	[" H₂O]	[Ft/Sec]	Angle	
A-1	1 10.	0 127.1		.7500		
A-2	2 33.	3 124.1		1.281		] _
A-3	3 67.	5 124.0	2 C	1.361		
						1
B-1	1 10	)				]
B-2	2 33.	3				1
B-3	3 67.	5				1
						1
C-1	1 10	)				1
C-2	2 33.	3				.]
C-3	3 67.	5				1
						1
D-1	1 10	)				
D-2	2 33.	3				1
D-3	3 67.	5			· · ·	1

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Average Maximum

Minimum SDEV

 $h \geq 1$ 

.4486

DATA SUMMAR	Y	
Velocity, [fps]		
acfm		
scfm		
dscfm		
Ex Air Free cfm		
Est. MM Btu/hr Heat Input		
Est. Firing Rate, Ib/hr		

# **APPENDIX B**

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Plant Process Data

#### CONSOL Energy - DOE / EPRI Mercury Tests

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### Plant 4 Operating Data - Unit 1 (1/19/05 - 1/21/05)

Description	Units	Test # 1	Test # 2	Test # 3	Test # 4
Total Coal Flow	TPH	168.1	163.7	162.2	168.0
Gross Generation	MW	460	460	458	459
Feedwater Flow	KLBH	3125.41	3091.33	3063.07	3134.92
Main Steam Flow	KLBH	3343.78	3344.49	3325.81	3337.82
Feedwater Pressure	PSIG	2826.4	2824.7	2818.6	2822.2
SH Outlet Pressure	PSIG	2547.6	2548.7	2545.7	2544.2
Economizer Gas Out Temp	deg F	709.9	716.2	720.4	723.2
Air Heater Gas Out Temp	deg F	280.5	284.0	288.0	285.3
Economizer Outlet O2	%	3.30	3.38	3.33	3.35
FGD Inlet Temp	deg F	280.0	282.0	296.0	284.0
FGD Blowdown Flow	GPM	~ 1000	~ 1000	~ 1000	~ 1000
FGD ME Wash Flow	Gallons	11660	14625	26325	0
FGD Makeup Water Flow	Gallons	2992	3658	3995	3000
FGD Additive Feed Flow	GPM	112	94	99	88
FGD Inlet SO2	PPM	885	814.2	769.6	654
FGD Inlet NOx	PPM	- -			
Stack Temp	deg F	121.2	122.5	122.1	122.9
Stack SO2	PPM	156.9	146.8	141.2	118.4
Stack NOx	PPM	220.0	254.6	266.8	248.4
Stack O2	PPM	6.1	5.85	5.85	5.8
Stack CO2	PPM	11.5	11.5	11.6	11.4
Stack Gas Flow	SCFM	1126500	1144 <b>4</b> 46	1139283	1137875

### CONSOL Energy - DOE / EPRI Mercury Tests

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#### Plant 4 Operating Data - Unit 2 (1/24/05 - 1/26/05)

Description	Units	Test # 1	Test # 2	Test # 3	Test # 4
Total Coal Flow	TPH	160.8	163.2	162.4	161.4
Gross Generation	MW	459	458	458	457
Feedwater Flow	KLBH	2,965.1	3,024.9	3,002.4	3,010.1
Main Steam Flow	KLBH	3,288.2	3,288.0	3,288.0	3,285.7
Feedwater Pressure	PSIG	2,761.5	2,765.9	2,765.0	2,763.2
SH Outlet Pressure	PSIG	2,533.3	2,534.0	2,534.4	2,532.3
Economizer Gas Out Temp	deg F	693.7	682.4	687.5	700.5
Air Heater Gas Out Temp	deg F	280.2	276.8	281.1	284.4
Economizer Outlet O2	%	3.20	3.24	3.19	3.19
SCR NH3 Feed Rate	LBH	220	238	236	256
FGD Inlet Temp	deg F	294	291	295	296
FGD Blowdown Flow	GPM	1,000	979	987	965
FGD ME Wash Flow	Gallons	56,000	61,600	56,000	56,000
FGD Makeup Water Flow	Gallons	0	0	0	0
FGD Additive Feed Flow	GPM	79.5	114.0	105.5	89.8
FGD Inlet SO2	PPM	840	769	735	621
FGD Inlet NOx	PPM				
Stack Temp	deg F	122.3	122.7	122.3	123.4
Stack SO2	PPM	70.8	56.0	53.3	54.7
Stack NOx	PPM	83.7	85.2	89.4	86.9
Stack O2	PPM				
Stack CO2	PPM	11.6	11.7	11.8	11.4
Stack Gas Flow	SCFM	1,111,992	1,129,667	1,123,488	1,143,206

# **APPENDIX C**

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# Flue Gas Mercury Data

- Summary of Ontario-Hydro Impinger Analyses Data Sheets
- Recovery Data Sheets

Logie Distribution: They Unit 1 Project No.: Sample Date: 0.5 Lac Location: Econ Out Task: Test: Operator: Initial Vol Total ug **Rinse Vol** Gain Final Vol ppb Hg Sample ID Bottle # Description of Hg mL mL mL mL Filter/Solids s 177 Probe & Filter Rinse 1 1A Heated Line Rinse 75 2 1B 300 150 87 <u>537</u> З KCI Impingers 2 174 4 HNO₃/H₂O₂ Impinger 75 3 100 50 - 6 244 5 4 KMnO₄ Impingers 200 100 6 5 KMnO₄ Acid Rinse 00 Filter Gross wt: 6.9257g Filter Tare wt: 1.5262g Filter Net wt: 5. 2995 g Probe/Line Rinse wt: Condensate Total: 90.7 ml ø Filter Net wt: 5.2995 g Total Particulate wt: 5.299.5g 1-19.05 Date: Recovered By: emit Location: AHO Task: Test: 1 Operator: Initial Vol **Rinse Vol** Gain Final Vol Total ug Sample ID Bottle # ppb Hg Description of Hg mL mL mL mL 9 s Filter/Solids 143 Probe & Filter Rinse 1A 98 Heated Line Rinse 8 1B Ĝ KCI Impingers 300 50 78 528 2 75 50 174 10 3 HNO₃/H₂O₂ Impinger 100 243 200 7 4 KMnO₄ Impingers 11_ KMnO₄ Acid Rinse 12 5 00 100 Filter Gross wt: 3.4433 g Filter Tare wt: 1.8058 g Filter Net wt: 1.6375 g Condensate Total: 75. 4 ml Probe/Line Rinse wt: Total Particulate wt: 7.6375 g Filter Net wt/. 6375g Date: 1-19-05 Recovered By: rhit Task: Location; FGD In Test: Operator: Initial Vol Rinse Vol Final Vol Gain Total ug Sample ID Description ppb Hg Bottle # mL mL mL mL of Hg S Filter/Solids 17 1A Probe & Filter Rinse £4 /3 84 14 -18 Heated Line Rinse 300 <u>559</u> 150 2 KCI Impingers 10 75 100 3 HNO₃/H₂O₂ Impinger o200 50 - 6 4 KMnO₄ Impingers 244 KMnO₄ Acid Rinse 100 100 8 5 Filter Gross wt: D. 1499 g Filter Net wt: 0.0024 g ð Condensate Total: // 4 / ml Probe/Line Rinse wt: Filter Tare wt: 0.1475 Total Particulate wt: 0.0024 g Filter Net wt: 0.002 9 g Date:_/-/9- 05 Recovered By Zint Kizh Location: Stack Task: Test: Operator: Rinse Vol Initial Vol Final Vol Total ug Gain Sample ID Bottle # Description ppb Hg of Hg mL mL mL mL 23 s Filter/Solids 19 Probe & Filter Rinse /0 1A 1B **Heated Line Rinse** 680 20 300 50 230 2 KCI Impingers 100 21 3 HNO₃/H₂O₂ Impinger 75 حر 245 22 4 KMnO₄ Impingers 200 50 5 23 5 KMnO₄ Acid Rinse 00 100 Filter Gross wt: - 4046 Filter Net wt: 0.0002, g α Filter Tare wt: 0. 7067 Probe/Line Rinse wt: _____g Condensate Total: 237.2 ml g Filter Net wt: 0.0002g Total Particulate wt: o. ooo2 g Date: 1-19-05 Recovered By: Total ug Sample ID Description ppb Hg of Hg 3 in. Filter Blank Thimble Blank 24 KCI Blank

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<u>26</u> 27 HNO₃ / H2O2 Blank KMnO₄ Blank

HNO₃ / HCI Blank

chit 1

Distribution:	Hathum - Locke	
Project No.:	1621-87	
Sample Date:	1-20-05	

w 24 Location: Econ Out Task:

Operator: Sand 2

Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids 2						
28	1A	Probe & Filter Rinse		:		188		
29	1B	Heated Line Rinse				111		
30	2	KCI impingers	300	150	87	537		
3/	3	HNO ₃ /H ₂ O ₂ Impinger	/00	75	0	175		
32	4	KMnO ₄ Impingers	200	50	-4	246		
33	5	KMnO ₄ Acid Rinse		100		100		

Test:

Filter Tare wt: <u>7639</u> Filter Net wt: <u>657639</u>

Probe/Line Rinse wt: _____g Total Particulate wt: 6.5763 g

Condensate Total: 91.5 ml

Date:

1-20.05

Ω Recovered By:

Location;	АНО	_ Task: _ / .	Test:	_2_	Operator	Jem		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Galn mL	Final Vol mL	ppb Hg	Total ug of Hg
	s	Filter/Solids /o						
34	1A	Probe & Filter Rinse				120		
35	1B	Heated Line Rinse				104		
36	2	KCI Impingers	300	150	74	524		
37	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	- 2	173		
38	4	KMnO ₄ Impingers	200	50	- 8	242		
39	5	KMnO ₄ Acid RInse		100		/00		

Filter Gross wt: 2.3274 g Filter Tare wt: 1.629.3 g Filter Net wt: 0.6981g Filter Net wt: <u>0.698/g</u> Probe/Line Rinse wt: <u>6</u>g Total Particulate wt: <u>6.698/g</u>

Condensate Total: 7/.7 ml

Qu Recovered By:___

Recovered By:	Qu				Date:_/-	20-0	5
Location	: FGD In	Zmit Task:	<u>.</u> Test:	2	Operator	fift	
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	
	S	Filter/Solids /8					
40	1A	Probe & Filter Rinse				77	
41	_1B	Heated Line Rinse				80	
42	2	KCI Impingers	300	150	105	555	
43	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175	
44	4	KMnO ₄ Impingers	200	50	-7	243	
45	5	KMnO₄ Acid Rinse		100		100	

Filter Gross wt: Filter Tare wt: Filter Net wt: Control of the second sec

Recovered By:

Filter Net wt: 0.0004 g Probe/Line Rinse wt: _____ g Total Particulate wt: 0.060 4 g

Condensate Total: 107.5 ml

1-20-05 Date:

2hit ĺ Location: Stack Task: Test: Operator: Keith Initial Vol Rinse Vol Gain Final Vol Total ug Sample ID Bottle # Description ppb Hg mL тL mL mL of Hg s Filter/Solids 24 105 46 1A Probe & Filter Rinse * ----1B Heated Line Rinse 683 233 47 300 2 KCI Impingers 50 48 75 50 HNO₃/H₂O₂ Impinger 100 2 177 3 200 49 KMnO₄ Impingers 4 246 4 *** KMnO₄ Acid RInse 50 5 100 100

Filter Gross wt: 6. 7/ 46 g Filter Tare wt: 6. 4/ 16 g _g Filter Net wt: 0.0030 g

Filter Net wt: 4.6030 g Probe/Line Rinse wt: _____g Total Particulate wt: _____g

Condensate Total: 243.3 ml

Recovered By:_ 1 Date: 1-20-05

Sample ID	Description	ppb Hg	Total ug of Hg
	3 in. Filter Blank		
	Thimble Blank		
	KCI Blank		
	HNO ₃ / H2O2 Blank		
5/	KMnO₄ Blank		
	HNO ₃ / HCI Blank		

|75 243 100

ppb Hg

Total ug

of Hg

emit 1

				Um	5/			
Distribution: Project No	With 122	in - Locke	<u>-</u>					
Sample Date:	1-20	0-05	-					
Location:	Econ Out	Task: 1	Test	3	Operator:	Glory	_	
Sample ID	Bottle #	Description	initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids 3		<u> </u>		1	ļ	
<u>52</u> 53	1A 1R	Probe & Filter Rinse				170		<u> </u>
54	1B 2	Heated Line Rinse KCI Impingers	300	150	76	524		+
55	3	HNO ₃ /H ₂ O ₂ Impinger	160	7.5	0	175		
56	4	KMnO₄ Impingers	200	50	-5	245		
57 Filter Gross wt: Filter Tare wt: Filter Net wt:	1.6452g	Probe/Line Rinse wt:			insate Total;	/00 77.3	 _mł	ļ
Recovered By:_	Ju				Date: <u>/</u> -	20.05	-	
Location:	и <u>ано</u>	Zent	Test:	3	Operator:	Juni		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain 4 mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids //						
58	1A	Probe & Filter Rinse				121		
59 60	1B	Heated Line Rinse	300	150	73	//8 523		
61	2	KCI ImpIngers HNO₃/H₂O₂ Impinger	/00	75	0	175		
62	4	KMnO ₄ Impingers	200	50	-4	246		· · · ·
63	5	KMnO₄ Acid Rinse		100		100	• •	
Filter Gross wt: Filter Tare wt: Filter Net wt Recovered By:_	/. 4/ 78 g 2• / 345 g	Probe/Line Rinse wt: Total Particulate wt:	<u></u>	Conde		74.0 20- 0.		
Location:	FGD In	Task:	Test;		Operator:	Jeff.		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
64	<u> </u>	Filter/Solids /9				135		
65	<u>1A</u> 1B	Probe & Filter Rinse Heated Line Rinse				12		
6.2		neated Line Milae				// m		
66		KCI Impingers	366	150	11/2			
66	2	KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	300	/50 75	114	566		
66 67 68	2	KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers	300	/50 75 50	- 3			
66 67 68 69	2 3 4 5	HNO ₃ /H ₂ O ₂ Impinger	/00	75	<i>i</i> 1			
66 67 68 29 Filter Gross wt: Filter Tare wt: Filter Net wt:	2 3 4 5 • · /5 { } g • · /4 7 3 g	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	/00 200	75 50 /00	- 3 nsate Total:	566 176 247		
66 67 68 29 iller Gross wt: Filter Tare wt: Filter Net wt:	$2$ $3$ $4$ $5$ $\circ ./5 ( \{ g \ g \ o, /4 7 3 \ g \ o, / 5 \ g \ g \ g \ g \ g \ g \ g \ g \ g \$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt:	/00 200	75 50 /00		566 176 247 100 124.9	5	
66 67 68 7 7 7 11ter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:_	$2$ $3$ $4$ $5$ $\circ ./5 ( \{ g \ g \ o, /4 7 3 \ g \ o, / 5 \ g \ g \ g \ g \ g \ g \ g \ g \ g \$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	/ 0 0 2 0 0 0. 0// 3 g 0. 0// 3 g 0. 0// 5 g	75 50 /00 Conder		566 176 247 100 124.9 28-03	5	Total ug of Hg
66 67 68 29 Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location:	2 3 4 5 0 · /5 (8 g 0 · /7 7 g 0 · / / 5 g J Stack Bottle # S	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task:	/ 0 0 2 0 0 0 0 // 5 0 0 0 0 0 0 // 5 0 Test:	75 50 / 20 Conder 3 Rinse Vol		544 176 247 100 124.9 28-03 Keith Final Vol	5	
66 67 68 29 Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location:	$2$ $3$ $4$ $5$ $0 \cdot / 5 (8 g$ $0 \cdot / 7 3 g$ $2 \circ / / 5 g$ $\int$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse	/ 0 0 2 0 0 0 0 // 5 0 0 0 0 0 0 // 5 0 Test:	75 50 / 20 Conder 3 Rinse Vol		544 176 247 100 124.9 28-03 Keith Final Vol	5	
66 67 68 29 Wilter Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID	$2$ $3$ $4$ $5$ $0 \cdot / 5 (8 g$ $0 \cdot / 7 3 g$ $2 \circ / / 5 g$ $\int$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse	/ 0 0 2 0 0 0 0 // 5 0 0 0 0 0 0 // 5 0 Test: Initial Vol mL	75 50 / 20 Conder 3 Rinse Vol mL		544 176 247 180 124.9 28-03 Keith Final Vol mL	5	
66 67 68 29 Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID 20 7/	$2$ $3$ $4$ $5$ $\circ ./5 (f g)$ $\circ ./773 g$ $2 \circ ./75 g$ $J \sim$ Stack Bottle # S $1A$ $1B$ $2$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers	/ 0 0 2 0 0 0 0 // 5 0 0 0 // 5 0 0 0 // 5 0 Test: Initial Vol mL 3 & ⇔	75 50 / 30 Conder 3 Rinse Vol mL		544 176 247 100 124.9 28-05 Keith Final Vol mL 111  684	5	
66 67 68 69 iller Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID 70 7/ 72	$2$ $3$ $4$ $5$ $\circ ./5 (f g)$ $\circ ./773 g$ $2 \circ ./75 g$ $J \sim$ Stack Bottle # S 1A 1B 2 3	HNO ₃ /H ₂ O ₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	/ 0 0 2 0 0 2 0 0 0 9 0 0//5 9 Test: Initial Vol mL 3 & 0 / 0 0	75 50 / 20 Conder 3 Rinse Vol mL / 50 75	/ 3 nsate Total: Date: /- Operator: Gain mL 	5 4 4 176 247 100 124.9 2.5-05 KerTh Final Vol mL 111 - 684 175	5	
66 67 67 29 Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID 20 7/	$2$ $3$ $4$ $5$ $0 \cdot / 5 (8 g$ $0 \cdot / 7 3 g$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers	/ 0 0 2 0 0 0 0 // 5 0 0 0 // 5 0 0 0 // 5 0 Test: Initial Vol mL 3 & ⇔	75 50 / 20 Conder 3 Rinse Vol mL / 50 75 50		5 4 4 176 247 100 124.9 20-00 Kesth Final Vol mL 111 	5	
66 67 67 68 29 7 7 7 7 8 8 8 8 8 8 8 9 1 1 1 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	$ \begin{array}{c} 2 \\ 3 \\ 4 \\ 5 \\ 6 . / 4 7 3 \\ 9 \\ 6 . / 4 7 3 \\ 9 \\ 6 . / 1 5 \\ 9 \\ 9 \\ 9 \\ 1 \\ 1 \\ 1 \\ 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 0 \cdot 4 / 5 \\ 9 \\ 7 \cdot 4 / 7 \\ 9 \\ 9 \\ 7 \cdot 7 \\ 9 \\ 9 \\ 9 \\ 7 \cdot 7 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ 9$	HNO ₃ /H ₂ O ₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	/ 0 0 2 0 0 0 0// 5 g 0 g 0 0// 5 g Test: Initial Vol mL 3 & 0 / 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0	75 50 / 20 Conder 3 Rinse Vol mL / 50 75 50 / 00 Conder	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	5 4 4 176 247 100 124.9 2.5-05 KerTh Final Vol mL 111 - 684 175	ppb Hg	
66 67 67 68 29 7 Filter Gross wt: Filter Tare wt: Filter Net wt: Cocation: Cocation: Cocation: 20 7/ 72 71 72 73 74 Filter Gross wt: Filter Gross wt:	$ \begin{array}{c} 2 \\ 3 \\ 4 \\ 5 \\ \circ . / 5 (8 \\ 9 \\ \circ . / 7 \\ 3 \\ 9 \\ \circ . / 1 \\ 5 \\ 9 \\ 9 \\ 0 \\ 1 \\ 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 0 \\ . / 1 \\ 5 \\ 0 \\ . / 2 \\ 9 \\ 9 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\ . 0 \\$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Total Particulate wt: Total Particulate wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt:	/ 0 0 2 0 0 0 0// 5 g 0 g 0 0// 5 g Test: Initial Vol mL 3 & 0 / 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0	7.5 50 / 20 Conder 3 Rinse Vol mL / 50 7.5 50 / 25 50 / 25 50 / 25	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	$5 \frac{4}{176}$ $\frac{7}{176}$ $\frac{247}{100}$ $\frac{124.9}{124.9}$ $\frac{124.9}{124.9}$ $\frac{124.9}{11}$ $\frac{111}{11}$ $\frac{684}{175}$ $\frac{245}{150}$ $\frac{241.4}{11}$	ppb Hg	Total ug of Hg
66 67 67 68 67 69 70 79 10 10 10 10 10 10 10 10 10 10 10 10 10	2     3     4     5     5     6 . / / 7.3 g     9     6 . / / 7.3 g     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9     9	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: 9	/ 0 0 2 0 0 2 0 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0	7.5 50 / 20 Conder 3 Rinse Vol mL / 50 / 50 / 50 / 50 / 50 / 50	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	$5 \frac{4}{176}$ $\frac{7}{176}$ $\frac{247}{100}$ $\frac{124.9}{124.9}$ $\frac{124.9}{124.9}$ $\frac{124.9}{11}$ $\frac{111}{11}$ $\frac{684}{175}$ $\frac{245}{150}$ $\frac{241.4}{11}$	ppb Hg	
66 67 67 68 67 69 70 79 10 10 10 10 10 10 10 10 10 10 10 10 10	2     3     4     5     0 . /5 (8 g     0 . /473 g     10	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: o Probe/Line Rinse wt: Total Particulate wt: o Description n. Filter Blank himble Blank	/ 0 0 2 0 0 2 0 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0	7.5 50 / 20 Conder 3 Rinse Vol mL / 50 7.5 50 / 25 50 / 25 50 / 25	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	$5 \frac{4}{176}$ $\frac{7}{176}$ $\frac{247}{100}$ $\frac{124.9}{124.9}$ $\frac{124.9}{124.9}$ $\frac{124.9}{11}$ $\frac{111}{11}$ $\frac{684}{175}$ $\frac{245}{150}$ $\frac{241.4}{11}$	ppb Hg	
66 67 67 68 67 69 70 79 10 10 10 10 10 10 10 10 10 10 10 10 10	2     3     4     5     0 /5 (8 g     0 /7 3 g     0 / 5 g     0 / 5 g     0 / 5 g     0 / 5 g     0 / 5 g     1A     1B     2     3     4     5     0 // 5 3 g     0 // 5 g     1 // 5 g     0 // 5 g	HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: 0 Description n. Filter Blank KCI Blank	/ 0 0 2 0 0 2 0 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0	7.5 50 / 20 Conder 3 Rinse Vol mL / 50 7.5 50 / 25 50 / 25 50 / 25	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	$5 \frac{4}{176}$ $\frac{7}{176}$ $\frac{247}{100}$ $\frac{124.9}{124.9}$ $\frac{124.9}{124.9}$ $\frac{124.9}{11}$ $\frac{111}{11}$ $\frac{684}{175}$ $\frac{245}{150}$ $\frac{241.4}{11}$	ppb Hg	
66 67 67 68 67 69 70 79 10 10 10 10 10 10 10 10 10 10 10 10 10	2 3 4 5 $\circ ./5 (8 g)$ $\circ ./7 3 g$ $\circ ./7 g$ $\int f g$ Stack Bottle # S 1A 1B 2 3 4 5 $\circ ./7 5 g$ $0 \cdot f g$ $0 \cdot$	HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids 2.5 Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: o Probe/Line Rinse wt: Total Particulate wt: o Description n. Filter Blank himble Blank	/ 0 0 2 0 0 2 0 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0	7.5 50 / 20 Conder 3 Rinse Vol mL / 50 7.5 50 / 25 50 / 25 50 / 25	 nsate Total: Date: Operator: _ Gain mL                                                                                                                                                                                                                                                                                                                                              	$5 \frac{4}{176}$ $\frac{7}{176}$ $\frac{247}{100}$ $\frac{124.9}{124.9}$ $\frac{124.9}{124.9}$ $\frac{124.9}{11}$ $\frac{111}{11}$ $\frac{684}{175}$ $\frac{245}{150}$ $\frac{241.4}{11}$	ppb Hg	

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Distribution	With	- Locho	,	Capit				
Project No.:		um - Locke						
Sample Date:	1-2	1.0.5 zbut	-	,		_		
Location:	Econ Out	Task:	. Test		Operator:	Day	-	
Sample ID	Bottle #	Description	Initial Vol	Rinse Vol	Gain	FinalWol	ppb Hg	Total ug
	<u> </u>		mL	mL	mL	mL	PP#118	of Hg
· · · · · · · · · · · · · · · · · · ·	S	Filter/Solids 4	ļ			<u> </u>	·	
76	1A	Probe & Filter Rinse				227		
77	1B	Heated Line Rinse	300	1000	87	173		
78	2	KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	/00	150	0/	<u>537</u> 174		
58	4	KMnO ₄ Impingers	200	50	- 5	245		·
8/	5	KMnO₄ Acid Rinse		100		100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	1.46470	Probe/Line Rinse wt:	7.1277 g 0 g 7.1277 g	Conde	ensate Total:	90.]	ml	
Recovered By:	Ju				Date:_/-	21-05	-	
	/	unet ,		./		Λ ,		
Location:	AHO	Task:	Test:	7	Operator:	7		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain a mL	Final Vol mL	ppb Hg	Total ug
	s	Filter/Solids /2				102		of Hg
82	1A	Probe & Filter Rinse				88		<u> </u>
83	1B	Heated Line Rinse			·	139		
84	2	KCI Impingers	300	150	89	539		<b></b>
85	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		
84	4	KMnO ₄ Impingers	200	50	- 5	245		
87	5	KMnO ₄ Acid Rinse		100		100		
filter Gross wt: Filter Tare wt: Filter Net wt:	1.1699 9	Probe/Line Rinse wt:	/ <u>5973</u> g 09 7.5973g	Conde	ensate Totai:			
Recovered By:	Jer			-	Date:/-	21-0.	5	
Location;	الا FGD Io	Zunet 1	Test:	4	Operator:	0.16		
				· · · · · · · · · · · · · · · · · · ·		/ Y\		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	' Finàl Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids 20						01113
88	1A	Probe & Filter Rinse				127		
89	-1B	Heated Line Rinse			u <b>-</b> u · · · ·	107		
90	2	KCI Impingers	360	150	112	562		
91	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	1	176		
92	4	KMnO ₄ Impingers	200	50	-3	247		
93	5	KMnO ₄ Acid Rinse		100		100		
ilter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	<u>0.1479</u> 9 0.01349 1	Probe/Line Rinse wt: Total Particulate wt:	<u> </u>	Conde	nsate Total:	121.4 21- 05		
	0	2lout 1		1				
Location:	Stack	Task:	Test:			Keith	<u>ر</u>	
Sample ID	Bottle #	Description	Initial Vol	Rinse Vol	Gain	Final Vol	ppb Hg	Total ug
	s	Filter/Solids 26	mL	mL .	mL	mL.		of Hg
94		Probe & Filter Rinse				109		
/	1B	Heated Line Rinse				· · · /		
95	2	KCI Impingers	300	150	240	690		
96	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		
97	4	KMnO₄ Impingers	200	50	- 4	244		
98	5	KMnO₄ Acid Rinse		100		140		
iller Gross wt: Filter Tare wt: Filter Net wt: ecovered By:_	0.415/9 0.41349 200/79	Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	g	Conde	nsate Totat: _			
· · · · · · · · · · · · · · · · · · ·								
Sample ID		Description	ppb Hg	Total ug				
	3	in. Filter Blank		of Hg				
		himble Blank						
	100	KCI Blank						
		O₃ / H2O2 Blank ≺MnO₄ Blank						
		IO ₃ / HCI Blank						
				Ji				

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Project No	Test	Date	Loc.	Operator	Sample ID #	Task	Description	Anal No.	Hg	
1621-87	1	02/01/05	ECONOUT	#VALUE!	1	1	PROBE & FILTER RINSE	20050377		ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	2	1	HEATED LINE RINSE	20050378		ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	3	1	KCL IMPINGER	20050379	11.2	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	4	. 1	HNO3/H2O2 IMPINGER	20050380	0.5	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	5	1	KMNO4 IMPINGER	20050381	23.2	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	6	1	KMNO4 ACID RINSE	20050382	<1.0	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	7	1	PROBE & FILTER RINSE	20050383	1.0	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	8	1	HEATED LINE RINSE	20050384	1.7	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	9	1	KCL IMPINGER	20050385	12.3	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	10	1	HNO3/H2O2 IMPINGER	20050386	<0.2	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	11	1	KMNO4 IMPINGER	20050387	0.4	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	12	1	KMNO4 ACID RINSE	20050388	1.5	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	13	1	PROBE & FILTER RINSE	20050389	<1.0	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	14	1	HEATED LINE RINSE	20050390	<1.0	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	15	1	KCL IMPINGER	20050391	21.0	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	16	1	HNO3/H2O2 IMPINGER	20050392	<0.2	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	17	1	KMNO4 IMPINGER	20050393	2.4	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	18	1	KMNO4 ACID RINSE	20050394	<1.0	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	19	1	PROBE & FILTER RINSE	20050395	<1.0	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	20	1	KCL IMPINGER	20050396	1.3	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	21	1	HNO3/H2O2 IMPINGER	20050397	<0.2	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	22	1	KMNO4 IMPINGER	20050398	2.3	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	23	1	KMNO4 ACID RINSE	20050399	<1.0	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	24	#VALUE!	KCL BLANK	20050400	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	25	#VALUE!	HNO3/H2O2 BLANK	20050401	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	26	#VALUE!	KMNO4 BLANK	20050402	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	27	#VALUE!	HNO3/HCL BLANK	20050403	<0.2	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	28	1	PROBE & FILTER RINSE	20050404	<1.0	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	29	1	HEATED LINE RINSE	20050405	<1.0	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	30	1	KCL IMPINGER	20050406	11.9	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	31	1	HNO3/H2O2 IMPINGER	20050407	0.5	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	32	1	KMNO4 IMPINGER	20050408	17.3	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	33	1	KMNO4 ACID RINSE	20050409	1.8	ng/ml

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1621-87	2	02/01/05	AHO	#VALUE!	34	1	PROBE & FILTER RINSE	20050410	<1.0	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	35	1	HEATED LINE RINSE	20050411		ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	36	1	KCL IMPINGER	20050412		ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	37	1	HNO3/H2O2 IMPINGER	20050413		ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	38	1	KMNO4 IMPINGER	20050414		ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	39	1	KMNO4 ACID RINSE	20050415		ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	40	1	PROBE & FILTER RINSE	20050416		ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	41	1	HEATED LINE RINSE	20050417	<1.0	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	42	1	KCL IMPINGER	20050418	22.7	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	43	1	HNO3/H2O2 IMPINGER	20050419	0.4	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	44	1	KMNO4 IMPINGER	20050420	1.4	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	45	1	KMNO4 ACID RINSE	20050421	1.1	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	46	1	PROBE & FILTER RINSE	20050422	<1.0	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	47	1	KCL IMPINGER	20050423	1.0	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	48	1	HNO3/H2O2 IMPINGER	20050424	<0.2	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	49	1	KMNO4 IMPINGER	20050425	6.3	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	50	1	KMNO4 ACID RINSE	20050426	2.0	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	51	#VALUE!	KMNO4 BLANK	20050427	<0.2	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	52	1	PROBE & FILTER RINSE	20050428		ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	53	1	HEATED LINE RINSE	20050429		ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	54	1	KCL IMPINGER	20050430		ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	55	1	HNO3/H2O2 IMPINGER	20050431		ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	56	1	KMNO4 IMPINGER	20050432		ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	57	1	KMNO4 ACID RINSE	20050433		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	58	1	PROBE & FILTER RINSE	20050434		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	59	1	HEATED LINE RINSE	20050435		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	60	1	KCL IMPINGER	20050436		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	61	1	HNO3/H2O2 IMPINGER	20050437		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	62	1	KMNO4 IMPINGER	20050438		ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	63	1	KMNO4 ACID RINSE	20050439		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	64	1	PROBE & FILTER RINSE	20050440		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	65	1	HEATED LINE RINSE	20050441		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	66	1	KCL IMPINGER	20050442		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	67	1	HNO3/H2O2 IMPINGER	20050443		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	68	1	KMNO4 IMPINGER	20050444		ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	69	1	KMNO4 ACID RINSE	20050445	1.5	ng/ml

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1621-87	3	02/01/05	STACK	#VALUE!	70	1	PROBE & FILTER RINSE	20050446	<1.0 ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	71	1	KCL IMPINGER	20050447	0.9 ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	72	1	HNO3/H2O2 IMPINGER	20050448	0.2 ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	73	1	KMNO4 IMPINGER	20050449	9.1 ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	74	1	KMNO4 ACID RINSE	20050450	<1.0 ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	75	, #VALUE!	KMNO4 BLANK	20050451	<0.2 ng/ml
1621-87	#VALUE:	02/01/05	ECONOUT	#VALUE!	76	1	PROBE & FILTER RINSE	20050452	<1.0 ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	77	1	HEATED LINE RINSE	20050453	<1.0 ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	78	1	KCL IMPINGER	20050454	8.2 ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	79	1	HNO3/H2O2 IMPINGER	20050455	0.4 ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	80	1	KMNO4 IMPINGER	20050456	8.0 ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	81	1	KMNO4 ACID RINSE	20050457	<1.0 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	82	1	PROBE & FILTER RINSE	20050458	<1.0 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	83	1	HEATED LINE RINSE	20050459	<1.0 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	84	1	KCL IMPINGER	20050460	9.9 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	85	1	HNO3/H2O2 IMPINGER	20050460	<0.2 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	86	1	KMNO4 IMPINGER	20050461	1.3 ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	87	1	KMNO4 ACID RINSE	20050463	<1.0 ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	88	1	PROBE & FILTER RINSE	20050460	<1.0 ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	89	1	HEATED LINE RINSE	20050465	<1.0 ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	90	1	KCL IMPINGER	20050466	11.7 ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	90 91	1	HNO3/H2O2 IMPINGER	20050400	<1.0 ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	92	1	KMNO4 IMPINGER	20050467	2.6 ng/ml
1621-87			FGDIN	#VALUE! #VALUE!	92 93	1	KMN04 IMFINGER	20050468	<1.0 ng/ml
1621-87	4 4	02/01/05	STACK	#VALUE! #VALUE!	93 94	1	PROBE & FILTER RINSE	20050409	<1.0 ng/ml
		02/01/05			94 95	1	KCL IMPINGER	20050470	0.7 ng/ml
1621-87	4	02/01/05	STACK	#VALUE!		1	HNO3/H2O2 IMPINGER	20050471	<0.2 ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	96 07	•		20050472	•
1621-87	4	02/01/05	STACK	#VALUE!	97	1	KMNO4 IMPINGER	20050473	4.3 ng/ml <1.0 ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	98	1	KMNO4 ACID RINSE		0
1621-87	4	02/01/05	IMP	#VALUE!	99	1		20050475	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	100	1	HNO3/H2O2 IMPINGER	20050476	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	101	1	KMNO4 IMPINGER	20050477	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	102	1	KMNO4 ACID RINSE	20050478	<1.0 ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	103	#VALUE!	KMNO4 BLANK	20050479	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	104	1	KCL IMPINGER	20050480	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	105	1	HNO3/H2O2 IMPINGER	20050481	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	106	1	KMNO4 IMPINGER	20050482	<0.2 ng/ml
1621-87	4	02/01/05	IMP	#VALUE!	107	1	KMNO4 ACID RINSE	20050483	<1.0 ng/ml

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# Run 1 Particulate in Thimbles by ASTM D6722, Direct Combustion

ANALNUM	SAMPLE	DATE	DESCR	Hg	
20050611	1	01/19/05	ECON OUT 1 THIMBLE	0.015	PPM
20050612	9	01/19/05	AHO-1 THIMBLE	0.462	PPM
20050615	2	01/20/05	ECON OUT 2 THIMBLE	0.015	PPM
20050616	10	01/20/05	AHO-2 THIMBLE	0.080	PPM
20050619	3	01/20/05	ECON OUT 3 THIMBLE	0.014	PPM
20050620	11	01/20/05	AHO-3 THIMBLE	0.098	PPM
20050623	4	01/21/05	ECON OUT 4 THIMBLE	0.018	PPM
20050624	12	01/21/05	AHO-4 THIMBLE	0.095	PPM

NIST 1633B (also used as Continuing Calibration Verification)

PPM

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1633B		0.153	109%	good
1633B		0.153	109%	good

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# Run 2 Filters by ASTM 6414, Acid Digestion/CVAA

ANALNUM	SAMPLE	DATE	DESCR	Hg	
20050613	17	01/19/05	FGD-1 47 MM	<5.0	ng/filter
20050614	23	01/19/05	STK-1 3-IN FILTER	<5.0	ng/filter
20050617	18	01/20/05	FGD-2 47 MM FILTER	<5.0	ng/filter
20050618	24	01/20/05	STK-2 3-IN FILTER	<5.0	ng/filter
20050621	19	01/20/05	FGD-3 47 MM FILTER	<5.0	ng/filter
20050622	25	01/20/05	STK-3 3-IN FILTER	<5.0	ng/filter
20050625	20	01/21/05	FGD-4 47 MM FILTER	<5.0	ng/filter
20050626	26	01/21/05	STK-4 3-IN FILTER	<5.0	ng/filter

NIST 1633B		PPM		
1633B		0.128	91%	good

Continuing Calibration Verification	ng/ml	
1641d 8 ppb	8.2 103% good	d
1641d 8ppb	8.2 103% good	d
1641d 8ppb	8.2 103% good	d
1641d 8ppb	8.3 104% good	d

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DESCRIPTION ECON OUT 1 THIMBLE UNIT 1 DATE SAMPLED 01/19/05 SAMPLE NUMBER 1

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050611

## ANALYSIS REPORT

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PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash		94.18	Carbon	5.36	Silicon	49.39
<u>MISC. (As E</u>	<u>)et.)</u>		Ash	94.18	A1203 Ti02 Fo202	27.19 1.41 10.76
MERCURY	0.015 PPM				Fe203 Ca0	1.70
					MgO Na2O	0.99 0.54
					K20 P205	2.52 0.27
,					SO3 UND	0.57 4.66

AS DETERMINED MOISTURE: 0.06 %

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DESCRIPTION AHO-1 THIMBLE UNIT 1 DATE SAMPLED 01/19/05 SAMPLE NUMBER 9

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050612

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash		93.82	Carbon Ash	5.66 93.82	Silicon Al2O3	47.81 25.91
<u>MISC. (As Det.)</u>			ASII	90.02	TiO2	1.31
MERCURY	0.462 PPM				Fe2O3 CaO MgO Na2O	11.31 1.53 0.91 0.48
			Taria An		K20 P205 S03 UND	2.36 0.22 0.45 7.71

ANALYSIS REPORT

AS DETERMINED MOISTURE: 0.30 %

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DESCRIPTION FGD-1 47 MM UNIT 1 DATE[.] SAMPLED 01/19/05 SAMPLE NUMBER 17

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050613

#### ANALYSIS REPORT

#### MISC. (As Det.)

MERCURY <5.0 NG/FIL

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DESCRIPTION STK-1 3-IN FILTER UNIT 1 DATE SAMPLED 01/19/05 SAMPLE NUMBER 23

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050614

ANALYSIS REPORT

MISC. (As Det.)

MERCURY <5.0 NG/FIL

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DESCRIPTION ECON OUT 2 THIMBLE UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 2

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050615

#### MAJOR ASH ELEM (Dry)% <u>(Dry)%</u> ULTIMATE PROXIMATE (Dry)% 96.44 Carbon 3.18 Silicon 51.04 Ash 96.44 A1203 26.56 Ash Ti02 1.45 MISC. (As Det.) Fe203 10.98 1,69 MERCURY 0.015 PPM CaO Mg0 0.96 Na20 0.58 2.35 K20 P205 0.29 0.55 S03 UND 3.55

ANALYSIS REPORT

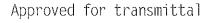
AS DETERMINED MOISTURE: 0.12 %

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DESCRIPTION AHO-2 THIMBLE UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 10

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050616

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	97	7.02	Carbon Ash	2.56 97.02	Silicon Al2O3	51.34 26.30
<u>MISC. (As Det.)</u>			7311	57.02	Ti02 Fe203	1.45 11.74
MERCURY	0.080 PPM				CaO MgO	1.72
					Na20 K20	0.54
					P205 S03	0.28 0.56
					UND	2.82

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ANALYSIS REPORT

AS DETERMINED MOISTURE: 0.31 %

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DESCRIPTION FGD-2 47 MM FILTER UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 18

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050617

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ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

DIS	STRIBUTION:
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DESCRIPTION STK-2 3-IN FILTER UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 24

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050618**  ļ

ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

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DESCRIPTION	ECON OUT 3 THIMBLE
	UNIT 1
DATE SAMPLED	<i>01/20/05</i>
SAMPLE NUMBER	3

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050619** 

#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	96	5.94	Carbon Ash	2.95 96.94	Silicon Al2O3	51.79 26.34
MISC. (As	Det.)		ASI	90,94	Ti02 Fe203	1.46 10.82
MERCURY	0.014 PPM				CaO	1.75
					MgO Na2O	0.97 0.56
					K20	2.42
					P205	0.31
					S03	0.45
					UND	3.13

AS DETERMINED MOISTURE: 0.10 %

#### DISTRIBUTION: J, WITHUM

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DESCRIPTION	AHO-3 THIMBLE
	UNIT 1
	<i>01/20/05</i>
SAMPLE NUMBER	11

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050620** 

### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	96.91	Carbon Ash	2.84 96.91	Silicon Al2O3	51.83
MISC. (As ) MERCURY	0.098 PPM			TiO2 Fe2O3 CaO	1.43 11.04 1.71
HEROORT	0,000 1111			MgO Na2O	0.96
				K20 P205	2.34 0.27
				SO3 UND	0.36 3.31

AS DETERMINED MOISTURE: 0.27 %

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DESCRIPTION FGD-3 47 MM FILTER UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 19

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050621

ANALYSIS REPORT

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MERCURY <5.0 NG/FIL

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DESCRIPTION STK-3 3-IN FILTER UNIT 1 DATE SAMPLED 01/20/05 SAMPLE NUMBER 25

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050622

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ANALYSIS REPORT

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MERCURY <5.0 NG/FIL

DIS	STRIBUTION:
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S.	TSENG

DESCRIPTION ECON OUT 4 THIMBLE UNIT 1 DATE SAMPLED 01/21/05 DATE LOGGED SAMPLE NUMBER 4 DATE COMPLETEL PROJECT NUMBER

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050623

#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	95.87	Carbon Ash	3.47 95.87	Silicon Al2O3	53.34 25.73
<u>MISC. (As</u>	<u>Det.)</u>	7311	53.07	Ti02 Fe203	1.43 9.03
MERCURY	0.018 PPM			CaO MgO Na2O K2O	1.55 1.02 0.61 2.53
				P205 S03 UND	0.13 0.55 4.08

AS DETERMINED MOISTURE: 0.08 %

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DESCRIPTION AHO-4 THIMBLE UNIT 1 DATE SAMPLED 01/21/05 SAMPLE NUMBER 12

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050624

#### (<u>Dry)%</u> MAJOR ASH ELEM (Dry)<u>%</u> ULTIMATE PROXIMATE (Dry)% 53.89 2.45 Silicon Carbon 96.98 Ash 25.81 96.98 A1203 Ash 1.41 Ti02 MISC. (As Det.) Fe203 9.16 1.48 CaO 0.095 PPM MERCURY 1.01 Mg0 0.61 Na2O K20 2.510.11P205 0.44 S03 3.57 UND

ANALYSIS REPORT

AS DETERMINED MOISTURE: 0.18 %

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DESCRIPTION FGD-4 47 MM FILTER UNIT 1 DATE SAMPLED 01/21/05 SAMPLE NUMBER 20

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050625

ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

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DESCRIPTION STK-4 3-IN FILTER UNIT 1 DATE SAMPLED 01/21/05 SAMPLE NUMBER 26

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050626** 

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#### ANALYSIS REPORT

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MERCURY <5.0 NG/FIL

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Distribution:	With	me-Loche	-	2ln	t	2		
Project No.:	162	1.87	-					
Sample Date:	/-29		•					
Location:	Econ Out	Zenit 2	Test:		Operator:	Hauf		
			Initial Vol	Rinse Vol	Gain	FinalVol	ppb Hg	Total ug
Sample ID	Bottle #	Description	mL	mL	mL	ու	hhn uð	of Hg
	S	Filter/Solids 5						
1	1A	Probe & Filter Rinse	۱.			182		
2	18	Heated Line Rinse				121		
3	2	KCI Impingers	300	150	7_3	523		
4	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		
5	4	KMnO₄ Impingers	200	50	- 3	247		
<u> </u>	5	KMnO₄ Acid Rinse		100		100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	1.6474 g	Probe/Line Rinse wt:	5.4040 g 5.4040 g 5.4040 g	Conde		78.1		
Recovered By:_	Yn				Date: 📝	-24-0.	5	
	0	24mil 3		,	<u> </u>	Δ.		
Location:	AHO	Task: <u>2</u>	Test:	/	Operator:	Jen		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	⊄final Vol mL	ppb Hg	Total ug of Hg
		Filter/Solids /3			1111-5			- or ng
	<u>S</u>	1 1000000		1		160		
	<u>1A</u>	Probe & Filter Rinse				148		
ę 0	1B	Heated Line Rinse	300	1-2	-7//			+
1	2	KCI Impingers		/50	- 19	524		
<u>ر</u> ٥	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		
	4	KMnO ₄ Impingers	200	50	- 1	246		
12	5	KMnO ₄ Acid Rinse		/00		100		<u> </u>
Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:_	1.5/02 g 1./700g	Probe/Line Rinse wt: Total Particulate wt:		Conde		75.6		
Location:	FGD In	Unit _ 2 .	Test:	1	Operator:	Jell		
		1	Initial Vol	Rinse Vol	Gain	/ V↓ Final Vol		Total ug
Sample ID	Bottle #	Description	mL	mL	mL	mL	ppb Hg	of Hg
	S	Filter/Solids 34						
13	0 1A	Probe & Filter Rinse				108		
				<u> </u>		109		
	1B	Heated Line Rinse		150	94	544		
/5_	2	KCI Impingers	300		- <u> </u>			
16	3	HNO ₃ /H ₂ O ₂ Impinger	/00	75	- 3	175		<u> </u>
17	4	KMnO₄ Impingers	200	50	- 3	247		
18	5	KMnO₄ Acid Rinse		100	L	100	l	1
Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	0.40250 0.00050 1	Probe/Line Rinse wt: Total Particulate wt:		Conde	Date:	99.0	5	
Location:	Stack	Task: 2	Test		Operator	Kuth	ر ا	
Sample ID	Bottle #	Description	Initial Vol	Rinse Vol	Gain	Final Vol	ppb Hg	Total up
·	_		mL	mL.	mL.	mL		of Hg
	S	Filter/Solids 27				1.0		
	1A	Probe & Filter Rinse		ļ		104		
~	1B	Heated Line Rinse	<u> </u>					<u> </u>
20	2	KCI Impingers	300	150	222	672		<u> </u>
2/	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	7	182		<u> </u>
	4	KMnO₄ Impingers	200	50	-4	244		
22	5	KMnO ₄ Acid Rinse		100	}	100		
Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:_	0 40050	Probe/Line Rinse wt:		Conde		238.1		
	V		T	Te4-1	1			
Sample ID		Description	ppb Hg	Total ug of Hg				
•	2	in. Filter Blank			ľ			
		Thimble Blank						
24		KCl Blank						
25	HN	IO ₃ / H2O2 Blank						
26		KMnO ₄ Blank						
27	Н	NO ₃ / HCI Blank	<u> </u>	I	J			

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zento 2 Distribution: Withum Project No.: 1621. Sample Date: 25. ス 2 Operator: Location: Econ Out Task: Test: Initial Vol Gain Final Vol Total ug **Rinse Vol** ppb Hg Bottle # Description Sample ID mL of Hg mL mL mL Filter/Solids s 70 Probe & Filter Rinse 28 1A 98 Heated Line Rinse 29 **1B** 89 539 300 50 KCl Impingers 30 2 75 HNO₃/H₂O₂ Impinger 100 0 175 3 31 246 200 50 -4 ふん 4 KMnO₄ Impingers KMnO₄ Acid Rinse 33 00 100 5 Filter Gross wt: 6-7910 g Filter Tare wt. 1.4048 g Filter Net wt: 53 862 g Filter Net wt: 5: 3862g Condensate Total: 83.7 ml 0 Probe/Line Rinse wt: Total Particulate wt: 53822g 1-25-05 Recovered By: Date: Zhut Task: 2 Test: Operator: Location: AHO Initial Vol **Rinse Vol** Gain Final Vol Total ug ppb Hg Bottle # Sample ID Description of Hg mL mL mL mL Filter/Solids 14 s 126 Probe & Filter Rinse 34 1A 209 1B Heated Line Rinse 35 73 300 523 36 KCI Impingers 150 2 175 75 HNO₃/H₂O₂ Impinger 100 37 3 0 200 244 50 2 KMnO₄ Impingers 38 4 39 KMnO₄ Acid Rinse 100 100 5 Filter Gross wt: <u>4.03/5 g</u> Filter Net wt: 2.3796 g Condensate Total: 72.4 ml Probe/Line Rinse wt: Total Particulate wt: 2.39969 Filter Net wt 2 399 <u>k g</u> 1-25-05 Date: Recovered By: Unit え Task: 2 Test: Operator: Location: FGD In Final Vol Total ug Initial Vol Rinse Vol Gain ppb Hg Bottle # Description Sample ID mi. mL mL mL of Hg 35 Filter/Solids s Probe & Filter Rinse 40 1A 10 89 535 41 18 Heated Line Rinse 150 85 300 Y2. 2 KCI Impingers 75 2 177 43 3 HNO₃/H₂O₂ Impinger 100 50 - .5 44 4 KMnO₄ Impingers 200 45 KMnO₄ Acid Rinse 100 100 45 5 Filter Net wt: 0.000/ g Filter Gross wt: 0.39 88 g Condensate Total: 89.5 ml Probe/Line Rinse wt: ___ ф Filter Tare wt: 0 3987g Filter Net wt: 0.000/g Total Particulate wt: o. oo o / g 1-25-05 Recovered By: Date: 2hut Operator: Kuth ぇ Location: Stack Task: Test; **Rinse Vol** Final Vol Total ug Initial Vol Gain ppb Hg Sample ID Bottle # Description mL. mL mL տե of Hg 31 s Filter/Solids 46 Probe & Filter Rinse 1A 100 Heated Line Rinse 1B 47 300 150 222 672 KCI Impingers 2 183 48 HNO₃/H₂O₂ Impinger 75 8 3 100 245 5 50 49 4 KMnO₄ Impingers 200 -50 5 KMnO₄ Acid Rinse 00 100 Filter Gross wt: <u>0.9089</u> g Filter Tare wt: <u>0.9037</u> g Filter Net wt. o. o655 g Condensate Total: 235. 2 ml Probe/Line Rinse wt: 0 Filter Net wt: 0.005.5 g Total Particulate wt: 0.0055 g Date: /-25. 05 Recovered By: Total ug Description Sample ID ppb Hg of Hg 3 in, Filter Blank Thimble Blank

KCI Blank HNO₃ / H2O2 Blank KMnO₄ Blank HNO₃ / HCI Blank

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	Distribution:	Mith	un - Locke						
	Project No.:		1-87						
	Sample Date:	1-2	5. 05	-					
	Location:	Econ Out	Task: 2	Test:	3	Operator:	gray_		
	Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
		S	Filter/Solids						
	56	1A	Probe & Filter Rinse			•	198		
	57	18	Heated Line Rinse				106		
	58	2	KCI Impingers	300	150	75	525		
	59	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	1	176		
	60	4	KMnO ₄ Impingers	200	50	~2	248		
	61	5	KMnO ₄ Acid Rinse		/00		100	······································	
	Filter Gross wt: Filter Tare wt: Filter Net wt:	1.6412g	Probe/Line Rinse wt:	5.6593 g 0 g 5.6593 g	Conde		78.7		
	Recovered By:_	<u> </u>	n. M		-	Date: /	- 25. 0	.5	
	Location:	AHO	Zenet 2	Test:	3	Operator:	Jum		· · · · · · · · · · · · · · · · · · ·
	Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
		S	Filter/Solids /5						ļ
	62	1A	Probe & Filter Rinse			]	123		ļ
	٤3	1B	Heated Line Rinse				130		
	44	2	KCI Impingers	300	150	79	529		
	65	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	1	176		
	44	4	KMnO₄ Impingers	200	50	0	250		
	47	5	KMnO₄ Acid Rinse		100		100		ii
	Recovered By:_	y.				Date:	- 25. 00		
	Location	Ø FGD In	Zent 2	Test:	3	Operator:	0.11-		
	Location:		Task:	Test:	3 Binse Vol	Operator:	4		Totalua
	Location: Sample ID	Bottle #	Task:	Test: Initial Vol mL	3 Rinse Vol mL	Operator: Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	Sample ID	Bottle # S	Task: Description Filter/Solids36	Initial Voi	Rinse Vol	Gain	Final Vol mL	ppb Hg	
	Sample ID	Bottle # S 1A	Task:     2       Description       Filter/Solids     36       Probe & Filter Rinse	Initial Voi	Rinse Vol	Gain	Final Vol mL 95	ppb Hg	
	Sample ID	Bottle # S 1A . 1B	Task:     2       Description       Filter/Solids       36       Probe & Filter Rinse       Heated Line Rinse	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL 95 121	ppb Hg	
·	Sample ID	Bottle # S 1A	Task:     2       Description       Filter/Solids     36       Probe & Filter Rinse	Initial Voi	Rinse Vol	Gain	Final Vol mL 95	ppb Hg	
	Sample ID	Bottle # S 1A . 1B	Task:     2       Description       Filter/Solids       36       Probe & Filter Rinse       Heated Line Rinse	Initial Vol mL	Rinse Vol mL	Gain mL 93	Final Vol mL 95 121 543 175	ppb Hg	
	Sample ID <u>/</u> & (9) 70 7/ 72	Bottle # S 1A 1B 2	Task: <u>2</u> Description Filter/Solids <u>3</u> Probe & Filter Rinse Heated Line Rinse KCI Impingers	Initial Vol mL 3 o D	Rinse Vol mL	Gain mL 93	Final Vol mL 95 121 543	ppb Hg	
	Sample ID	Bottle # S 1A 1B 2 3	Task: <u>2</u> Description Filter/Solids <u>3</u> Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	Initial Vol mL 3 4 D / 2 D	Rinse Vol mL / <u>50</u> 7.5	Gain mL 93	Final Vol mL 95 121 543 175	ppb Hg	
	Sample ID	Bottle # S 1A 1B 2 3 4 5 $o \cdot 3 ? (f) g$ $o \cdot 3 ? 7 \circ g$	Task: <u>2</u> Description Filter/Solids <u>36</u> Probe & Filter Rinse Heated Line Rinse KCI Impingers KMnO ₄ Impingers KMnO ₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt:	Initial Vol mL 3 ◦ ∞ / ◦ ∞ Z ◦ ∞ Z ◦ ∞ Z ◦ ∞ Z ◦ ∞ Z ◦ ∞	Rinse Vol mL /50 75 50 /05	Gain mL 93 o - 2 nsałe Totał:	Final Vol mL 95 121 543 175 248 160 98.3	ml	
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.398/g 0.3970g 0.370g 0.05/fg	Task: <u>2</u> Description Filter/Solids <u>36</u> Probe & Filter Rinse Heated Line Rinse KCI Impingers KMnO ₄ /H ₂ O ₂ Impinger KMnO ₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	Initial Vol       mL       3 • φ       / • φ       / • φ       δ• φ       φ       g       φ       g       φ       g       φ       g       φ       g       φ       g       φ       g       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ    ψ	Rinse Vol mL / S O 7 S S O / Ocs Conde	Gain mL mL 93 0 - 2 nsate Totat:	Final Vol mL 95 121 543 175 248 160 98.3	ml	
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.39 [6] g 0.39 [7 o g 0.39 [1 o g 0.	Task: <u>2</u> Description Filter/Solids <u>3</u> & Probe & Filter Rinse Heated Line Rinse KCI Impingers KMnO ₄ /H ₂ O ₂ Impinger KMnO ₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: <u>2</u> Task: <u>2</u>	Initial Vol mL 3 ◦ ⊘ / õ ⊘ Z 0 ⊘ δ: 0 ፩ // g ⊙: õ ፩ // g Test:	Rinse Vol mL /50 75 50 /00 Conde	Gain mL 93 o - 2 nsate Totat: Date:	Final Vol mL 95 121 543 175 248 160 98.3	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.398/g 0.3970g 0.4570g 0.4570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0.570g 0	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Impingers         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Zmml       2         Task:       2         Description	Initial Vol       mL       3 • φ       / • φ       / • φ       δ• φ       φ       g       φ       g       φ       g       φ       g       φ       g       φ       g       φ       g       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ       φ    ψ	Rinse Vol mL / S O 7 S S O / Ocs Conde	Gain mL mL 93 0 - 2 nsate Totat:	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kuth	ml	
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.39[6] g 0.39[70.9 0.40 // 9 J Stack Bottle # S	Task:     2       Description       Filter/Solids     36       Probe & Filter Rinse       Heated Line Rinse       KCI Impingers       HNO ₃ /H ₂ O ₂ Impinger       KMnO ₄ Impingers       KMnO ₄ Acid Rinse       Filter Net wt:       Probe/Line Rinse wt:       Total Particulate wt:       Zure       Description       Filter/Solids     3.2.	Initial Vol mL 3 ◦ ⊘ / ō ♡ ス ○ ♡ 2 ○ ♡ 5 · ○ 0, // g ⊙ · △ 0 // g O · △ 0 // g Test:	Rinse Vol mL /.5 0 7.5 5 0 / 0 0 Conde	Gain mL 93 o - 2 nsate Total: Date: Operator: Gain	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kuth Final Vol mL	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 $o \cdot 3 / \xi / g$ $o \cdot 3 / 7 \circ g$ $\int - \cdot$ Stack Bottle # S 1A	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         24,	Initial Vol mL 3 ◦ ⊘ / ō ♡ ス ○ ♡ 2 ○ ♡ 5 · ○ 0, // g ⊙ · △ 0 // g O · △ 0 // g Test:	Rinse Vol mL /.5 0 7.5 5 0 / 0 0 Conde	Gain mL 93 o - 2 nsate Total: Date: Operator: Gain	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.6 KuTh Final Vol	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.39[8]/[9] 0.39[7]0.9 0.007/[9] Stack Bottle # S 1A 1B	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       32.         Probe & Filter Rinse         Heated Line Rinse	Initial Vol mL 3 • 0 / 0 0 2 00 2 00 2 00 2 00 2 00 2 00 2	Rinse Vol mL /.5 0 7.5 5 C / 0 Conde .3 Rinse Vol mL	Gain mL 93 o - 2 nsate Total: Date: Operator: Gain mL	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kuth Final Vol mL II.7 -	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 $o \cdot 3 / \{ / g \\ 0 \cdot 3 / 7 \circ g \\ 0 \cdot 0 / / g \\ 0 \cdot 0 / g$	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       32.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers	Initial Vol mL <u>عمی</u> <u>ممی</u> <u>ممی</u> <u>و</u> <u>ممی</u> <u>ا</u> <u>ممی</u> <u>و</u> <u>ممی</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u>	Rinse Vol mL / 5 0 7 5 5 0 / 6 0 Conde 3 Rinse Vol mL / 5 0	Gain mL 93 o - 2 nsate Total: Date: Operator: Gain	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kiith Final Vol mL 	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.39[5]/[9]/[9]/[9]/[9]/[9]/[9]/[9]/[9]/[9]/[9	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       32.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger	Initial Vol mL 3 ◦ ⊘ / ō ♡ Z ̄ ♡ Z Ŏ ♡ Z	Rinse Vol mL /.5 0 7.5 5 0 / 0 0 Conde 3 Rinse Vol mL /.5 0 7.5 ( 0 0 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	Gain mL 93 - 2 nsate Total: Date: Qperator: Gain mL 237 /	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kiith Final Vol mL 1/7 - 487 /76	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 $a \cdot 3 / \xi / g$ $a \cdot 3$	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       3 2.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Arid Rinse	Initial Vol mL <u>عمی</u> <u>ممی</u> <u>ممی</u> <u>و</u> <u>ممی</u> <u>ا</u> <u>ممی</u> <u>و</u> <u>ممی</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u> <u>م</u>	Rinse Vol mL / 5 0 7 5 5 0 / 0 0 Conde 3 Rinse Vol mL / 5 0 7 5 5 0 / 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	Gain mL 93 o - 2 nsate Total: Date: Operator: Gain mL	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kuth Final Vol mL //7 - 487 /76 247	ml ,5	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.398/909 0.39709 0.40709 0.40709 Stack Bottle # S 1A 1B 2 3 4 5 0.39709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709	Task:       2         Description         Filter/Solids       3 &         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Impingers         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       3 2.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         KOI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:	Initial Vol mL 3 ◦ Ø / õ Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 3 ◦ Ø 1 0 0	Rinse Vol mL /.5 0 7.5 .5 0 / 0 6 Rinse Vol mL /.5 0 .5 0 / 5	Gain mL 93 0 - 2 nsate Total: Date:  Operator: Gain mL  Gain mL  - 3 7 / / - 3	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kiith Final Vol mL 1/7 - 487 /76	ml <b>5</b> ) ppb Hg	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.398/909 0.39709 0.40709 0.40709 Stack Bottle # S 1A 1B 2 3 4 5 0.39709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709	Task:       2         Description         Filter/Solids       3 &         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Impingers         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       3 2.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         KOI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         Filter Net wt:	Initial Vol mL 3 ◦ Ø / õ Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 3 ◦ Ø 1 0 0	Rinse Vol mL / 5 0 7 5 5 0 / 0 0 Rinse Vol mL / 5 0 / 5 0 / 5 0 / 0 0 Conder	Gain mL 93 0 - 2 Date: Operator: _ Gain mL  237 / - 3 nsate Total: _	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 Kuth Final Vol mL 1/7 487 /76 247 /76 247 /76	ml <b>"5"</b> ppb Hg ml	of Hg
	Sample ID	Bottle # S 1A 1B 2 3 4 5 0.398/909 0.39709 0.40709 0.40709 Stack Bottle # S 1A 1B 2 3 4 5 0.39709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709 0.40709	Task:       2         Description         Filter/Solids       36         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Impingers         KMnO ₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         Filter/Solids       3.2.         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO ₃ /H ₂ O ₂ Impinger         KMnO ₄ Acid Rinse         KMnO ₄ Acid Rinse	Initial Vol mL 3 ◦ Ø / õ Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 2 0 Ø 3 ◦ Ø 1 0 0	Rinse Vol mL / 5 0 7 5 5 0 / 0 0 Rinse Vol mL / 5 0 / 5 0 / 5 0 / 5 0 / 0 0 Conder	Gain mL 93 0 - 2 Date: Operator: _ Gain mL  237 / - 3 nsate Total: _	Final Vol mL 95 /2/ 543 /75 248 /60 98.3 -25.0 KuTh Final Vol mL 1/7 - 487 /76 247 /76 247 /00 245.8	ml <b>"5"</b> ppb Hg ml	of Hg

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Distribution:	24 the	im - Loche						
Project No.:	1-21	21.87	•					
Sample Date:				./		4.		
Location:	Econ Out	Task:	Test:		Operator:	Day		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids 8						
80	<u>′ 1A</u>	Probe & Filter Rinse				146		
8/	<u>1B</u>	Heated Line Rinse				88		
82	2	KCI Impingers	300	156	72	522		
83	3	HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		
84	4	KMnO₄ Impingers	200	50	- /	249		
<u> </u>	5	KMnO ₄ Acid Rinse		100	!	100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	1.57079	Probe/Line Rinse wt:	6 9	Conde		77.4		
Recovered By:_	Ju				Date: /	- 26. 0	5	
Location:	AHO	Task: 2	Test:	4	Operator:	Qui		
Location.				Rinse Vol	· · · · · · · · · · · · · · · · · · ·	//		Total ug
Sample ID	Bottle #	Description	Initial Vol mL	mL	Gain mL	'Final Vol mL	ppb Hg	of Hg
61	S	Filter/Solids /6				178		
86	1A 4B	Probe & Filter Rinse				128 129		
<u> </u>	1B	Heated Line Rinse	•	150	82	532		
89	2	KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	300	75	0	175		
90	4		/00	50	- 3	247		
9/	4	KMnO₄ Impingers KMnO₄ Acid Rinse	200	/00	ت	100	·	
Filter Gross wt:	· · · ·		5.5482 0				L	<u>.</u>
Recovered By:_	Ju	Elnet ,			Date: /	-26-0.	<u>s</u>	
Location:	FGĎ In		Test: Initial Vol	4 Rinse Vol	Operator: Gain	Juff Final Vol		Total ug
Sample ID	Bottle #	Description	mL	mL	mL	mL	ppb Hg	of Hg
92	S	Filter/Solids 37				104		<u> </u>
93	1A 1B	Probe & Filter Rinse				88		<u> </u>
73	2	Heated Line Rinse	300	150	100	550		
95	3	KCI Impingers HNO ₃ /H ₂ O ₂ Impinger	100	75	0	175		<u> </u>
96	4	KMnO ₄ Impingers	200	50	- 3	247		
87	5	KMnO₄ Acid Rinse		100		100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	0.39580	Filter Net wt:	<b>O</b> 9	Conde	nsate Total:	105.4	ml	
Recovered By:_	-Jr	7/mit				<u>1 - 26 -</u> 1		
Location:	Stack	241110 2 Task:	Test:	<u> </u>	Operator:	Keith	ر 	
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids 33		·				
98	1A	Probe & Filter Rinse				116		
	1B	Heated Line Rinse						
99	2	KCI Impingers	300	150	248	698		
100	3	HNO ₃ /H ₂ O ₂ Impinger	/00	75	0	175		
/0/	4	KMnO₄ Impingers	200	50	- 3	247		····
122	5	KMnO₄ Acid Rinse		/00		160	l	<u>l</u>
Filter Gross wt: Filter Tare wt: Filter Net wt:	<u>0.9040 g</u>	Probe/Line Rinse wt:	<u> </u>	Conde	nsate Total:	256.4	ml	
Recovered By:_	Ju				Date: / /	26-0.	5	
Sample ID		Description	ppb Hg	Total ug of Hg				

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Project No	Test	Date	Loc.	Operator	Sample ID #	Task	Description	Anal No.	Hg	
1621-87	1	02/01/05	ECONOUT	#VALUE!	1	2	PROBE & FILTER RINSE	20050484	<1.0	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	2	2	HEATED LINE RINSE	20050485	1.7	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	3	2	KCL IMPINGER	20050486	12.1	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	4	2	HNO3/H2O2 IMPINGER	20050487	2.7	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	5	2	KMNO4 IMPINGER	20050488	19.3	ng/ml
1621-87	1	02/01/05	ECONOUT	#VALUE!	6	2	KMNO4 ACID RINSE	20050489	<1.0	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	7	2	PROBE & FILTER RINSE	20050490	1.6	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	8	2	HEATED LINE RINSE	20050491	2.5	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	9	2	KCL IMPINGER	20050492	15.3	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	10	2	HNO3/H2O2 IMPINGER	20050493	<0.2	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	11	2	KMNO4 IMPINGER	20050494	<0.2	ng/ml
1621-87	1	02/01/05	AHO	#VALUE!	12	2	KMNO4 ACID RINSE	20050495	1.5	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	13	2	PROBE & FILTER RINSE	20050496	1.5	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	14	2	HEATED LINE RINSE	20050497	<1.0	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	15	2	KCL IMPINGER	20050498	22.4	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	16	2	HNO3/H2O2 IMPINGER	20050499	<0.2	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	17	2	KMNO4 IMPINGER	20050500	<0.2	ng/ml
1621-87	1	02/01/05	FGDIN	#VALUE!	18	2	KMNO4 ACID RINSE	20050501	1.4	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	19	2	PROBE & FILTER RINSE	20050502	1.7	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	20	2	KCL IMPINGER	20050503	0.4	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	21	2	HNO3/H2O2 IMPINGER	20050504	<0.2	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	22	2	KMNO4 IMPINGER	20050505	0.9	ng/ml
1621-87	1	02/01/05	STACK	#VALUE!	23	2	KMNO4 ACID RINSE	20050506	<1.0	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	24	#VALUE!	KCL BLANK	20050507	<0.2	ng/mi
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	25	#VALUE!	HNO3/H2O2 BLANK	20050508	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	26	#VALUE!	KMNO4 BLANK	20050509	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	27	#VALUE!	HNO3/HCL BLANK	20050510	<0.2	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	28	2	PROBE & FILTER RINSE	20050511	<1.0	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	29	2	HEATED LINE RINSE	20050512	3.5	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	30	2	KCL IMPINGER	20050513	11.5	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	- 31	2	HNO3/H2O2 IMPINGER	20050514	0.2	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	32	2	KMNO4 IMPINGER	20050515	19.8	ng/ml
1621-87	2	02/01/05	ECONOUT	#VALUE!	33	2	KMNO4 ACID RINSE	20050516	<1.0	ng/mi

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1621-87	2	02/01/05	AHO	#VALUE!	34	2	PROBE & FILTER RINSE	20050517	1.1	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	35	2	HEATED LINE RINSE	20050518	1.5	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	36	2	KCL IMPINGER	20050519	14.3	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	37	2	HNO3/H2O2 IMPINGER	20050520	<0.2	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	38	2	KMNO4 IMPINGER	20050521	0.4	ng/ml
1621-87	2	02/01/05	AHO	#VALUE!	39	2	KMNO4 ACID RINSE	20050522	1.1	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	40	2	PROBE & FILTER RINSE	20050523	<1.0	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	41	2	HEATED LINE RINSE	20050524	2.1	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	42	2	KCL IMPINGER	20050525	23.0	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	43	2	HNO3/H2O2 IMPINGER	20050526	<0.2	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	44	2	KMNO4 IMPINGER	20050527	0.2	ng/ml
1621-87	2	02/01/05	FGDIN	#VALUE!	45	2	KMNO4 ACID RINSE	20050528	1.3	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	46	2	PROBE & FILTER RINSE	20050529	1.7	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	47	2	KCL IMPINGER	20050530	0.9	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	48	2	HNO3/H2O2 IMPINGER	20050531	<0.2	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	49	2	KMNO4 IMPINGER	20050532	0.7	ng/ml
1621-87	2	02/01/05	STACK	#VALUE!	50	2	KMNO4 ACID RINSE	20050533	1.4	ng/ml
1621-87	#VALUE!	02/01/05	ECONOUT	#VALUE!	51	IMP	KCL IMPINGER	20050534	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	ECONOUT	#VALUE!	52	IMP	HNO3/H2O2 IMPINGER	20050535	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	ECONOUT	#VALUE!	53	IMP	KMNO4 IMPINGER	20050536	<0.2	ng/mi
1621-87	#VALUE!	02/01/05	ECONOUT	#VALUE!	54	IMP	KMNO4 ACID RINSE	20050537	<1.0	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	55	#VALUE!	KMNO4 BLANK	20050538	<0.2	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	56	2	PROBE & FILTER RINSE	20050539	<1.0	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	57	2	HEATED LINE RINSE	20050540	1.3	ng/mi
1621-87	3	02/01/05	ECONOUT	#VALUE!	58	2	KCL IMPINGER	20050541	11.9	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	59	2	HNO3/H2O2 IMPINGER	20050542	<0.2	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	60	2	KMNO4 IMPINGER	20050543	13.7	ng/ml
1621-87	3	02/01/05	ECONOUT	#VALUE!	61	2	KMNO4 ACID RINSE	20050544	1.4	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	62	2	PROBE & FILTER RINSE	20050545	<1.0	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	63	2	HEATED LINE RINSE	20050546	1.1	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	64	2	KCL IMPINGER	20050547	16.6	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	65	2	HNO3/H2O2 IMPINGER	20050548	<0.2	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	66	2	KMNO4 IMPINGER	20050549	0.8	ng/ml
1621-87	3	02/01/05	AHO	#VALUE!	67	2	KMNO4 ACID RINSE	20050550	<1.0	ng/ml

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1621-87	3	02/01/05	FGDIN	#VALUE!	68	2	PROBE & FILTER RINSE	20050551	<1.0	ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	69	2	HEATED LINE RINSE	20050552	2.6	ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	70	2	KCL IMPINGER	20050553	21.7	ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	71	2	HNO3/H2O2 IMPINGER	20050554	<0.2	ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	72	2	KMNO4 IMPINGER	20050555	<0.2	ng/ml
1621-87	3	02/01/05	FGDIN	#VALUE!	73	2	KMNO4 ACID RINSE	20050556	1.1	ng/mi
1621-87	3	02/01/05	STACK	#VALUE!	74	2	PROBE & FILTER RINSE	20050557	<1.0	ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	75	2	KCL IMPINGER	20050558	<0.2	ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	76	2	HNO3/H2O2 IMPINGER	20050559	<0.2	ng/ml
1621-87	3	02/01/05	STACK	#VALUE!	77	2	KMNO4 IMPINGER	20050560	0.6	ng/mi
1621-87	3	02/01/05	STACK	#VALUE!	78	2	KMNO4 ACID RINSE	20050561	1.2	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	79	#VALUE!	KMNO4 BLANK	20050562	<0.2	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	80	2	PROBE & FILTER RINSE	20050563	<1.0	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	81	2	HEATED LINE RINSE	20050564	2.2	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	82	2	KCL IMPINGER	20050565	8.8	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	83	2	HNO3/H2O2 IMPINGER	20050566	0.3	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	84	2	KMNO4 IMPINGER	20050567	15.9	ng/ml
1621-87	4	02/01/05	ECONOUT	#VALUE!	85	2	KMNO4 ACID RINSE	20050568	1.5	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	86	2	PROBE & FILTER RINSE	20050569	<1.0	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	87	2	HEATED LINE RINSE	20050570	2.6	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	88	2	KCL IMPINGER	20050571	12.3	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	89	2	HNO3/H2O2 IMPINGER	20050572	<0.2	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	90	2	KMNO4 IMPINGER	20050573	<0.2	ng/ml
1621-87	4	02/01/05	AHO	#VALUE!	91	2	KMNO4 ACID RINSE	20050574	<1.0	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	92	2	PROBE & FILTER RINSE	20050575	<1.0	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	93	2	HEATED LINE RINSE	20050576	1.4	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	94	2	KCL IMPINGER	20050577	18.2	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	95	2	HNO3/H2O2 IMPINGER	20050578	<0.2	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	96	2	KMNO4 IMPINGER	20050579	0.2	ng/ml
1621-87	4	02/01/05	FGDIN	#VALUE!	97	2	KMNO4 ACID RINSE	20050580	1.5	ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	98	2	PROBE & FILTER RINSE	20050581	1.9	ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	99	2	KCL IMPINGER	20050582	<0.2	ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	100	2	HNO3/H2O2 IMPINGER	20050583	<0.2	ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	101	2	KMNO4 IMPINGER	20050584	0.4	ng/ml
1621-87	4	02/01/05	STACK	#VALUE!	102	2	KMNO4 ACID RINSE	20050585	<1.0	ng/ml
1621-87	#VALUE!	02/01/05	FGDIN	#VALUE!	103	IMP	KCL IMPINGER	20050586	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	FGDIN	#VALUE!	104	IMP	HNO3/H2O2 IMPINGER	20050587	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	FGDIN	#VALUE!	105	IMP	KMNO4 IMPINGER	20050588	<0.2	ng/ml
1621-87	#VALUE!	02/01/05	FGDIN	#VALUE!	106	IMP	KMNO4 ACID RINSE	20050589	<1.0	ng/ml
1621-87	#VALUE!	02/01/05	#VALUE!	#VALUE!	107	#VALUE!	KMNO4 BLANK	20050590	<0.2	ng/ml
										-

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# Run 1 Particulate in Thimbles by ASTM D6722, Direct Combustion

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ANALNUM	SAMPLE	DATE	DESCR	Hg	
20050627	5	01/24/05	ECON OUT 1 THIMBLE	0.017	PPM
20050628	13	01/24/05	AHO-1 THIMBLE	0.283	PPM
20050631	7	01/25/05	ECON OUT 2 THIMBLE	0.015	PPM
20050632	14	01/25/05	AHO-2 THIMBLE	0.653	PPM
20050635	6	01/25/05	ECON OUT 3 THIMBLE	0.016	PPM
20050636	15	01/25/05	AHO-3 THIMBLE	0.314	PPM
20050639	8	01/26/05	ECON OUT 4 THIMBLE	0.019	PPM
20050640	16	01/26/05	AHO-4 THIMBLE	0.379	PPM

NIST 1633B (also used as Continuing Calibration Verification)	PPM		
1633B	0.153	109%	good
1633B	0.153	109%	good

# Run 2 Filters by ASTM 6414, Acid Digestion/CVAA

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ANALNUM	SAMPLE	DATE	DESCR	Hg	
20050629	34	01/24/05	FGD-1 3-IN FILTER	<5.0	ng/filter
20050630	27	01/24/05	STK-1 3-IN FILTER	<5.0	ng/filter
20050633	35	01/25/05	FGD-2 3-IN FILTER	<5.0	ng/filter
20050634	31	01/25/05	STK-2 3-IN FILTER	<5.0	ng/filter
20050637	36	01/25/05	FGD-3 3-IN FILTER	<5.0	ng/filter
20050638	32	01/25/05	STK-3 3-IN FILTER	<5.0	ng/filter
20050641	37	01/26/05	FGD-4 3-IN FILTER	<5.0	ng/filter
20050642	33	01/26/05	STK-4 3-IN FILTER	<5.0	ng/filter
20050644	47-B	01/26/05	47-B 47 MM FILTER	<5.0	ng/filter
20050645	3IN-B	01/26/05	3IN-B 3-IN FILTER	<5.0	ng/filter
20050643	THM-B	01/26/05	THM-B THIMBLE	<0.005	PPM

0.128	91%	good
ng/ml		
	¥	ng/ml

1641d 8 ppb	0.2	10376	9000
1641d 8ppb	8.2	103%	good
1641d 8ppb	8.2	103%	good
1641d 8ppb	8.3	104%	good

DESCRIPTION ECON OUT 1 THIMBLE UNIT 2 DATE SAMPLED 01/24/05 SAMPLE NUMBER 5 DATE LOGGED DATE COMPLE PROJECT NUM

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050627

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#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	95.52	Carbon Ash	4.19 95.52	Silicon Al2O3	49.24 24.14
MISC. (As	Det.)	A211	90.0L	Ti02 Fe203	1.40 12.98
MERCURY	0.017 PPM			CaO MgO	1.64 1.05
				Na20 K20	0.54 2.39
				P205 S03	0.30 0.53
				UND	5.79

AS DETERMINED MOISTURE: 0.19 %

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#### DISTRIBUTION: J. WITHUM J LOCKF

J. LOCKE S. TSENG

DESCRIPTION AHO-1 THIMBLE UNIT 2 DATE SAMPLED 01/24/05 SAMPLE NUMBER 13

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050628

#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	93.28	Carbon Ash	5.52 93.28	Silicon Al2O3	48.07 23.35
<u>MISC. (As</u>	Det.)	ASII	30.20	Ti02 Fe203	1.32 12.81
MERCURY	0.283 PPM			CaO MgO	$1.50 \\ 1.01$
				Na20 K20	0.53
				P205 S03	0.28 0.78
				UND	8.02

AS DETERMINED MOISTURE: 0.35 %

#### DISTRIBUTION: J. WITHUM J. LOCKE

S. TSENG

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DESCRIPTION FGD-1 3-IN FILTER UNIT 2 DATE SAMPLED 01/24/05 SAMPLE NUMBER 34

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050629

#### ANALYSIS REPORT

MISC. (As Det.)

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DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

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DESCRIPTION STK-1 3-IN FILTER UNIT 2 DATE SAMPLED 01/24/05 SAMPLE NUMBER 27

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050630

ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

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DESCRIPTION	ECON OUT 2 THIMBLE INIT 2	-	
DATE SAMPLED SAMPLE NUMBER	01/25/05	DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 - ANALYTICAL NUMBER <b>050631</b>	-

#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	(	93.83	Carbon Ash	5.68 93.83	Silicon Al2O3	47 . 65 26 . 35
MISC. (As	<u>Det.)</u>				Ti02 Fe203	1.37 9.91
MERCURY	0.015 PPM				CaO MgO Na2O K2O P2O5 SO3 UND	1.44 0.93 0.50 2.41 0.35 0.53 8.56

AS DETERMINED MOISTURE: 0.27 %

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# DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

DESCRIPTION AHO-2 THIMBLE UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 14

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050632 ş

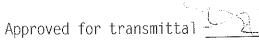
#### ANALYSIS REPORT

PROXIMATE	<u>(Dry)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	<u>(Dry)%</u>
Ash	93.18	Carbon Ash	6.45 93.18	Silicon Al2O3	48.11 26.00
<u>MISC. (As</u>	Det.)	7.511		Ti02 Fe203	1.37 10.23
MERCURY	0.653 PPM			CaO	1.46 0.92
				MgO Na2O	0.47
				K20 P205	2.38 0.33
				S03	0.65
				UND	8.08

AS DETERMINED MOISTURE: 0.37 %

#### DISTRIBUTION: J. WITHUM J. LOCKE

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DESCRIPTION FGD-2 3-IN FILTER UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 35

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050633

ANALYSIS REPORT

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MERCURY <5.0 NG/FIL

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DESCRIPTION STK-2 3-IN FILTER UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 31

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050634

ANALYSIS REPORT

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DESCRIPTION	ECON OUT 3 THIMBLE UNIT 2	
DATE SAMPLED SAMPLE NUMBER	01/25/05	DATE LOGGED DATE COMPLETE
SALLEL NOTIDEN	0	PROJECT NUMBE

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050635

#### ANALYSIS REPORT

<u>PROXIMATE</u>	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	93.6	4 Carbon Ash	6.24 93.64	Silicon Al2O3	49.70 26.71
<u>MISC. (As</u>	<u>Det.)</u>	ASII	<b>50</b> , 0 <del>4</del>	Ti02 Fe203	1.42 9.71
MERCURY	0.016 PPM			CaO	1.45 0.95
				MgO Na2O K2O P2O5	0.49 2.47 0.39
				SO3 UND	0.42 6.29

AS DETERMINED MOISTURE: 0.22 %

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DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

DESCRIPTION AHO-3 THIMBLE UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 15

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050636

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#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	91.72	Carbon Ash	7.45 91.72	Silicon Al2O3	48.48 26.48
MISC. (As	<u>Det.)</u>	ASII	J1.72	Ti02 Fe203	1.38 9.74
MERCURY	0.314 PPM			CaO MgO	1.37 0.92
				Na20 K20	0.51 2.49
				P205 S03	0.38 0.73
				UND	7.52

AS DETERMINED MOISTURE: 0.28 %

#### DISTRIBUTION: J. WITHUM J. LOCKE

S.	TSENG

DESCRIPTION FGD-3 3-IN FILTER UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 36

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050637 )

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ANALYSIS REPORT

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MERCURY <5.0 NG/FIL

DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

DESCRIPTION STK-3 3-IN FILTER UNIT 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER 32

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050638

#### ANALYSIS REPORT

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DESCRIPTION ECON OUT 4 THIMBLE UNIT 2 DATE SAMPLED 01/26/05 SAMPLE NUMBER 8

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DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050639

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#### ANALYSIS REPORT

PROXIMATE	<u>(Dry)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	94.96	Carbon Ash	5.00 94.96	Silicon Al2O3	50.78 26.93
<u>MISC. (As</u>	<u>Det.)</u>	ASII	94.90	Ti02 Fe203	1.53 8.69
MERCURY	0.019 PPM			CaO	1.52 0.91
				MgO Na2O	0.52
				K20 P205	2.36 0.50
				SO3 UND	0.42 5.84

AS DETERMINED MOISTURE: 0.19 %

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DESCRIPTION AHO-4 THIMBLE UNIT 2 DATE SAMPLED 01/26/05 SAMPLE NUMBER 16

DATE LOGGED 02/03/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050640

## ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash	9	2.91	Carbon	6.49 92.91	Silicon Al2O3	50.68 25.89
<u>MISC. (As</u>	<u>Det.)</u>		Ash	94.91	Ti02 Fe203	1.47 9.00
MERCURY	0.379 PPM				CaO MgO	1.51 0.89
					Na20 K20	0.46
					P205	0.46
					SO3 UND	0.58 6.80

AS DETERMINED MOISTURE: 0.28 %

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DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

DESCRIPTION FGD-4 3-IN FILTER UNIT 2 DATE SAMPLED 01/26/05 SAMPLE NUMBER 37

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050641

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ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

DISTRIBUTION: J. WITHUM J. LOCKE S. TSENG

DESCRIPTION STK-4 3-IN FILTER UNIT 2 DATE SAMPLED 01/26/05 SAMPLE NUMBER 33

DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050642** 

ANALYSIS REPORT

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Thimble + filter numbers 143 Pinit ! Stack Aut Quit Form Ero Out Keith, greff. 47 mm Thimb Gay: Themelo з" Tert 23 9 17 t l 24 18 10 2 2) z5 19 11 3 3 えん えの 12 4 2 Init 2 Stach En Quit Day: S AH. Out FGDen Keeto 2.ff Jun 13 14 Test 34 27 ) [ 31 35 ン 32 36 15 3 33 37 3″ Themb-4 Themal Juff Zinit 2 test 1.2.3.4 3″ 34 0.4025 35 0. 3987 35 0. 3970

5-3958 37

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Distribution:	Withun - Locke_
Project No.:	1621-87
Sample Date:	1-21-05

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Sample Date:	121	- 05						
Location:	Blank	Task: 1	Test:	4	Operator:	Juff		
Sample ID	Bottle #	Description	Initlai Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						
	1 <b>A</b>	Probe & Filter Rinse						
	1B	Heated Line Rinse						·
99	2	KCI Impingers	300	150		450		<u> </u>
/00	3	HNO ₃ /H ₂ O ₂ Impinger	100	75		175		
101	4	KMnO₄ Impingers	200	50		250		
102	5	KMnO₄ Acid Rinse		100		100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	9	Probe/Line Rinse wt:	9	Conde	nsate Total:		ml	
Recovered By:	L rene	e Elist Task:				21-05		
Location:	Imp	Task:	Test:		Operator:	Final Vol		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Galn mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						ļ
	1A	Probe & Filter Rinse						<b></b>
	1B	Heated Line Rinse						
104	2	KCI Impingers	300	150		450		ļ
/05	3	HNO ₃ /H ₂ O ₂ Impinger	100	75		175		
106	4	KMnO ₄ Impingers	200	50		250		
/07	5	KMnO₄ Acid Rinse		100		100		
Filter Gross wt: Filter Tare wt: Filter Net wt:	g	Probe/Line Rinse wt:	9 9	Conde				
Recovered By:	V					· 2/- 0	<u> </u>	
Location:	FGD In	Task:			Operator:			
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						
	1A	Probe & Filter Rinse		· · · ·				<u> </u>
	1B	Heated Line Rinse						<u> </u>
	2	KCI Impingers						<u> </u>
1								
µ	3	HNO ₃ /H ₂ O ₂ Impinger						
	3 4	HNO ₃ /H ₂ O ₂ Impinger KMnO ₄ Impingers						
				<u> </u>				
Filter Gross wt: Filter Tare wt: Filter Net wt:	4 5 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt:		Conde	ensate Total:		ml	
Filter Tare wt:	4 5 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	g	Conde				
Filter Tare wt: Filter Net wt:	4 5 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	9 9					
Filter Tare wt: Filter Net wt: Recovered By:_	4 5 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	9 9		Date: Operator:			Total ug of Hg
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 9 9 9 9 9 5 8 5 8 5 8 5 8 5	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task:	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 9 9 5tack Bottle #	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 9 Stack Bottle # S	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 5 5 5 5 5 5 1 4	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids Probe & Filter Rinse	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 5 5 5 5 5 5 5 1 4 1 8	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 5tack Bottle # 5 1A 1B 2	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location:	4 5 9 9 5tack Bottle # 5 1A 1B 2 3	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers	9 9 Test:	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID	4 5 9 9 5 5 5 5 5	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse	9 9 Test:  	Rinse Vol	Date: Operator: Gain	Final Vol		
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt:	4 5 9 9 5 5 5 5 9 9 9 9 9 5 5 5 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt:	9 9 Test:  mL	Rinse Vol mL	Date: Operator: Gain mL	Final Vol	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID	4 5 9 9 9 5 5 5 9 9 9 9 9 9 9 9 9 9 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt:	9 9 1 1 1   	Rinse Vol mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Tare wt:	4 5 9 9 9 8 5 5 9 9 9 9 9 9 9 9 9 9 9 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt:	9 9 1 1 1   	Rinse Vol mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Tare wt: Filter Net wt:	4 5 9 9 9 8 5 5 9 9 9 9 9 9 9 9 9 9 9 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	9 9 1 1 1   	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	4 5 9 9 9 5 tack Bottle # 5 1A 1B 2 3 4 5 9 9 9 9 9 9	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Task: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₄/H₂O₂ Impinger KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description	9 7 Initial Vol 9 9 9 9	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	4 5 9 9 5 5 5 5 9 9 9 9 9 9 9 9 9 3 3 3 4 5 3 3 4 5 5 3 3 4 5 3 3 3 3 3 3	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt:	9 7 Initial Vol 9 9 9 9	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	4 5 9 9 5 5 5 5 9 9 9 9 9 9 9 9 9 3 3 3 4 5 3 3 4 5 5 3 3 4 5 3 3 3 3 3 3	KMnO₄ Impingers KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description Filter/Solids Probe & Filter Rinse Heated Line Rinse KCI Impingers HNO₃/H₂O₂ Impinger KMnO₄ Acid Rinse Filter Net wt: Probe/Line Rinse wt: Total Particulate wt: Description In. Filter Blank	9 7 Initial Vol 9 9 9 9	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	4 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	KMnO₄ Impingers         KMnO₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Task:	9 7 Initial Vol 9 9 9 9	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	
Filter Tare wt: Filter Net wt: Recovered By: Location: Sample ID  Filter Gross wt: Filter Gross wt: Filter Tare wt: Filter Net wt: Recovered By:	4 5 9 9 9 5tack Bottle # 5 1A 1B 2 3 4 5 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	KMnO₄ Impingers         KMnO₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Task:         Description         Filter/Solids         Probe & Filter Rinse         Heated Line Rinse         KCI Impingers         HNO₃/H₂O₂ Impinger         KMnO₄ Acid Rinse         Filter Net wt:         Probe/Line Rinse wt:         Total Particulate wt:         Description         In, Filter Blank         Thimble Blank         KCi Blank	9 7 Initial Vol 9 9 9 9	Rinse Voi mL	Date: Operator: Gain mL	Final Vol mL	ppb Hg	

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Distribution: _____ Project No.: ______

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Sample Date: FGD IN Operator Location: Task' Test^{*} Initial Vol **Rinse Vol** Gain Final Total ug ppb Hg Sample ID Bottle # Description of Hg mL mL mL mL Filter/Solids s Probe & Filter Rinse 1A 1B Heated Line Rinse 103 KCI Impingers 3 < 0 150 450 2 104 75 HNO₃/H₂O₂ Impinger 100 175 3 200 50 250 105 4 KMnO₄ Impingers 100 00 KMnO₄ Acid Rinse 106 5 Filter Gross wt: Filter Net wt: Q Probe/Line Rinse wt: Condensate Total: ml Filter Tare wt: _g g Total Particulate wt: Filter Net wt: g g Date: 1-26-05 Recovered By: Test: Operator Location: AHO Task: Total ug Initial Vol **Rinse Vol** Gain Final Vol ppb Hg Sample ID Bottle # Description mL mL mL of Hg mL Filter/Solids S Probe & Filter Rinse 1A 1B Heated Line Rinse 2 KCI Impingers HNO₃/H₂O₂ Impinger 3 KMnO₄ Impingers 4 KMnO₄ Acid Rinse 5 Filter Net wt: Filter Gross wt: _g g Filter Tare wt: Probe/Line Rinse wt: g Condensate Total: m g Total Particulate wt: Filter Net wt: .g g Date: Recovered By:_ Location: FGD In Task: Test: Operator Total ug Initial Vol **Rinse Vol** Gain Final Vol Description ppb Hg Sample ID Bottle # mĹ mL mL mL of Hg s Filter/Solids Probe & Filter Rinse 1A Heated Line Rinse 1B KCI Impingers 2 HNO₃/H₂O₂ Impinger 3 KMnO₄ Impingers 4 KMnO₄ Acid Rinse 5 Filter Net wt: Filter Gross wt: g q Probe/Line Rinse wt; Condensate Total: ml Filter Tare wt: g g Filter Net wt: g Total Particulate wt: g Recovered By: Date: Test Operator: Location: Stack Task: Initial Vol Rinse Vol Gain Final Vol Total ug ppb Hg Description Sample ID Bottle # of Hg mL mL mL ml s Filter/Solids Probe & Filter Rinse 1A 1B Heated Line Rinse 2 KCI Impingers 3 HNO₃/H₂O₂ Impinger 4 KMnO₄ Impingers KMnO₄ Acid Rinse 5 Filter Gross wt: Filter Net wt: g a Probe/Line Rinse wt: Condensate Total: ml Filter Tare wt: g g Total Particulate wt: Filter Net wt: σ g Recovered By: Date:_ Total ug Description ppb Hg Sample ID

 
 Sample ID
 Description
 ppb Hg
 Total ug of Hg

 3 in. Filter Blank
 Thimble Blank

 Thimble Blank
 KCI Blank

 KCI Blank
 HNO₃ / H2O2 Blank

 HNO₃ / H2O2 Blank
 HNO₃ / HCI Blank

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Which 2 che 24 Test: Operator: Æ. Initial Vol Rinse Vol Gain Final Vol

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Location:	Econ Out	_ Task:	Test:		Operator:	Any		
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						
	1A	Probe & Filter Rinse				-		
	1B	Heated Line Rinse						
51	2	KCI Impingers	300	150		450		
ي ج	3	HNO ₃ /H ₂ O ₂ Impinger	100	75		175		
53	4	KMnO₄ Impingers	200	50		250		1
54	5	KMnO₄ Acid Rinse		100		100	****	
Filter Gross wt: Filter Tare wt: Filter Net wt:		Probe/Line Rinse wt:	9	Conde				
Recovered By:_	<del>/</del>	····· · · ·			Date: /-	25-05	<u>-</u> .	
Location:	ано 🖉	Task:			Operator:			r
Sample ID	Bottle #	Description	lnitial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						ļ
	1A	Probe & Filter Rinse						ļ
	1B	Heated Line Rinse						
	2	KCI Impingers						
	3	HNO ₃ /H ₂ O ₂ Impinger						
	4	KMnO₄ Impingers						
	5	KMnO₄ Acid Rinse						
Recovered By:_		<b>—</b>	7 1					
Location:	FGD In	Task:	Test:		Operator:			
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids						
	1A	Probe & Filter Rinse						
	1B	Heated Line Rinse		· .				
	2	KCI Impingers	· · ·					
	3	HNO ₃ /H ₂ O ₂ Impinger						
	4	KMnO ₄ Impingers						
	5	KMnO₄ Acid Rinse						<u> </u>
Filter Gross wt: Filter Tare wt: Filter Net wt:	9				nsate Total:		.ml	
Recovered By:_					Date:			
Location:	Stack	Task:	Test:		Operator:			
Sample ID	Bottle #	Description	Initial Vol mL	Rinse Vol mL	Gain mL	Final Vol mL	ppb Hg	Total ug of Hg
	S	Filter/Solids		•				
	1A	Probe & Filter Rinse						
	1B	Heated Line Rinse						
	2	KCI Impingers						
	3	HNO ₃ /H ₂ O ₂ Impinger						
		· · · · · · · · · · · · · · · · · · ·						

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KMnO₄ Impingers KMnO₄ Acid Rinse 5 Filter Gross wt: g Filter Tare wt: Filter Net wt: g

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Filter Net wt: . Probe/Line Rinse wt: Total Particulate wt: . g

Condensate Total: mŧ

Recovered By:

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Distribution: <u>2/12</u> Project No.: Sample Date: <u>/ · 2</u>

Location: Econ Out

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Task:

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Sample ID	Description	ppb Hg	Total ug of Hg
	3 in. Filter Blank		
	Thimble Blank		
	KCI Blank		
	HNO ₃ / H2O2 Blank		
55	KMnO₄ Blank		
	HNO ₃ / HCI Blank		

Date:

DESCRIPTION THM-B THIMBLE BLANK DATE SAMPLED 01/26/05 SAMPLE NUMBER THM-B

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050643

ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <0.005 PPM

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DIS	STRIBUTION:	
J.	WITHUM	
J.	LOCKE	
S.	TSENG	

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DESCRIPTION 47-B 47 MM FILTER BLANK DATE SAMPLED 01/26/05 SAMPLE NUMBER 47-B

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DATE LOGGED 02/03/05 DATE COMPLETED 03/04/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050644

ANALYSIS REPORT

MISC. (As Det.)

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MERCURY <5.0 NG/FIL

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J.	LOCKE
S.	TSENG

DESCRIPTION 3IN-B 3-IN FILTER BLANK DATE SAMPLED 01/26/05 SAMPLE NUMBER 3IN-B

DATE LOGGED 02/03/05 DATE COMPLETED 02/11/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050645

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ANALYSIS REPORT

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MISC. (As Det.)

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MERCURY <5.0 NG/FIL

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## **APPENDIX D**

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### **Process Material Data**

- Coal Analysis Data Sheets
- Bottom Ash Analysis Data Sheets
- Limestone Slurry Solids Analysis Data Sheets
- Limestone Slurry Filtrate Analysis Data Sheets
- Ash Analysis Data Sheets
- FGD Slurry Solids Analysis Data Sheets
- FGD Slurry Filtrate Data Sheets
- FGD Makeup Water Analysis Data Sheets

DESCRIPTION	AS-FIRED COAL
	UNIT 1 TEST 1
DATE SAMPLED	
SAMPLE NUMBER	COAL-U1T1

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DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050682

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	%
Ash Volatile Matter Fixed Carbon Sulfur, Total BTU/1b MAF BTU/1b	7.77 38.08 54.15 1.39 13683 14836	Carbon Hydrogen Nitrogen Chlorine Sulfur, Total Ash Oxygen (DIFF)	77.74 4.63 1.56 0.144 1.39 7.77 6.77	Silicon Al2O3 TiO2 Fe2O3 CaO MgO	50.01 27.77 1.29 12.63 1.73 1.00
MAR BT0710 MISC. (As Det.) Hg 0.091 PP		olygen (Dirr)	0.17	Na20 K20 P205 S03 UND	0.55 2.28 0.18 1.68 0.88

AS DETERMINED MOISTURE: 2.00 %

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DESCRIPTION	AS-FIRED COAL
	UNIT 1 TESTS 2&3
DATE SAMPLED	
SAMPLE NUMBER	COAL-U1T2T3

DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050683

#### ANALYSIS REPORT

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PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	%
Ash Volatile Matter Fixed Carbon	8.24 38.40 53.36	Carbon Hydrogen Nitrogen Chlorine	77.01 4.81 1.61 0.143	Silicon Al203 Ti02	50.46 26.57 1.34 12.73
Sulfur, Total BTU/1b MAF BTU/1b MISC. (As Det.)	1.45 13686 14915	Sulfur, Total Ash Oxygen (DIFF)	1.45 8.24 6.74	Fe2O3 CaO MgO Na2O K2O	1.69 0.98 0.53 2.29
Hg 0.110 PP	М			P205 S03 UND	0.25 1.62 1.54

AS DETERMINED MOISTURE: 1.89 %

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#### CONSOL ENERGY INC. RESEARCH & DEVELOPMENT ANALYTICAL LABORATORY 4000 BROWNSVILLE ROAD, SOUTH PARK, PA 15129

DESCRIPTION	AS-FIRED COAL
	UNIT 1 TEST 4
DATE SAMPLED	
SAMPLE NUMBER	COAL-U1T4

DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050684** 

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry) <u>%</u>	MAJOR ASH ELEM Ignited at 750 C	<u>%</u>
Ash Volatile Matter Fixed Carbon	11.85 37.32 50.83	Carbon Hydrogen Nitrogen Chlorine	74.83 4.65 1.58 0.157	Silicon Al203 Ti02	54.52 26.87 1.09
Sulfur, Total BTU/1b MAF BTU/1b	1.19 13205 14980	Sulfur, Total Ash Oxygen (DIFF)	1.19 11.85 5.74	Fe2O3 CaO MgO Na2O	$9.17 \\ 1.50 \\ 1.17 \\ 0.63 $
MISC. (As Det.)				K20 P205	2.90 0.11
Hg 0.066 PF	M			SO3 UND	1.24 0.80

AS DETERMINED MOISTURE: 1.37 %

#### DISTRIBUTION:

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J.	WITHUM

DESCRIPTION	AS-FIRED COAL
	UNIT 2 TEST 1
DATE SAMPLED	01/24/05
SAMPLE NUMBER	COAL-U2T1

DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050685

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	%
Ash Volatile Matter Fixed Carbon Sulfur, Total BTU/1b MAF BTU/1b	8.40 38.57 53.03 1.66 13764 15026	Carbon Hydrogen Nitrogen Chlorine Sulfur, Total Ash Oxygen (DIFF)	77.39 4.72 1.52 0.141 1.66 8.40 6.17	Ignited at 750 C Silicon Al2O3 TiO2 Fe2O3 CaO MgO Na2O	$\begin{array}{r} 49.70\\ 24.10\\ 1.15\\ 16.77\\ 1.68\\ 1.16\\ 0.57\\ 0.57\end{array}$
<u>MISC. (As Det.)</u>				K20 P205	2.58 0.22
Hg 0.145 PP	М			SO3 UND	1.52 0.55

AS DETERMINED MOISTURE: 1.83 %

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#### DISTRIBUTION: S. TSENG

#### J. LOCKE J. WITHUM

DESCRIPTION	AS-FIRED COAL
	UNIT 2 TESTS 2&3
DATE SAMPLED	01/25/05
SAMPLE NUMBER	COAL-U2T2T3

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DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050686 ι

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 75 C	%
Ash Volatile Matter Fixed Carbon Sulfur, Total	8.69 36.26 55.05 1.59	Carbon Hydrogen Nitrogen Chlorine Sulfur, Total	76.66 4.67 1.46 0.135 1.59 8.69	Silicon Al2O3 TiO2 Fe2O3 CaO	51.13 23.98 1.05 15.05 2.81
BTU/1b MAF BTU/1b MISC. (As Det.)	13663 14963	Ash Oxygen (DIFF)	6.80	MgO Na2O K2O	0.72 0.65 1.86
Hg 0.163 PP	M			P205 S03 UND	0.35 1.54 0.86

AS DETERMINED MOISTURE: 1.49 %

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J. WITHUM

DESCRIPTION	AS-FIRED COAL
	UNIT 2 TEST 4
DATE SAMPLED	<i>01/26/05</i>
SAMPLE NUMBER	COAL-U2T4

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DATE LOGGED 02/07/05 DATE COMPLETED 03/02/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050687

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 75 C	%
Ash Volatile Matter Fixed Carbon	8.28 35.46 56.26	Carbon Hydrogen Nitrogen Chlorine	77.44 4.77 1.53 0.151	Silicon Al2O3 TiO2	50.50 28.16 1.41
Sulfur, Total BTU/1b MAF BTU/1b	1.38 13761 15003	Sulfur, Total Ash Oxygen (DIFF)	1.38 8.28 6.45	Fe2O3 CaO MgO Na2O	11.76 1.58 0.95 0.53
<u>MISC. (As Det.)</u>				K20 P205	2.35 0.47
Hg 0.113 PF	Μ			SO3 UND	1.39 0.90

AS DETERMINED MOISTURE: 1.61 %

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J. WITHUM

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DESCRIPTION	MILL REJECTS
	UNIT 1 TEST 1
DATE SAMPLED	
SAMPLE NUMBER	<i>REJECTS U1T1</i>

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DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050688

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	<u>%</u>
Ash Volatile Matter Fixed Carbon	14.88 35.77 49.35	Carbon Hydrogen Nitrogen Chlorine	69.43 4.25 1.32 0.085	Silicon Al203 Ti02	45.98 22.24 1.22
Sulfur, Total BTU/1b MAF BTU/1b	3.20 12413 14583	Sulfur, Total Ash Oxygen (DIFF)	3.20 14.88 6.84	Fe2O3 CaO MgO Na2O	21.31 2.18 0.81 0.48
MISC. (As Det.)				K20 P205	1.63 0.35
Hg 0.426 PP	М			SO3 UND	1.62 2.18

AS DETERMINED MOISTURE: 1.50 %

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DESCRIPTION MILL REJECTS UNIT 2 TEST 1 DATE SAMPLED 01/24/05 SAMPLE NUMBER REJECTS U2T1

DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050689** 

#### ANALYSIS REPORT

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PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	%
Ash Volatile Matter Fixed Carbon	39.74 28.78 31.48	Carbon Hydrogen Nitrogen Chlorine	46.83 2.82 0.81 0.074	Silicon Al203 Ti02	45.27 17.97 0.88
Sulfur, Total BTU/1b MAF BTU/1b	6.07 8456 14033	Sulfur, Total Ash Oxygen (DIFF)	6.07 39.74 3.66	Fe2O3 CaO MgO Na2O	24.07 4.66 0.85 0.28
MISC. (As Det.)				K20 P205	1.03 0.22
Hg 0.783 PI	РМ			SO3 UND	3.81 0.96

AS DETERMINED MOISTURE: 0.82 %

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#### DISTRIBUTION:

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DESCRIPTION MILL REJECTS UNIT 2 TEST 2 DATE SAMPLED 01/25/05 SAMPLE NUMBER REJECTS U2T2

DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050690

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	<u>MAJOR ASH ELEM</u> Ignited at 750 C	<u> </u>
Ash Volatile Matter Fixed Carbon	46.20 30.88 22.92	Carbon Hydrogen Nitrogen Chlorine	39.74 2.37 0.66 0.059	Silicon Al2O3 TiO2	28.75 11.82 0.46
Sulfur, Total BTU/lb MAF BTU/lb	8.74 6899 12823	Sulfur, Total Ash Oxygen (DIFF)	8.74 46.20 2.23	Fe2O3 CaO MgO Na2O	40.41 8.41 0.89 0.21
MISC. (As Det.)				K20 P205	$\begin{array}{c} 0.81 \\ 0.13 \end{array}$
Hg 2.33 PF	M			SO3 UND	8.17 -0.06

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AS DETERMINED MOISTURE: 0.68 %

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#### DISTRIBUTION:

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DESCRIPTION	MILL REJECTS 17:00
	UNIT 2 TEST 3
	01/25/05
SAMPLE NUMBER	REJECTS U2T3

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DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050691

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	<u>%</u>
Ash Volatile Matter Fixed Carbon	58.31 26.31 15.38	Carbon Hydrogen Nitrogen Chlorine	24.51 1.45 0.38 0.035	Silicon Al203 Ti02	25.07 6.85 0.33
Sulfur, Total BTU/lb MAF BTU/lb	17.98 4502 10799	Sulfur, Total Ash Oxygen (DIFF)	17.98 58.31 2=66	Fe2O3 CaO MgO Na2O	52.03 7.45 0.68 0.17
MISC. (As Det.)				K20 P205	0.72 0.04
Hg 2.63 PP	М			SO3 UND	7.95 -1.29

AS DETERMINED MOISTURE: 0.44 %

DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

DESCRIPTION	MILL REJECTS
	UNIT 2 TEST 4
DATE SAMPLED	<i>01/26/05</i>
SAMPLE NUMBER	REJECTS U2T4

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DATE LOGGED 02/07/05 DATE COMPLETED 02/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050692

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at 750 C	%
Ash Volatile Matter Fixed Carbon	52.38 26.69 20.93	Carbon Hydrogen Nitrogen Chlorine	32.41 1.95 0.53 0.036	Silicon Al2O3 TiO2	23.91 6.99 0.40
Sulfur, Total BTU/1b MAF BTU/1b	14.97 5954 12503	Sulfur, Total Ash Oxygen (DIFF)	14.97 52.38 2 ² 28	Fe2O3 CaO MgO Na2O	49.64 7.58 0.50 0.13
MISC. (As Det.)				K20 P205	0.59 0.04
Hg 3.00 PF	РМ			SO3 UND	8.54 1.68

AS DETERMINED MOISTURE: 0.48 %

DIS	STRIBUTION:
S.	TSENG
J.	LOCKE
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J. WITHUM

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DESCRIPTION BOTTOM ASH 16:30-16:40 UNIT 1 TEST 1 DATE SAMPLED 01/19/05 SAMPLE NUMBER BTMASH-U1T1

DATE LOGGED 02/07/05 DATE COMPLETED 03/16/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050693

#### ANALYSIS REPORT

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PROXIMATE (Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
	2.73 Carbon 2.02 Chlorine Ash ,	0.39 0.025 99.73	Silicon Al2O3 TiO2 Fe2O3 CaO MgO Na2O K2O P2O5 SO3 UND	$51.91 \\ 25.87 \\ 1.36 \\ 13.81 \\ 1.45 \\ 0.89 \\ 0.48 \\ 2.18 \\ 0.14 \\ 0.04 \\ 1.87 \\ \end{array}$

AS DETERMINED MOISTURE: 0.01 %

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#### DISTRIBUTION:

S. TSENG J. LOCKE J. WITHUM

DESCRIPTION	BOTTOM ASH 16:30
	UNIT 1 TESTS 2&3
	<i>01/20/05</i>
SAMPLE NUMBER	BTMASH-U1T2T3

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DATE LOGGED 02/07/05 DATE COMPLETED 03/16/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050694

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	99.99 0.00	Carbon Chlorine Ash	0.20 0.027 99.99	Silicon Al2O3 TiO2	52.37 25.86 1.38
MISC. (As Det.)		,		Fe2O3 CaO	14.13 1.47
Hg 0.011 PP	Μ			Mg0 Na20 K20 P205 S03 UND	0.90 0.47 2.19 0.16 0.01 1.06

AS DETERMINED MOISTURE: 0.01 %

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DESCRIPTION	BOTTOM ASH 16:00-16:30 UNIT 2 TESTS 2&3				
	01/25/05	DATE CO	OMPLETED	02/07/05 03/16/05 1621-87 -	•

ANALYTICAL NUMBER 050697

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#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry) <u>%</u>	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur <u>MISC. (As De</u> Hg		Carbon Chlorine Ash	1.93 0.035 98.16	Silicon Al2O3 TiO2 Fe2O3 CaO MgO Na2O K2O P2O5 SO3 UND	51.0224.661.3314.961.350.920.462.230.220.802.05
				SHE	4,00

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AS DETERMINED MOISTURE: 0.10 %

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#### DISTRIBUTION:

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DESCRIPTION UNIT 2 TEST 4 DATE SAMPLED SAMPLE NUMBER BTMASH-U2T4

DATE LOGGED 02/07/05 DATE COMPLETED 03/16/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050698

#### ANALYSIS REPORT

PROXIMATE (Dry)%			ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	ır	99.03 0.10	Carbon Chlorine Ash	$1.12 \\ 0.048 \\ 99.03$	Silicon Al2O3 TiO2	52.96 26.12 1.44
MISC. (As Det.)			,011		Fe203 CaO	12.62 1.45
Hg	0.017 PPN	1			MgO Na2O K2O P2O5 SO3 UND	0.91 0.47 2.25 0.30 0.24 1.24

AS DETERMINED MOISTURE: 0.01 %

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J. WITHUM

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**Research and Development** www.consolenergy.com 4000 Brownsville Rd. South Park, PA 15129

#### BOTTOM ASH FILTRATE 16:30-16:40

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Sample No.: BTMASH-U1T1 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050780 Analytical No.: Project No.: 1621 -087 -000

#### Submitter: S. TSENG

Parameter	<u>Water Result</u> (mg/L unless noted otherwise) Value Value Units Avg Value				Quality Control Calculations	
pH					Ion Sum	3452.19
Acidity, CaCO3		10 (1997) (1997) (1997) 10 (1997) (1997)			Option Origo	57.07
Alkalinity, CaCO3					Cation Sum	57.07
Hydroxide, CaCO3				· · · · · · · · · · · · · · · · · · ·	Anion Sum	60.87
Carbonate, CaCO3					Ion Balance	3.62
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbalance	-3.22
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure				····· ·····		
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					1	
Aluminum			-		/ <i>Hq</i> <1.	0 ng/mi
Calcium	326.80			· · · · · · · · · · · · · · · · · · ·	T	
Iron	<1.25				· ·	
Magnesium	217.38					
Manganese						
Potassium	68.44					
Phosphorous						
Silicon				· · ··································		
Sodium	485.84					
Chromium						
Anions:						
Sulfate	711.98					
Chloride	1620					
Nitrate, N	4.91					
Nitrite, N				· · · · · · · · · · · · · · · · · · ·		
Bromide						
Fluoride					,	

These values have been reviewed and are approved for transmission.

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# **BOTTOM ASH FILTRATE 16:30**

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Sample No.: BTMASH-U1T2T3 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050781 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	-	<u>Nater Result</u> nless noted	-			
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
pH					Ion Sum	3441.35
Acidity, CaCO3					Cation Sum	60.18
Alkalinity, CaCO3						50 50
Hydroxide, CaCO3					Anion Sum	58.53
Carbonate, CaCO3					lon Balance	-1.63
Bicarbonate, CaCO3		TRILLING CONTRACTOR			% Ion Imbalance	1.39
Total Suspended Solids					% ION Imparance	1.00
Specific Conductivity						
Hardness				TOTO NELLING INDUSTRIAL		
Turbidity						
Osmotic Pressure						
Dissolved Oxygen	<10					
Ammonia, N						
Total Elements				·	1	ng/m
Aluminum					HG <1.0	, ,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Calcium	344.97				$ \mathbf{J} $	$\mathcal{O}$
Iron	<1.25					
Magnesium	229.51					
Manganese						
Potassium	70.65	n sector and the sector of the				
Phosphorous						
Silicon						
Sodium	512.34					
Chromium						
Anions:						
Sulfate	762.09					
Chloride	1500					
Nitrate, N	4.92					
Nitrite, N						
Bromide						
Fluoride						

# BOTTOM ASH FILTRATE 16:00-16:30

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Sample No.: BTMASH-U2T2T3 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050782 **Analytical No.:** Project No.: 1621 -087 -000

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Submitter: S. TSENG

		Water Resul				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
pH					Ion Sum	3022.40
Acidity, CaCO3					Cation Sum	51.73
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	51.14
Carbonate, CaCO3 Bicarbonate, CaCO3					Ion Balance	-0.66
Total Suspended Solids					% Ion Imbalance	0.57
Total Dissolved Solids Specific Conductivity						
Hardness Turbidity	X 1 HURSTELLER (C. 1971					
Osmotic Pressure						
Dissolved Oxygen Ammonia, N	<10					
Total Elements					,/	har l
Aluminum Calcium	309.00				<i>Ak</i> ₁ <1.0	
Iron	<1.25 184.56				0	
Magnesium Manganese	62.99					
Potassium Phosphorous	02.99					
Silicon Sodium Chromium	448,86					
Anions:						
Sulfate Chloride	748.34					
Nitrate, N						
Nitrite, N Bromide Fluoride						

# BOTTOM ASH FILTRATE 11:15-11:45

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Sample No.: BTMASH-U2T4 Date Received: 02/07/2005

Date Completed: 04/05/2005

Analytical No.: 20050783 Project No.: 1621 -087 -000

	(mg/L	<u>Water Resul</u> unless notec				
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	alculations
pH					lon Sum	2706.68
Acidity, CaCO3					Cation Sum	49.56
Alkalinity, CaCO3						40 50
Hydroxide, CaCO3	1177			<u></u>	Anion Sum	43.56
Carbonate, CaCO3					Ion Balance	-7.67
Bicarbonate, CaCO3					% Ion Imbalance	6.44
Total Suspended Solids						0.77
Total Dissolved Solids		15 Annalise and a state				
Specific Conductivity						
Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					11	no la
Aluminum					<i>F19.</i> <1.0	ng /m
Calcium	297.14		· · · ·	· · · · · · · · · · · · · · · · · · ·	()	0
Iron	<1.25				0	
Magnesium	175.00			· · · · · · · · · · · · · · · · · · ·		
Manganese						
Potassium	60.95		na auror versiteli			
Phosphorous						
Silicon		nar metalijiki di kara	·····	· · · · · · · · · · · · · · · · · · ·		
Sodium	431,88					
Chromium						
Anions:						
Sulfate	722.89					
Chloride	1000					
Nitrate, N	4,25					
Nitrite, N						
Bromide						
Fluoride						



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LIMESTONE SLURRY SOLIDS 09:35	Dute Completion of the theory	Project No.: 1621 - 087 - 000
UNIT 1 TEST 1	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050699
Sample No.: LS U1T1	••••••••••••••••••••••••••••••••••••••	
<u>Proximate (Dry) %</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 56.69	Carbon 11.67	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.0500	Hemi.
	Chlorine 0.0500 Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 56.69	
MAP BI OND	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>	FSI	Soft.
HGI At Moisture % 0.60		Hemi.
		Fluid
0.00	Trace Elements	Tala
Sulfur Form (Dry)		
Pyritic Sulfur		Major Ash, Elem.
Sulfate		as Def
Organic		SiO2 1.49
Sulfur, Total		Al2O3 0.15
		TiO2 0.01
Mise		Fe2O3 0.14
Misc.	_	CaO 53.60
<u>Analysis Value</u>		MgO 1.15
		Na2O 0.06 K2O 0.03
		P2O5 0.08
	Hg 0.044 ppm	SO3 0.29
	Fluorine	Undetermined 43.00

# As Determined Moisture 0.60 %

These values have been reviewed and are approved for transmission.

Distribution:

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LIMESTONE SLURRY SOLIDS 09:45	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 2	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050700
Sample No.: LS U1T2		
<u>Proximate (Dry) %</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 56.52	Carbon 11.34	1.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.0700	Hemi.
	Sulfur, Total	Fluid
BTU/lb	Ash 56.52	
MAF BTU/lb	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
Grindability	FSI	Soft.
HGI At Moisture % 0.60		Hemi.
0.00		Fluid
0.00	Trace Elements	
Sulfur Form (Dry)		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate Organic		as pet.
-		SiO2 1.45
Sulfur, Total		Al2O3 0.22
		TiO2 0.01
Mi <u>sc.</u>		Fe2O3 0.17
MISC.		CaO 53.39
Analysis <u>Value</u>		MgO 1.31
<u>Anaysis</u> <u>value</u>		Na2O 0.08
		K2O 0.07 P2O5 0.10
	Hg 0.045 ppm	SO3 0.26
	•	SUB 0.20
	Fluorine	Undetermined 42.94

As Determined Moisture 0.60 %

These values have been reviewed and are approved for transmission.

Distribution:

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LIMESTONE SLURRY SOLIDS 13:45	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 3	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050701
Sample No.: LS U1T3		
Proximate (Dry) <u>%</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 56.76	Carbon 11.58	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.0400	Hemi.
	Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 56.76	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
Grindability	FSI	Soft.
HGI At Moisture % 0.73		Hemi.
0.00		Fluid
0.00	Trace Elements	
Sulfur Form (Dry)		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate Organic		95 pet.
-		SiO2 1.17
Sulfur, Total		Al2O3 0.16
		TiO2 0.01
Mis <u>c.</u>		Fe2O3 0.18 CaO 53.23
<u>Analysis Value</u>		MgO 1.47 Na2O 0.06
		K2O 0.02
		P2O5 0.02
	Hg 0.038 ppm	\$O3 0.24
	Fluorine	Undetermined 43.37

As Determined Moisture 0.73 %

These values have been reviewed and are approved for transmission.

Distribution:

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Approved: _



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LIMESTONE SLURRY SOLIDS 09:15	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 4	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050702
Sample No.: LS U1T4		
Proximate (Dry) <u>%</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 56.92	Carbon 11.55	1.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.1100	Hemi.
	Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 56.92	
MAP BIOND	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>	FSI	Soft.
HGI At Moisture % 0.76		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form (Dry)		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate Organic		25 P.S.
-		SiO2 1.76
Sulfur, Total		Al2O3 0.18
		TiO2 0.01
Misc.		Fe2O3 0.18
		CaO 53.58
<u>Analysis Value</u>		MgO 1.51
		Na2O 0.05
		K2O 0.03 P2O5 0.10
	Hg 0.063 ppm	SO3 0.34
	Fluorine	Undetermined 42.26

As Determined Moisture 0.76 %

These values have been reviewed and are approved for transmission.

Distribution:

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### Project No.: 1621 - 087 - 000 LIMESTONE SLURRY SOLIDS Date Completed: 04/04/2005 Date Received: 2/7/05 Analytical No.: 20050703 **UNIT 2 TEST 1** Submitted by: S. TSENG Sample No.: LS U2T1 Proximate (Dry) Ash Fusion Reducing Temp. °F <u>%</u> Ultimate (Dry) <u>%</u> I.D. 11,69 Carbon 56.84 Ash Soft. Hydrogen Volatile Matter Nitrogen **Fixed Carbon** Hemi. Chlorine 0.0700 Fluid Sulfur, Total BTU/lb 56.84 Ash MAF BTU/lb Oxygen (DIFF) Ash Fusion Oxidizing Temp. °F I.D. **Free Swelling Index** Grindability Soft. FSI HGI Hemi. At Moisture % 0.40 Fluid 0.00 **Trace Elements** Sulfur Form (Dry) **Pyritic Sulfur** Major Ash Elem. Sulfate as pet. Organic 1.49 SiO2 Sulfur, Total Al₂O3 0.09 TiO2 0.00 Fe2O3 0.11 Misc. CaO 54.88 MgO 0.78 <u>Analysis</u> Value 0.04 Na2O 0.02 K20 P2O5 0.06 0.063 ppm Hg 0.20 SO3 Fluorine 42.33 Undetermined

As Determined Moisture 0.40 %

These values have been reviewed and are approved for transmission.

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LIMESTONE SL	STONE SLURRY SOLIDSDate Completed: 04/04/20052 TEST 2Date Received: 2/7/05Submitted by:S. TSENG		Project No.:	1621 _ 087 -000	
UNIT 2 TEST 2			Analytical No.:	20050704	
Sample No.: LS	3 U2T2		-		
Proximate_	<u>%</u>	Ultimate	<u>%</u>	Ash Fusion Reduc	<u>ing Temp. °F</u>
Ash	56.95	Carbon	11.27	I.D.	
Volatile Matter	00.00	Hydrogen		Soft.	
Fixed Carbon		Nitrogen	0.4400	Hemi.	
		Chlorine Sulfur, Total	0.1100	Fluid	
BTU/lb		Ash	56.95	T I I I I I I I I I I I I I I I I I I I	
MAF BTU/lb		Oxygen (DIFF)		Ash Fusion Oxidiz	ving Temp. °F
		Erro Qualli	a lador	I.D.	<u></u>
<u>Grindability</u>		<u>Free Swellin</u>	ig maex		
HG		FSI		Soft.	
At Moisture %	0.49			Hemi.	
	0.00	Trace Eleme	ote	Fluid	
		Tace Liellie	11.5		
Sulfur Form					
Pyritic Sulfur				<u>Major As</u>	h Elem
Sulfate				957	
Organic				SiO2	1.67
Sulfur, Total				Al2O3	0.11
				TiO2	0.00
				Fe2O3	0.11
<u>Misc.</u>				CaO	55.01
Analysia	/alua			MgO	0.91
<u>Analysis</u> <u>\</u>	/alue			Na2O	0.05
				K2O	0.01
			0	P2O5	0.09
		Hg 0.06	8 ppm	SO3	0.25
		Fluorine		Undetermined	41.79

As Determined Moisture 0.49 %

These values have been reviewed and are approved for transmission.

Distribution:

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S. TSENG J. LOCKE J. WITHUM



# LIMESTONE SLURRY SOLIDS

### UNIT 2 TEST 3

Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050705

Sample No.: LS U2T3		
Proximate (Dry) %	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 56.93	Carbon 11.62	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.0800	Hemi.
	Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 56.93	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>	FSI	Soft.
HGI At Moisture % 0.52		Hemi.
0.00		Fluid
0.00	<u>Trace Elements</u>	
Sulfur Form (Dry)		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate Organic		as Dert.
C C		SiO2 1.62
Sulfur, Total		Al2O3 0.12
		TiO2 0.01
Mico		Fe2O3 0.13
Misc.		CaO 55.15
<u>Analysis Value</u>		MgO 0.95
		Na2O 0.04 K2O 0.00
		K2O 0.00 P2O5 0.08
	Hg 0.060 ppm	SO3 0.25
	0	
	Fluorine	Undetermined 41.65

### As Determined Moisture 0.52 %

These values have been reviewed and are approved for transmission.

Distribution:

S. TSENG J. LOCKE J. WITHUM

Approved:



LIMESTONE SLURRY SOLIDS UNIT 2 TEST 4	Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG	Project No.: 1621 - 087 - 000 Analytical No.: 20050706
Sample No.: LS U2T4		
<u>Proximate (Dry) %</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F I.D.
Ash 57.02 Volatile Matter	Carbon 11.65 Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.0800	Hemi.
BTU/lb	Sulfur, Total Ash 57.02	Fluid
MAF BTU/lb	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u> HGI	FSI	Soft.
At Moisture % 0.37		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form (Dry)		
Pyritic Sulfur Sulfate Organic		Major Ash Elem.
-		SiO2 1.70
Sulfur, Total		Al2O3 0.08
		TiO2 0.00 Fe2O3 0.09
Misc.		CaO 55.01
	_	MgO 0.70
<u>Analysis Value</u>		Na2O 0.03
% SOLIDS 13.5		K2O 0.02
		P2O5 0.07
DENSITY 1.055	Hg 0.048 ppm Fluorine	SO3 0.21
	FIUOTITIE	Undetermined 42.09

As Determined Moisture 0.37 %

These values have been reviewed and are approved for transmission.

Distribution:

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S. TSENG J. LOCKE J. WITHUM

# LIMESTONE SLURRY FILTRATE 09:35

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Sample No.: LS U1T1 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050784 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

		Water Result nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	lculations
рН					Ion Sum	4432.03
Acidity, CaCO3		· · · · · · · · · · · · · · · · · · ·			Cation Sum	78.50
Alkalinity, CaCO3					Anion Sum	77.03
Hydroxide, CaCO3					Anion Sum	
Carbonate, CaCO3 Bicarbonate, CaCO3					Ion Balance	-1.13
Total Suspended Solids					% Ion Imbalance	0.95
Total Dissolved Solids				, 11.7 <del>4 - Anne Courselland Anne Anne Co</del> rd II.		
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen	-40					
Ammonia, N	<10				,	,
Total Elements					Hg <1.0	nali
Aluminum					179 <1.0	1
	461.88				0	$\mathcal{O}$
lron	<1.25 313.30					
Magnesium Manganese	313.30					
Potassium	90.40			n		
Phosphorous						
Silicon						
Sodium	629.36					
Chromium						
Anions:						
Sulfate	786,60					
Chloride	2150					
Nitrate, N	0.11					
Nitrite, N						
Bromide						
Fluoride	l	1	1			

# **LIMESTONE SLURRY FILTRATE 09:45**

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-4 1.64.1

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Sample No.: LS U1T2 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050785 Analytical No.: Project No.: 1621 -087 -000

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Submitter: S. TSENG

	(mg/L	Water Resu unless note	<u>ılt</u> d otherwise)			
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculation
pH					Ion Sum	3184.42
Acidity, CaCO3					Cation Sum	55.24
Alkalinity, CaCO3						
Hydroxide, CaCO3			·····		Anion Sum	53.9
Carbonate, CaCO3					Ion Balance	-1.3
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbalance	1.1
Total Dissolved Solids	:	Les Hills and States of the second				
Specific Conductivity Hardness						
Turbidity						
Osmotic Pressure		······		·		
Dissolved Oxygen	<10					
Ammonia, N	<10				,	
Total Elements					16	na
Aluminum					F/g <1.	0 1191
Calcium	441.02			·····	T	0
Iron	<1.25					
Magnesium	134.67					
Manganese						
Potassium	73.54	verste vien als 2012 Version (vien name	<u>ern he with part of the constant</u>			
Phosphorous						
Silicon	1 100 12		1. (m)			
Sodium	466.13					
Chromium						
Anions:						
Sulfate	594.06					
Chloride	1475					
Nitrate, N	<0.02					
Nitrite, N		1999 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.				
Bromide						
Fluoride						

# **LIMESTONE SLURRY FILTRATE 13:45**

Sample No.: LS U1T3 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050786 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	, <b>"</b>	Water Resu				
Parameter	(mg/L Value	Uniess note Value	<u>d otherwise)</u> Units	Avg Value	Quality Control C	alculations
pH					Ion Sum	2558.25
Acidity, CaCO3		ine. Children in the second	-99 (164 <b>- 44 e ) (</b> 17 - 17 - 17	a <u>alini in presidanci i</u>	Cation Sum	43.13
Alkalinity, CaCO3					Callon Sum	40.10
Hydroxide, CaCO3	1. 1. 1				Anion Sum	44.14
Carbonate, CaCO3					Ion Balance	1.27
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbalance	-1.15
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure			ter will approve the			
Dissolved Oxygen	<10					
Ammonia, N	~10				Ŧ	
Total Elements					14	· 191.
Aluminum					//9 <1.	0
Calcium	333.63		1			$\vee$
Iron	<1.25					
Magnesium	103.17					
Manganese						
Potassium	54.14	11 and 123 and 123 areas and 12 areas				
Phosphorous						
Silicon	201-00		an de para mora a Mile Anna a			
Sodium	381.99					
Chromium						
Anions:						
Sulfate	460.32					
Chloride	1225					
Nitrate, N	<0.02					
Nitrite, N	ang					
Bromide						
Fluoride				ļ		

These values have been reviewed and are approved for transmission.

<1.0 11g/mL



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# **LIMESTONE SLURRY FILTRATE 09:15**

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Sample No.: LS U1T4 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050787 Analytical No.: Project No.: 1621 -087 -000

**Quality Control Calculations** 

3305.04

56.89

57.09

0.21

-0.18

Submitter: S. TSENG

% Ion Imbalance

<u>Water Result</u> (mg/L unless noted otherwise)						
Parameter	Value	Value	Units	Avg Value	Quality Con	
рН					Ion Sum	
Acidity, CaCO3					Cation Sum	
Alkalinity, CaCO3						
Hydroxide, CaCO3					Anion Sum	
Carbonate, CaCO3					Ion Balance	
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbala	
Total Dissolved Solids						
Specific Conductivity						
Hardness				·····		
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements						
Aluminum					Ha	
Calcium	395.13	· · · · · · · · · · · · · · · · · · ·			, f	
Iron	<1.25				0	
Magnesium	176.80					
Manganese						
Potassium	70.99					
Phosphorous						
Silicon						
Sodium	478.53					
Chromium						
Anions:						
Sulfate	608.28					
Chloride	1575					
Nitrate, N						
Nitrite, N		n juli de		, rational contraction of the second s		
Bromide		11. Charles Carlos Carl				
Fluoride	an a	3 2510001.1.d.3.d		<ul> <li>I. Solidaji televit Ganatierio di Principali</li> </ul>		

Hg <1.0 19/11/

# LIMESTONE SLURRY FILTRATE

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Sample No.: LS U2T1 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050788 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

**Quality Control Calculations** Ion Sum 3219.97 113.51 Cation Sum 22.93 Anion Sum -196.08 Ion Balance % Ion Imbalance 66.39

Parameter	Value	Value	Units	Avg Value
<b>0</b> [-]				
Acidity, CaCO3		······		
Alkalinity, CaCO3				
Hydroxide, CaCO3				
Carbonate, CaCO3				
Bicarbonate, CaCO3				
Total Suspended Solids				
Total Dissolved Solids				
Specific Conductivity				
Hardness		New Province Statistics		
Turbidity				
Osmotic Pressure				
Dissolved Oxygen				
Ammonia, N	<10			
Total Elements				
Aluminum				
Calcium	651.97	an and a second of		
Iron	2,30			
Magnesium	500.46			
Manganese				
Potassium	117.80			
Phosphorous				
Silicon				
Södium	844,41			
Chromium			1	
Anions:				
Sulfate	1085.33			
Chloride	3.00		······	, commente construction de la const
Nitrate, N	3.32			
Nitrite, N				
Bromide				
Fluoride				
	I I	1		•

Water Result (mg/L unless noted otherwise)

Hg <1.0 Ng/mL

# LIMESTONE SLURRY FILTRATE

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Sample No.: LS U2T2 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050789 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

		<u>Nater Result</u> nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	alculations
pH					Ion Sum	6187.72
Acidity, CaCO3					Cation Sum	112.61
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	107.00
Carbonate, CaCO3 Bicarbonate, CaCO3					Ion Balance	-3.18
Total Suspended Solids					% Ion Imbalance	2.55
Total Dissolved Solids						
Specific Conductivity Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements						nal
Aluminum					Hg 1.3	M
Calcium	658.89					$\bigcirc$
Iron Magnesium	<1.25 490.49					
Manganese	118.30					
Phosphorous Silicon						
Sodium Chromium	836.10					
Anions:						
Sulfate	1108.94					
Chloride	2975					
Nitrate, N Nitrite, N	<0.02					
Bromide Fluoride						

# LIMESTONE SLURRY FILTRATE

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Sample No.: LS U2T3 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050790 Analytical No.: Project No.: 1621 -087 -000

<1.0 ng/m/

Parameter		<u>Water Result</u> unless noted Value	-	Avg Value	Quality Control C	alculations
pH					lon Sum	6136.12
Acidity, CaCO3						100.00
Alkalinity, CaCO3					Cation Sum	108.92
Hydroxide, CaCO3		an ann an			Anion Sum	107.61
Carbonate, CaCO3						0.74
Bicarbonate, CaCO3					Ion Balance	-0.74
Total Suspended Solids	y				% Ion Imbalance	0.60
Total Dissolved Solids	, kan pang pang pang pang pang pang pang pa					
Specific Conductivity						
Hardness			n Ini Ini Angelan	······································		
Turbidity						
Osmotic Pressure	and <u>all and an and an an an</u>	in a subset of the second s		······································		
Dissolved Oxygen						
Ammonia, N	<10	il devertiti tota deveriet.				
Total Elements					, /	
Aluminum					-HG <1.1	ng/n
Calcium	610.69				1	0
Iron	<1,25				0	
Magnesium	482.56					
Manganese						
Potassium	114.30			- Anto Mali (Latan Bellingeraalen tara - 1		
Phosphorous						
Silicon				n ( 12 halada a ann an sharadan a sharada a s		
Sodium	823.98					
Chromium	niter ()   (1999—1999) (1997) (1997) (1997) Alfred States (1997) (1997) (1997)		ni dan pana			
Anions:	1104.28					
Sulfate	3000					
Chloride	0.07					
Nitrate, N Nitrite, N	0.07					
Bromide	r, se desta de la composición de la com					
Fluoride						
Fiuvilue	I	I		1		

Units

Water Result (mg/L unless noted otherwise)

Value

Value

<10

## LIMESTONE SLURRY FILTRATE

Parameter

Acidity, CaCO3

Hardness Turbidity

Ammonia, N

Fluoride

đ

Alkalinity, CaCO3

Hydroxide, CaCO3 Carbonate, CaCO3

Bicarbonate, CaCO3

**Osmotic Pressure Dissolved Oxygen** 

Total Suspended Solids **Total Dissolved Solids** Specific Conductivity

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Sample No.: LS U2T4 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050791 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

**Quality Control Calculations** Avg Value 6850.93 Ion Sum 122.29 Cation Sum 119.81 Anion Sum -1.26 Ion Balance 1.02 % Ion Imbalance

Total Elements	
Aluminum	
Calcium	697.63

Alunimuun			
Calcium	697.63		
Iron	<1.25		
Magnesium	540.12		
Manganese			
Potassium	128.96		
Phosphorous			
Silicon			
Sodium	914.02		
Chromium			
Anions:			
Sulfate	1201.73		
Chloride	3350		
Nitrate, N	4,17		
Nitrite, N		 	
Bromide			

Hg <1.0 ng/ml

DESCRIPTION	ESP HOPPER ASH 11:30-11:45
	UNIT 1 FIELD 1 SILO 2
DATE SAMPLED	
SAMPLE NUMBER	ESP ASH U1T1F1

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050723** 

# ANALYSIS REPORT

PROXIMATE (Dry)%	ULTIMATE	(Dry)%	<u>MAJOR ASH ELEM</u> Ignited at a C	<u>%</u>
Ash 94.32 Total Sulfur 0.19	Carbon Chlorine Ash	4.98 0.002 94.32	Si02 A1203	48.79 26.85
MISC. (As Det.)			Ti02 Fe203	1.40 11.56
Hg 0.204 ppm			CaO MgO Na2O K2O P2O5 SO3 UND	1.57 0.95 0.51 2.38 0.23 0.48 5.28

AS DETERMINED MOISTURE: 0.21 %

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S.	TSENG
J.	LOCKE
J.	WITHUM

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DESCRIPTION	ESP HOPPER ASH 12:00-12:10 UNIT 1 FIELD 2 SILO 2	
DATE SAMPLED SAMPLE NUMBER		DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 - ANALYTICAL NUMBER <b>050724</b>

# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	<u>%</u>
Ash Total Sulfur	94.90 0.20	Carbon Chlorine Ash	4.36 0.002 94.90	SiO2 A1203	48.94 26.79
MISC. (As Det.)				Ti02 Fe203	1.42 11.43
Hg 0.210 p	pm			CaO MgO Na2O K2O P2O5 SO3 UND	1.61 0.95 0.52 2.37 0.24 0.51 5.22

AS DETERMINED MOISTURE: 0.23 %

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# DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

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DESCRIPTION	ESP HOPPER ASH 1 UNIT 1 FIELD 3 S			
DATE SAMPLED SAMPLE NUMBER	<b>+</b> ·· <b>-</b> ·	L	 LOGGED COMPLETED	+ = / = · · · ·
SAHLE NONDER	EST NON OITH O	-	 CT NUMBER	

05 05 -87 -PROJECT NUMBER 1021 ANALYTICAL NUMBER 050725

# ANALYSIS REPORT

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PROXIMATE (Dry)%	ULTIMATE (Dry)%	MAJOR ASH ELEM % Ignited at a C
Ash 94.73 Total Sulfur 0.17	Carbon 4.71 Chlorine 0.002 Ash 94.73	SiO2 50.95 A1203 26.86
MISC. (As Det.)		Ti02 1.49 Fe203 9.87
Hg 0.217 ppm		CaO1.68MgO0.95Na2O0.49K2O2.31P2O50.36SO30.43UND4.61

AS DETERMINED MOISTURE: 0.24 %

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# DISTRIBUTION: S. TSENG

J. LOCKE J. WITHUM

DESCRIPTION	ESP HOPPER ASH 13:30-14:00 UNIT 1 FIELD 4 SILO 2	
DATE SAMPLED SAMPLE NUMBER	J.(	DATE LO DATE CO

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DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050726

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# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	<u>%</u>
Ash Total Sulfur	95.38 0.20	Carbon Chlorine Ash	4.09 0.003 95.38	Si02 A1203	49.97 26.94
MISC. (As Det.)				TiO2 Fe2O3	1.46 11.05
Hg 0.186 pp	m			CaO MgO Na2O K2O P2O5 SO3 UND	1.66 0.97 0.53 2.37 0.29 0.50 4.26

AS DETERMINED MOISTURE: 0.25 %

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# DISTRIBUTION: S. TSENG J. LOCKE

J. WITHUM

DESCRIPTION	ESP HOPPER ASH 14:25-14:30 UNIT 1 FIELD 5 SILO 2	
DATE SAMPLED SAMPLE NUMBER	01/19/05 ESP ASH U1T1F5	DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 - ANALYTICAL NUMBER <b>050727</b>

# ANALYSIS REPORT

PROXIMATE	<u>(Dry)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	<u>%</u>
Ash Total Sulfu	95.36 r 0.18	Carbon Chlorine Ash	4.04 0.003 95.36	Si02 A1203	49.83 26.53
<u>MISC. (As D</u>	<u>et.)</u>			Ti02 Fe203	1.44 11.03
Hg	0.185 ppm			CaO MgO Na2O K2O P2O5 SO3 UND	1.63 0.95 0.51 2.33 0.26 0.46 5.03

AS DETERMINED MOISTURE: 0.19 %

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# DISTRIBUTION: S. TSENG

J.	LOCKE
J.	WITHUM

DESCRIPTION	ESP HOPPER ASH 14:05-14:1 UNIT 1 FIELD 6 SILO 2	5
DATE SAMPLED SAMPLE NUMBER		DATE LOGGED DATE COMPLETED

02/07/05 D 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050728

# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	%
Ash Total Sulfur <u>MISC. (As_Det.)</u> Hg 0.188 pp	95.38 0.19 m	Carbon Chlorine Ash	4.17 0.003 95.38	Ignited at a C SiO2 Al2O3 TiO2 Fe2O3 CaO MgO	50.50 26.80 1.46 11.21 1.64 0.96
				Na20 K20 P205 S03 UND	0.52 2.34 0.25 0.48 3.84

AS DETERMINED MOISTURE: 0.22 %

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DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

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DESCRIPTION	ESP HOPPER ASH 09:4			
DATE SAMPLED		DATE	LOGGED	
SAMPLE NUMBER	ESP ASH U1T2F1		COMPLETED CT NUMBER	 -

ANALYTICAL NUMBER 050729

## ANALYSIS REPORT

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PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	%
Ash Total Sulfur	95.96 0.18	Carbon Chlorine Ash	3.66 0.002 95.96	SiO2 A1203	49.82 26.35
<u>MISC. (As Det.)</u>		7.511	50.50	Ti02 Fe203	1.43 12.23
Hg 0.162 ppm				CaO MgO Na2O K2O P2O5 SO3 UND	1.59 0.94 0.51 2.25 0.23 0.46 4.19

AS DETERMINED MOISTURE: 0.19 %

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# DISTRIBUTION:

S. TSENG J. LOCKE J. WITHUM

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ANALYTICAL NUMBER 050730

DESCRIPTION	ESP HOPPER ASH 10:00-10:05 UNIT 1 FIELD 2 SILO 2		
	01/20/05 ESP ASH U1T2F2	DATE LOGGED DATE COMPLETED PROJECT NUMBER	03/09/05

# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	<u>MAJOR ASH ELEM</u> Ignited at a C	%
Ash Total Sulfur	95.79 0.18	Carbon Chlorine Ash	3.82 0.003 95.79	Si02 A1203	49.23 25.79
<u>MISC. (As Det.)</u>		7.511		Ti02 Fe203	1.42 12.02
Hg 0.166 pp	n			CaO MgO Na2O K2O P2O5 SO3 UND	1.52 0.90 0.50 2.22 0.21 0.46 5.73

AS DETERMINED MOISTURE: 0.13 %

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## DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

DESCRIPTION	ESP HOPPER ASH 10:20-10:25				
DATE SAMPLED	UNIT 1 FIELD 3 SILO 2 01/20/05	Ĺ	DATE LOGO	GED	02/07/05
SAMPLE NUMBER	ESP ASH U1T2F3				03/09/05

ANALYTICAL NUMBER 1621-87 ANALYTICAL NUMBER 050731

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# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	%
Ash Total Sulfur	95.82 0.19	Carbon Chlorine Ash	3.74 0.003 95.82	SiO2 A1203	50.03 26.61
MISC. (As Det.)		7.611		Ti02 Fe203	1.45 12.04
Hg 0.098 p	pm			CaO MgO Na2O K2O P2O5 SO3 UND	1.60 0.94 0.52 2.31 0.20 0.47 3.83

AS DETERMINED MOISTURE: 0.18 %

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# DISTRIBUTION:

S. TSENG J. LOCKE J. WITHUM

DESCRIPTION	ESP HOPPER ASH 14:00-14:05 UNIT 1 FIELD 1 SILO 2	
DATE SAMPLED SAMPLE NUMBER	01/20/05 ESP ASH U1T3F1	DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 - ANALYTICAL NUMBER 050732

## ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	<u>%</u>
Ash Total Sulfur	96.22 0.17	Carbon Chlorine Ash	3.27 0.002 96.22	SiO2 Al2O3	50.79 26.42
MISC. (As Det.)		,		Ti02 Fe203	1.47 11.53
Hg 0.143 pp	im			CaO MgO Na2O K2O P2O5 SO3 UND	1.66 0.96 0.52 2.30 0.24 0.43 3.68

AS DETERMINED MOISTURE: 0.16 %

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# DISTRIBUTION: S. TSENG J. LOCKE

J. WITHUM



DESCRIPTION	ESP HOPPER ASH 14:20-14 UNIT 1 FIELD 2 SILO 2	:25	
DATE SAMPLED SAMPLE NUMBER	01/20/05 ESP ASH U1T3F2	DATE LOGGED DATE COMPLETED DROJECT NUMPER	037

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DATE_LOGGED 02/07/05 DATE_COMPLETED 03/09/05 PROJECT_NUMBER_1621-87 -ANALYTICAL NUMBER 050733

# ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM Ignited at a C	%
Ash Total Sulfur	96.17 0.16	Carbon Chlorine Ash	3.30 0.003 96.17	Si02 A1203	50.15 26.16
MISC. (As Det.)		7.017		T102 Fe203	1.45 11.77
Hg 0.151 pp	m			CaO MgO Na2O K2O P2O5 SO3 UND	1.62 0.94 0.50 2.25 0.23 0.41 4.52

AS DETERMINED MOISTURE: 0.09 %

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DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

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DESCRIPTION	ESP HOPPER ASH 14:40-14:45 UNIT 1 FIELD 3 SILO 2			
DATE SAMPLED SAMPLE NUMBER		DATE	LOGGED COMPLETED	

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09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050734

# ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	r	96.12 0.16	Carbon Chlorine Ash	3,47 0,003 96,12	Si02 A1203 Ti02	49.86 26.06 1.45
<u>MISC. (As Det.)</u>			100		Fe203 Ca0	$\begin{array}{c} 11.76\\ 1.61 \end{array}$
Hg	0.156 ppm	I		t.	MgO Na2O K2O P2O5 SO3 UND	0.94 0.49 2.26 0.25 0.41 4.91

AS DETERMINED MOISTURE: 0.12 %

1.12

DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM



DESCRIPTION	ESP HOPPER ASH 14:55-15:00		
DATE SAMPLED	UNIT 1 FIELD 4 SILO 2 01/20/05	DATE LOGGED	02/07
SAMPLE NUMBER	ESP ASH U1T3F4	DATE COMPLETED	

07/05 09/05 1621-87 -PROJECT NUMBER ANALYTICAL NUMBER 050735

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# ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	96.14 0.17	Carbon Chlorine Ash	3.33 0.002 96.14	Si02 A1203 Ti02	49.83 26.00 1.46
<u>MISC. (As De</u>	<u>)</u>			Fe203	11.70
Hg	0.147 ppm			CaO MgO Na2O K2O P2O5 SO3 UND	1.61 0.94 0.49 2.25 0.23 0.42 5.07

AS DETERMINED MOISTURE: 0.07 %

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DESCRIPTION	ESP HOPPER ASH 15:15-15:20 UNIT 1 FIELD 5 SILO 2	
	01/20/05 ESP ASH U1T3F5	DATE LOGGEL DATE COMPLI

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050736

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# ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	ır	96.05 0.17	Carbon Chlorine Ash	3.48 0.003 96.05	Si02 A1203 Ti02	49.67 25.92 1.45
MISC. (As Det.)			, lon	50.00	Fe2O3 CaO	$11.70 \\ 1.61$
Hg	0.160 ppn	1			MgO Na2O K2O P2O5 SO3 UND	0.93 0.49 2.25 0.22 0.43 5.33

AS DETERMINED MOISTURE: 0.07 %

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# DISTRIBUTION:

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DESCRIPTION	ESP HOPPER ASH UNIT 1 FIELD 6					
		51LU Z	DATE		00107105	
DATE SAMPLED				LOGGED	02,0,,00	
SAMPLE NUMBER	ESP ASH U1T3F6			COMPLETED		
			PROJE	CT NUMBER	1621-87	

ANALYSIS REPORT

ANALYTICAL NUMBER 050737

### (<u>Dry)%</u> PROXIMATE ULTIMATE MAJOR ASH ELEM (Dry)% (Dry)% Carbon 3.61 49.46 Ash 95,93 Si02 0.003 25.85 Total Sulfur **Chlorine** A1203 0.18 95.93 Ti02 Ash 1.46 Fe203 11.72 MISC. (As Det.) 1.62 CaO 0.157 ppm 0.93 Mg0 Hg Na20 0.48 K20 2.21 0.22 P205 S03 0.45 UND 5.60

AS DETERMINED MOISTURE: 0.12 %

# DISTRIBUTION:

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J.	LOCKE
J.	WITHUM

DESCRIPTION	ESP HOPPER ASH 09:20-09:25			
	UNIT 1 FIELD 1 SILO 2			
DATE SAMPLED	01/21/05	DATE LO	)GGED	02/07/05
SAMPLE NUMBER	ESP ASH U1T4F1	DATE CO	OMPLETED -	<i>03/09/05</i>
0		PROJECT	T MIIMRER	1621-87

PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050738

# ANALYSIS REPORT

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PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	96.43 0.18	Carbon Chlorine Ash	3.14 0.003 96.43	SiO2 A12O3 TiO2	52.31 25.63 1.44
MISC. (As Det.)		7.511	50.10	Fe203 CaO	$10.16\\1.50$
Hg	0.115 ppm			Mg0 Na20 K20 P205 S03 UND	0.97 0.55 2.41 0.15 0.44 4.44

AS DETERMINED MOISTURE: 0.11 %

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DESCRIPTION	ESP HOPPER ASH 09:40-09:45 UNIT 1 FIELD 2 SILO 2		
DATE SAMPLED	01/21/05	DATE LOGGED	00101100
SAMPLE NUMBER	ESP ASH U1T4F2	DATE COMPLETED	

ANALYTICAL NUMBER 1621-87

# ANALYSIS REPORT

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PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfı		6.47 0.18	Carbon Chlorine Ash	3.04 0.003 96.47	Si02 A1203 Ti02	52.00 25.38 1.45
MISC. (As Det.)					Fe2O3 CaO	10.56 1.54
Hg	0.120 ppm				Mg0 Na20 K20 P205 S03 UND	0.97 0.53 2.35 0.15 0.44 4.63

AS DETERMINED MOISTURE: 0.11 %

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DESCRIPTION	ESP HOPPER ASH 10:00-10:05 INIT 1 FIELD 3 SILO 2	
DATE SAMPLED SAMPLE NUMBER	01/21/05 ESP ASH U1T4F3	DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 - ANALYTICAL NUMBER <b>050740</b>

#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	96.62 r 0.18	Carbon Chlorine Ash	2.99 0.004 96.62	Si02 A1203 Ti02	51.53 25.39 1.45
MISC. (As D	<u>et.)</u>	//01		Fe2O3 CaO	10.27 1.53
Hg	0.118 ppm			Mg0 Na20 K20 P205 S03 UND	0.96 0.53 2.36 0.17 0.44 5.37

AS DETERMINED MOISTURE: 0.14 %

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DESCRIPTION	ESP HOPPER ASH 10:20-10:25	
	UNIT 1 FIELD 4 SILO 2	
DATE SAMPLED		
SAMPLE NUMBER	ESP ASH U1T4F4	

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **05074**1

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	96.45 0.18	Carbon Chlorine Ash	2.98 0.004 96.45	Si02 A1203 Ti02	52.02 25.71 1.46
MISC. (As Det.)		ASIT	50.10	Fe2O3 CaO	$10.40 \\ 1.53$
Hg 0.119 pp	m			MgO Na2O K2O P2O5 SO3 UND	0.98 0.54 2.39 0.18 0.45 4.34

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AS DETERMINED MOISTURE: 0.05 %

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DESCRIPTION	ESP HOPPER ASH UNIT 1 FIELD 5			
DATE SAMPLED			DATE LOGGED	
SAMPLE NUMBER	ESP ASH U1T4F5	,	DATE COMPLETED	

07/05 09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050742

#### ANALYSIS REPORT

<u>PROXIMATE (</u>	Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	96.49 0.16	Carbon Chlorine Ash	3.13 0.003 96.49	Si02 A1203 Ti02	51.64 25.21 1.45
MISC. (As Det.	<u>)</u>			Fe203	10.55
Hg O.	116 ppm			Ca0 Mg0 Na20 K20 P205 S03 UND	1.54 0.97 0.52 2.32 0.16 0.39 5.25

AS DETERMINED MOISTURE: 0.05 %

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DESCRIPTION	ESP_HOPPER_ASH_11:00-11:05	
	UNIT 1 FIELD 6 SILO 2	
DATE SAMPLED	01/21/05	
SAMPLE NUMBER	ESP ASH U1T4F6	

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050743** 

#### ANALYSIS REPORT

PROXIMATE (Dry)	)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	96.54 0.18	Carbon Chlorine Ash	2.97 0.003 96.54	Si02 A1203 Ti02	51.70 25.68 1.47
<u>MISC. (As Det.)</u>		7.511	50101	Fe203	10.38 1.57
Hg 0.118	ppm			CaO MgO Na2O K2O P2O5 SO3 UND	0.97 0.53 2.38 0.19 0.46 4.67

AS DETERMINED MOISTURE: 0.13 %

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DESCRIPTION	ESP HOPPER ASH 13:54	
	UNIT 2 TEST 1 FIELD 1 SILO 1	
DATE SAMPLED	01/24/05	DAT
SAMPLE NUMBER	ESP ASH U2T1F1	DAT

DATE LOGGED 02/07/05. DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050744** 

#### , ANALYSIS REPORT

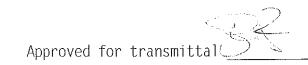
PROXIMATE (Dr	<u>ry)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	93.03 0.24	Carbon Chlorine Ash	6.01 0.003 93.03	SiO2 A1203 TiO2	49.86 24.01 1.40
<u>MISC. (As Det.)</u>				Fe2O3 CaO	10.71 1.51
Hg 0.24	17 ppm			Mg0 Na20 K20 P205 S03 UND	0.95 0.49 2.25 0.21 0.61 8.00

AS DETERMINED MOISTURE: 0.17 %

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DESCRIPTION	ESP HOPPER ASH 14:00	
	UNIT 2 TEST 1 FIELD 2 SILO 1	
DATE SAMPLED	01/24/05	Di
SAMPLE NUMBER	ESP ASH U2T1F2	Di
		0

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050745** 

#### ANALYSIS REPORT

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	93.15 0.24	Carbon ' Chlorine Ash	5.99 0.003 93.15	Si02 A1203 Ti02	49.30 23.89 1.39
<u>MISC. (As De</u>	<u>et.)</u>		•••••	Fe2O3 CaO	10.69 1.52
Hg	0.239 ppm			Mg0 Na20 K20 P205 S03 UND	0.94 0.49 2.25 0.21 0.59 8.73

AS DETERMINED MOISTURE: 0.17 %

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DESCRIPTION	ESP HOPPER ASH 14:16
	UNIT 2 TEST 1 FIELD 3 SILO 1
DATE SAMPLED	
SAMPLE NUMBER	ESP ASH U2T1F3

DATE LOGGED 02/07/05 DATE COMPLETED 03/09/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050746

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	93.06 0.24	Carbon Chlorine Ash	6.21 0.004 93.06	SiO2 A12O3 TiO2	49.63 23.91 1.39
MISC. (As Det.)				Fe203	10.77 1.51
Hg 0.246 pp	m			CaO MgO Na2O K2O P2O5 SO3 UND	0.95 0.50 2.28 0.19 0.61 8.26

AS DETERMINED MOISTURE: 0.21 %

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DESCRIPTION	ESP HOPPER ASH 14:26	
	UNIT 2 TEST 1 FIELD 4 SILO 1	
DATE SAMPLED	01/24/05	DAT
SAMPLE NUMBER	ESP ASH U2T1F4	DAT

DATE LOGGED 02/07/05 DATE COMPLETED 03/16/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050747** 

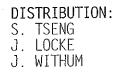
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#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	ır	93.06 0.26	Carbon Chlorine Ash	6.08 0.004 93.06	Silicon Al203 Ti02	49.65 24.08 1.32
<u>MISC. (As [</u>	<u>)et.)</u>		7.511		Fe2O3 CaO	10.46 1.50
Hg	0.179 PPM			·	Mg0 Na20 K20 P205 S03 UND	0.94 0.53 2.29 0.21 0.66 8.36

AS DETERMINED MOISTURE: 0.15 %

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DESCRIPTION	ESP HOPPER ASH 14:36	
	UNIT 2 TEST 1 FIELD 5 SILO 1	
DATE SAMPLED	01/24/05	
SAMPLE NUMBER	ESP ASH U2T1F5	

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050748** 

#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfi	ur	93.15 0.26	Carbon Chlorine Ash	6.25 0.003 93.15	Silicon Al2O3 TiO2	49.92 24.55 1.33
MISC. (As	Det.)		7.511	50120	Fe2O3 CaO	10.73 1.51
Hg	0.240 PP	1			Mg0 Na20 K20 P205 S03 UND	0.95 0.53 2.32 0.21 0.65 7.30

AS DETERMINED MOISTURE: 0.15 %

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DESCRIPTION	ESP HOPPER ASH 14:50		
	UNIT 2 TEST 1 FIELD 6 SILO 1		
DATE SAMPLED	01/24/05	DATE LOGGED	<i>02/07/05</i>
SAMPLE NUMBER	ESP ASH U2T1F6	DATE COMPLETED	<i>03/15/05</i>
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PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050749

#### ANALYSIS REPORT

PROXIMATE (Dr	<u>y)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	93.03 0.25	Carbon Chlorine Ash	6.18 0.004 93.03	Silicon Al2O3 TiO2	49.65 24.47 1.33
MISC. (As Det.)		101	50.00	Fe203 Ca0	10.75 1.50
Hg 0.23	0 PPM			MgO Na2O K2O P2O5 SO3 UND	0.94 0.52 2.29 0.20 0.62 7.73

AS DETERMINED MOISTURE: 0.04 %

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DESCRIPTION	ESP HOPPER ASH 10:23
	UNIT 2 TEST 2 FIELD 1 SILO 1
DATE SAMPLED	
SAMPLE NUMBER	ESP ASH U2T2F1

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050750

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur <u>MISC. (As Det.)</u> Hg 0.246 P	92.84 0.26	Carbon Chlorine Ash	6.40 0.002 92.84	Silicon Al2O3 TiO2 Fe2O3 CaO MgO Na2O K2O P2O5 SO3	46.66 23.67 1.28 10.88 1.42 0.94 0.49 2.24 0.23 0.64
				UND	11.55

AS DETERMINED MOISTURE: 0.09 %

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DESCRIPTION	ESP HOPPER ASH 10:44 UNIT 2 TEST 2 FIELD 2 SILO 1		
DATE SAMPLED		LOGGED	02/
SAMPLE NUMBER	ESP ASH U2T2F2	 COMPLETED	

2/07/05 8/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050751

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#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	ir	92.81 0.27	Carbon Chlorine Ash	6.36 0.002 92.81	Silicon Al2O3 TiO2	48.96 24.50 1.34
MISC. (As Det.)			1011	52104	Fe2O3 CaO	11.68 1.49
Hg	0.268 PPM				MgO Na2O K2O P2O5 SO3 UND	0.96 0.51 2.30 0.24 0.67 7.35

AS DETERMINED MOISTURE: 0.09 %

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DESCRIPTION ESP HOPPER ASH 10:59 UNIT 2 TEST 2 FIELD 3 SILO 1 DATE SAMPLED 01/25/05 SAMPLE NUMBER ESP ASH U2T2F3

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050752** 

#### ANALYSIS REPORT

PROXIMATE (Dry)		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.82 0.28	Carbon Chlorine Ash	6.31 0.002 92.82	Silicon Al2O3 TiO2	48.76 24.42 1.34
MISC. (As Det.)		7.011		Fe203 Ca0	$\begin{array}{c}11.48\\1.49\end{array}$
Hg 0.268 F	РРМ			MgO Na2O K2O P2O5 SO3 UND	0.96 0.51 2.31 0.23 0.69 7.81

AS DETERMINED MOISTURE: 0.09 %



DESCRIPTION	ESP HOPPER ASH 11:12
	UNIT 2 TEST 2 FIELD 4 SILO 1
DATE SAMPLED	01/25/05
SAMPLE NUMBER	ESP ASH U2T2F4

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DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050753

#### ANALYSIS REPORT

PROXIMATE (Dry)	<u>%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.86 0.26	Carbon Chlorine Ash	6.12 0.004 92.86	Silicon Al2O3 TiO2	48.64 24.33 1.33
MISC. (As Det.)				Fe2O3 CaO	$11.41 \\ 1.49$
Hg 0.262	PPM			MgO Na2O K2O P2O5 SO3 UND	0.96 0.50 2.29 0.23 0.64 8.18

AS DETERMINED MOISTURE: 0.09 %

#### DISTRIBUTION: S. TSENG

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DESCRIPTION ESP HOPPER ASH 11:23 UNIT 2 TEST 2 FIELD 5 SILO 1 DATE SAMPLED 01/25/05 SAMPLE NUMBER ESP ASH U2T2F5

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DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050754

#### ANALYSIS REPORT

PROXIMATE (Dry)	<u>%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.86 0.25	Carbon Chlorine Ash	6.24 0.002 92.86	Silicon Al2O3 TiO2	48.43 24.23 1.33
MISC. (As Det.)		7.611		Fe203 Ca0	$\begin{array}{c} 11.55\\ 1.49\end{array}$
Hg 0.251	PPM		· · ·	MgO Na2O K2O P2O5 SO3 UND	0.96 0.49 2.29 0.23 0.63 8.37

AS DETERMINED MOISTURE: 0.05 %

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DESCRIPTION UNIT 2 TEST 2 FIELD 6 SILO 1 DATE SAMPLED 01/25/05 SAMPLE NUMBER ESP ASH U2T2F6

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050755** 

#### ANALYSIS REPORT

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PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.86 0.25	Carbon Chlorine Ash	6.49 0.002 92.86	Silicon Al2O3 TiO2	48.92 24.30 1.34
MISC. (As Det.)			54100	Fe203	11.51
Hg 0.245 PF	M			CaO MgO Na2O K2O P2O5 SO3 UND	1.49 0.95 0.50 2.30 0.22 0.63 7.84

AS DETERMINED MOISTURE: 0.17 %

#### DISTRIBUTION: S. TSENG

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DESCRIPTION ESP HOPPER ASH 14:35 UNIT 2 TEST 3 FIELD 1 SILO 1 DATE SAMPLED 01/25/05 SAMPLE NUMBER ESP ASH U2T3F1

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050756

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#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	<u>(Dry)%</u>
Ash Total Sulfur	92.67 0.26	Carbon Chlorine Ash	6.49 0.003 92.67	Silicon Al2O3 TiO2	48.95 24.42 1.34
MISC. (As Det.)		),3H	02107	Fe2O3 CaO	11.33
Hg 0.257 Pl	РМ .			Mg0 Na20 K20 P205 S03 UND	0.95 0.50 2.29 0.24 0.64 7.85

AS DETERMINED MOISTURE: 0.15 %

#### DISTRIBUTION: S. TSENG J. LOCKE

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DESCRIPTION	ESP HOPPER ASH 14:49
	UNIT 2 TEST 3 FIELD 2 SILO 1
DATE SAMPLED	01/25/05
SAMPLE NUMBER	ESP ASH U2T3F2

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050757

#### ANALYSIS REPORT

<u>PROXIMATE (I</u>	<u>Dry)%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.68 0.26	Carbon Chlorine Ash	6.44 0.002 92.68	Silicon Al203 Ti02	48.89 24.30 1.33
MISC. (As Det.)	<u>)</u>	,		Fe203	11.45 1.49
Hg 0.2	258 PPM			Ca0 Mg0 Na20 K20 P205 S03 UND	0.96 0.49 2.28 0.24 0.66 7.91

AS DETERMINED MOISTURE: 0.11 %

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DESCRIPTION	ESP HOPPER ASH 14:59 UNIT 2 TEST 3 FIELD 3 SILO 1	
DATE SAMPLED SAMPLE NUMBER	01/25/05 ESP ASH U2T3F3	DATE LOGGED ( DATE COMPLETED ( PROJECT NUMBER

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02/07/05 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050758

#### ANALYSIS REPORT

PROXIMATE (Dry	<u>) %</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.66 0.26	Carbon Chlorine Ash	6.43 0.002 92.66	Silicon Al2O3 TiO2	49.39 24.89 1.36
<u>MISC. (As Det.)</u>		//311	0 - 1 0 0	Fe2O3 CaO	$\begin{array}{c} 11.17\\ 1.50\end{array}$
Hg 0.249	РРМ			MgO Na2O K2O P2O5 SO3 UND	0.97 0.51 2.35 0.25 0.65 6.96

AS DETERMINED MOISTURE: 0.15 %

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DESCRIPTION	ESP HOPPER ASH 15:10		
DATE SAMPLED	UNIT 2 TEST 3 FIELD 4 SILO 1 01/25/05		02/07/05
SAMPLE NUMBER	ESP ASH U2T3F4	DATE COMPLETED	

PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050759

#### ANALYSIS REPORT

PROXIMATE (Dry)	<u>í</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.68 0.26	Carbon Chlorine Ash	6.50 0.003 92.68	Silicon Al2O3 TiO2	49.25 24.64 1.35
MISC. (As Det.)				Fe203 CaO	$\begin{array}{c} 11.33\\ 1.47\end{array}$
Hg 0.263 F	РРМ			Mg0 Na20 K20 P205 S03 UND	0.95 0.51 2.31 0.24 0.66 7.29

AS DETERMINED MOISTURE: 0.13 %

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DESCRIPTION UNIT 2 TEST 3 FIELD 5 SILO 1 DATE SAMPLED SAMPLE NUMBER ESP ASH U2T3F5

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050760

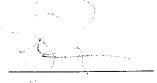
#### ANALYSIS REPORT

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PROXIMATE (Dry	<u>()%</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.61 0.25	Carbon Chlorine Ash	6.49 0.003 92.61	Silicon Al2O3 TiO2	48.72 24.36 1.34
MISC. (As Det.)		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Fe203 Ca0	11.37 1.46
Hg 0.27	l PPM			MgO Na2O K2O P2O5 SO3 UND	0.95 0.49 2.31 0.24 0.62 8.14

AS DETERMINED MOISTURE: 0.11 %

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DESCRIPTION ESP HOPPER ASH 15:35 UNIT 2 TEST 3 FIELD 6 SILO 1 DATE SAMPLED 01/25/05 SAMPLE NUMBER ESP ASH U2T3F6

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050761

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur MISC. (As <u>Det.)</u>	92.67 0.26	Carbon Chlorine Ash	6.47 0.003 92.67	Silicon Al2O3 TiO2 Fe2O3	48.88 24.50 1.34 11.40
Hg 0.266 PP	М			CaO MgO Na2O K2O P2O5 SO3 UND	1.47 0.96 0.51 2.34 0.24 0.64 7.72

AS DETERMINED MOISTURE: 0.11 %

#### DISTRIBUTION: S. TSENG J. LOCKE

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DESCRIPTION ESP HOPPER ASH 10:15 UNIT 2 TEST 4 FIELD 1 SILO 1 DATE SAMPLED 01/26/05 SAMPLE NUMBER ESP ASH U2T4F1

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050762

#### ANALYSIS REPORT

PROXIMATE (Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.95 0.25	Carbon Chlorine Ash	6.09 0.003 92.95	Silicon Al2O3 TiO2	49.21 25.14 1.40
MISC. (As Det.)				Fe203	10.38
Hg 0.253 PI	M			CaO MgO Na2O K2O P2O5 SO3 UND	1.48 0.92 0.49 2.28 0.29 0.62 7.79

AS DETERMINED MOISTURE: 0.09 %

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DESCRIPTION	ESP HOPPER ASH 10:02 UNIT 2 TEST 4 FIELD 2 SIL	01		
DATE SAMPLED SAMPLE NUMBER	01/26/05 ESP ASH U2T4F2		DATE LOGGED DATE COMPLETED	
SAMILL NUMBER	LUI AUTI OLITIL			

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050763** 

#### ANALYSIS REPORT

PROXIMATE (	(Dry)%	<u>ULTIMATE</u>	(Dry)%	MAJOR ASH ELEM	(Dry) <u>%</u>
Ash Total Sulfur	92.96 0.25	Carbon Chlorine Ash	6.10 0.002 92.96	Silicon Al2O3 TiO2	49.58 25.52 1.40
MISC. (As Det.	<u>.)</u>			Fe2O3 CaO	$\begin{array}{c}10.45\\1.46\end{array}$
Hg O.	.248 PPM	. •		Mg0 Na20 K20 P205 S03 UND	0.93 0.52 2.38 0.31 0.63 6.82

AS DETERMINED MOISTURE: 0.12 %

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DESCRIPTION	ESP HOPPER ASH 10:27 UNIT 2 TEST 4 FIELD 3 SILO 1		
DATE SAMPLED SAMPLE NUMBER		DATE LOGGED DATE COMPLETED PROJECT NUMBER	03/15/05

J.

#### ANALYSIS REPORT

ANALYTICAL NUMBER 050764

PROXIMATE	(Dry)%	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	92.96 0.25	Carbon Chlorine Ash	6.03 0.003 92.96	Silicon Al2O3 TiO2	50.16 25.45 1.41
MISC. (As Det	<u>.)</u>	, (611		Fe2O3 CaO	10.43 1.48
Hg O	.245 PPM			Mg0 Na20 K20 P205 S03 UND	0.93 0.52 2.33 0.29 0.63 6.37

AS DETERMINED MOISTURE: 0.15 %

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DESCRIPTION	ESP HOPPER ASH 10:37
	UNIT 2 TEST 4 FIELD 4 SILO 1
DATE SAMPLED	
SAMPLE NUMBER	ESP ASH U2T4F4

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050765

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#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	r	92.98 0.24	Carbon Chlorine Ash	5.97 0.003 92.98	Silicon Al2O3 TiO2	49.57 25.16 1.38
MISC. (As D	<u>et.)</u>			52150	Fe203 Ca0	$\begin{array}{c}10.30\\1.46\end{array}$
Hg	0.238 PPM	I			Mg0 Na20 K20 P205 S03 UND	0.92 0.53 2.35 0.30 0.61 7.42

AS DETERMINED MOISTURE: 0.09 %

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DESCRIPTION UNIT 2 TEST 4 FIELD 5 SILO 1 DATE SAMPLED O1/26/05 SAMPLE NUMBER ESP ASH U2T4F5

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER **050766** 

#### ANALYSIS REPORT

PROXIMATE	(Dry)%		ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfu	ır	93.02 0.25	Carbon Chlorine Ash	5.90 0.003 93.02	Silicon Al2O3 TiO2	49.82 25.61 1.41
MISC. (As [	<u>)et.)</u>		7.511	50,01	Fe2O3 CaO	10.25 1.47
Hg	0.246 PPM	I			MgO Na2O K2O P2O5 SO3 UND	0.93 0.53 2.40 0.30 0.62 6.66

AS DETERMINED MOISTURE: 0.22 %

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#### DISTRIBUTION: S. TSENG J. LOCKE J. WITHUM

DESCRIPTION ESP HOPPER ASH 10:58 UNIT 2 TEST 4 FIELD 6 SILO 1 DATE SAMPLED 01/26/05 SAMPLE NUMBER ESP ASH U2T4F6

DATE LOGGED 02/07/05 DATE COMPLETED 03/15/05 PROJECT NUMBER 1621-87 -ANALYTICAL NUMBER 050767

#### ANALYSIS REPORT

PROXIMATE (Dry)	<u> %</u>	ULTIMATE	(Dry)%	MAJOR ASH ELEM	(Dry)%
Ash Total Sulfur	93.02 0.25	Carbon Chlorine Ash	6.03 0.003 93.02	Silicon Al2O3 TiO2	50.09 25.63 1.41
<u>MISC. (As Det.)</u>				Fe203 Ca0	10.41 1.46
Hg 0.240	РРМ			MgO Na2O K2O P2O5 SO3 UND	0.94 0.53 2.38 0.30 0.62 6.23

AS DETERMINED MOISTURE: 0.18 %

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J.	WITHUM



FGD SLURRY SOLIDS 13:05	Date Complete
UNIT 1 TEST 1 MODULE 1A	Date Receive Submitted k
Sample No.: U1T1 FGDS-1A	
Proximate (Dry) %	<u>Ultimate (Dr</u>
Ash 99.92	Carbon

Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050707

Proximate g	(Dry) <u>%</u>	<u>Ultimate (Dry) %</u>		Ash Fusion Reduc	ing Temp. °F
Ash	99.92	Carbon 0.62		I.D.	
Volatile Matter	00101	Hydrogen		Soft.	
Fixed Carbon		Nitrogen	<u> </u>	Hemi.	
		Chlorine 0:6000	OK		
BTU/lb		Sulfur, Total Ash 99.92		Fluid	
MAF BTU/lb		Oxygen (DIFF)			
				Ash Fusion Oxidiz	ing Temp. °F
Grindability		Free Swelling Index		I.D.	
HGI		FSI		Soft.	
At Moisture %	4.47			Hemi.	
	0.00			Fluid	
	0.00	<u>Trace Elements</u>		T Tala	
<u>Sulfur Form</u>	<u>(Dry)</u>				
Pyritic Sulfur Sulfate Organic				Section and the second section of the second se	Fermined.
Sulfur, Total				SiO2	0.74
Cultur, Total				Al2O3	0.11
				TiO2 Fe2O3	0.00 0.10
<u>Misc.</u>				CaO	41.53
A	/_1			MgO	0.34
<u>Analysis</u>	<u>/alue</u>			Na2O	0.24
% SOLIDS	13.0			K2O	0.06
		Hg 0.827 ppm		P2O5	0.03
DENSITY	1.115			SO3	50.18
		Fluorine		Undetermined	6.67

#### As Determined Moisture 4.47 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLIDS 13:05	Date Completed: 04/04/2005	Project No.: 1621 - 087 ~ 000
UNIT 1 TEST 1 MODULE 1B	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050708
Sample No.: U1T1 FGDS-1B	<b>-</b>	
<u>Proximate (Dry) %</u>	Ultimate (Dry) <u>%</u>	<u>Ash Fusion Reducing Temp. °F</u>
Ash 90.24	Carbon 2.85	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.3500	Hemi.
	Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 90.24	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	1.D.
<u>Grindability</u>	FSI	Soft.
HGI At Moisture % 4.12		Hemi.
0.00	/	Fluid
0.00	Trace Elements	
Sulfur Form (Dry)		
Pyritic Sulfur		Major Ash Elem
Sulfate		as Det.
Organic		SiO2 0.79
Sulfur, Total		Al2O3 0.08
		TiO2 0.01
Misc.		Fe2O3 0.11
<u>IMISC.</u>		CaO 43.80
<u>Analysis Value</u>		MgO 0.33
		Na2O 0.16 K2O 0.04
% SOLIDS 11.1		P2O5 0.04
	Hg 0.609 ppm	SO3 41.13
DENSITY 1.098	Fluorine	
		Undetermined 13.51

#### As Determined Moisture 4.12 %

Distribution:

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Approved:

S. TSENG J. LOCKE J. WITHUM



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FGD SLURRY SOLIDS 11:00 UNIT 1 TEST 2 MODULE 1A Sample No.: U1T2 FGDS-1A	Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG	Project No.: 1621 - 087 - 000 Analytical No.: 20050709
Proximate (Dry) <u>%</u> Ash 103.14 Volatile Matter Fixed Carbon BTU/lb MAF BTU/lb	Ultimate (Dry) % Carbon 0.84 Hydrogen Nitrogen Chlorine 0.6300 Sulfur, Total Ash 103.14	<u>Ash Fusion Reducing Temp. °F</u> I.D. Soft. Hemi. Fluid
Grindability HGI At Moisture % 4.03 0.00	Oxygen (DIFF) <u>Free Swelling Index</u> FSI <u>Trace Elements</u>	<u>Ash Fusion Oxidizing Temp. °F</u> I.D. Soft. Hemi. Fluid
<u>Sulfur Form (Dry)</u> Pyritic Sulfur Sulfate Organic Sulfur, Total		Major Ash Elem.AcDetSiO20.87Al2O30.14TiO20.01Fe2O30.13
<u>Misc.</u> <u>Analysis Value</u> % SOLIDS 12.9 DENSITY 1.113	Hg 0.871 ppm Fluorine	CaO 42.15 MgO 0.36 Na2O 0.25 K2O 0.06 P2O5 0.02 SO3 49.68 Undetermined 6.33

As Determined Moisture 4.03 %

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FGD SLURRY SOLIDS 11 UNIT 1 TEST 2 MODULE 7 Sample No.: U1T2 FGDS-	B Date Received: 2/7/05 Submitted by: S. TSENG	Project No.: 1621 - 087 - 000 Analytical No.: 20050710
<u>Proximate</u> (Drγ) <u>%</u> Ash 91.54 Volatile Matter Fixed Carbon BTU/lb MAF BTU/lb	<u>Ultimate (Dry) %</u> Carbon 2.39 Hydrogen Nitrogen Chlorine 0.3600 Sulfur, Total Ash 91.54 Oxygen (DIFF)	Ash Fusion Reducing Temp. °F I.D. Soft. Hemi. Fluid Ash Fusion Oxidizing Temp. °F
<u>Grindability</u> HGI At Moisture % 5.32 0.00 <u>Sulfur Form (Dry)</u>	<u>Free Swelling Index</u> FSI <u>Trace Elements</u>	I.D. Soft. Hemi. Fluid
Pyritic Sulfur Sulfate Organic Sulfur, Total <u>Misc.</u>		$\begin{tabular}{c} Major Ash Elem. \\ \hline @S & D = f \\ SiO2 & 0.73 \\ Al2O3 & 0.08 \\ TiO2 & 0.00 \\ Fe2O3 & 0.11 \\ CaO & 43.20 \\ \end{tabular}$
<u>Analysis Value</u> % SOLIDS 7.4 DENSITY 1.070	Hg 0.712 ppm Fluorine	MgO 0.31 Na2O 0.16 K2O 0.03 P2O5 0.04 SO3 41.41 Undetermined 13.93

As Determined Moisture 5.32 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLIDS 15:45	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 3 MODULE 1A	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050711
Sample No.: U1T3 FGDS-1A		
Proximate (Dry) <u>%</u>	Ultimate (Dry) <u>%</u>	Ash Fusion Reducing Temp. °F
Ash 99.81	Carbon 0.68	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.6100	Fluid
BTU/Ib	Sulfur, Total Ash 99.81	Fluid
MAF BTU/lb	Oxygen (DIFF)	Ach Fusien Ovidining Town
		Ash Fusion Oxidizing Temp. °F
<u>Grindability</u>	Free Swelling Index	I.D.
HGI	FSI	Soft.
At Moisture % 4.03		Hemi.
0.00		Fluid
0.00	<u>Trace Elements</u>	
Sulfur Form (Dry)		
Pyritic Sulfur		Major Ash Elem
Sulfate		es Det.
Organic		SiO2 0.77
Sulfur, Total		Al2O3 0.12
		TiO2 0.01
Misc.		Fe2O3 0.12
		CaO 40.64 MgO 0.40
<u>Analysis</u> <u>Value</u>		Na2O 0.30
% SOLIDS 12.8		K2O 0.07
		P2O5 0.03
DENSITY 1.117	Hg 0.908 ppm	SO3 49.37
	Fluorine	Undetermined 8.17

#### As Determined Moisture 4.03 %

These values have been reviewed and are approved for transmission.

Distribution:

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Approved:



FGD SLURRY SOLIDS 15:50	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 3 MODULE 1B	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050712
Sample No.: U1T3 FGDS-1B	<b>,</b>	
Proximate (Dry) <u>%</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 92.24	Carbon 2.31	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.4000 Sulfur, Total	Fluid
BTU/lb	Ash 92.24	T lala
MAF BTU/lb	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Fire - Orige Wings Indexe	I.D.
<u>Grindability</u>	Free Swelling Index	
HGI	FSI	Soft.
At Moisture % 5.46		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form (Dry)		
Pyritic Sulfur		Major Ash Elem.
Sulfate Organic		as pet.
-		SiO2 0.74
Sulfur, Total		Al2O3 0.10
		TiO2 0.01 Fe2O3 0.12
Misc.		CaO 41.98
		MgO 0.34
<u>Analysis Value</u>		Na2O 0.20
% SOLIDS 7.0		K2O 0.05
	Hg 0.744 ppm	P2O5 0.05 SO3 41.79
DENSITY 1.070	Fluorine	Undetermined 14.62

As Determined Moisture 5.46 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLIDS 11:20	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 1 TEST 4 MODULE 1A	Date Received: 2/7/05 Submitted by: S. TSENG `	Analytical No.: 20050713
Sample No.: U1T4 FGDS-1A		
Proximate (Dry) <u>%</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 99.30	Carbon 0.78	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.5600 Sulfur, Total	Fluid
BTU/lb	Ash 99.30	, laid
MAF BTU/lb	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>		
HGI	FSI	Soft.
At Moisture % 4.06		Hemi.
0.00	Trace Elements	Fluid
<u>Sulfur Form</u> ( <u>Dry</u> )		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate		as Del
Organic		
Sulfur, Total		SiO2 0.86 Al2O3 0.14
		TiO2 0.01
		Fe2O3 0.13
<u>Misc.</u>	_	CaO 41.77
<u>Analysis Value</u>		MgO 0.33
		Na2O 0.23
% SOLIDS 13.1		K2O 0.06 P2O5 0.05
	Hg 0.888 ppm	SO3 49.64
DENSITY 1.120	Fluorine	303 48.04
	Fluorine	Undetermined 6.78

As Determined Moisture 4.06 %

These values have been reviewed and are approved for transmission.

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#### FGD SLURRY SOLIDS 11:25

#### UNIT 1 TEST 4 MODULE 1B Sample No.: U1T4 FGDS-1B

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Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050714

<u>Proximate (Dry) %</u>	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 93.02	Carbon 2.06	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen Chlorine 0.4800	Hemi.
	Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 93.02	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
Grindability	Free Swelling Index	I.D.
HGI	FSI	Soft.
At Moisture % 5.83		Hemi.
0.00	Trace Elements	Fluid
<u>Sulfur Form (Dry)</u>		
Pyritic Sulfur Sulfate Organic		Major Ash Elem.
Sulfur, Total		SiO2 0.77
Sunar, Fotor		Al2O3 0.10 TiO2 0.01
		Fe2O3 0.12
<u>Misc.</u>		CaO 41.64
		MgO 0.31
<u>Analysis</u> <u>Value</u>		Na2O 0.19
% SOLIDS 6.9		K2O 0.06
	Ha 0.744 nom	P2O5 0.04
DENSITY 1.074	Hg 0.744 ppm	SO3 43.23
	Fluorine	Undetermined 13.53

#### As Determined Moisture 5.83 %

These values have been reviewed and are approved for transmission.

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FGD	SLU	IRRY	SOLIDS	12:53

#### **UNIT 2 TEST 1 MODULE 2A**

Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050715

Sample No.:	: U2T1 F(	GDS-2A	Cushi	accu by. 0.	TOENO		
Proximate	<u>(Dry)</u>	<u>%</u>	<u>Ultima</u>	te (Dry)	<u>%</u>	Ash Fusion Reduc	<u>:ing Temp. °F</u>
As	sh 96	6.99	Cart	on 1.3	32	I.D.	
Volatile Matte	er		Hydrog	jen		Soft.	
Fixed Carbo	n		Nitrog			Hemi.	
			Chlor Sulfur, To		0	Fluid	
BTU/				\sh 96.9	)9	i luid	
MAF BTU/	lb		Oxygen (Dil			Ash Fusion Oxidiz	<u>ing Temp. °F</u>
<u>Grindabili</u>	tv		<u>Free Sv</u>	veiling Index	<u>x</u>	I.D.	
			I	-SI		Soft.	
HC At Moisture						Hemi.	
	0.00		<u>Trace El</u>	ements		Fluid	
Sulfur For	<u>m (Dry)</u>						
Pyritic Sulfu Sulfate						Major As	
Organic						as De	
Sulfur, Total						SiO2	0.99
Sullui, Tota	1					Al2O3	0.06
						TiO2	0.00
<u>Misc.</u>						Fe2O3 CaO	0.05 41.87
						MgO	0.29
<u>Analysis</u>	<u>Value</u>			·		Na2O	0.22
% SOLIDS	9.5					K2O	0.04
						P2O5	0.02
DENSITY	1.077		Hg (	).607 ppm		SO3	46.67
			Fluorine			Undetermined	9.79

As Determined Moisture 4.52 %

These values have been reviewed and are approved for transmission.

Distribution:

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#### FGD SLURRY SOLIDS 12:58

### UNIT 2 TEST 1 MODULE 2C

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Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050716

Sample No.:	U2T1 FGDS-2C	Submitted	by: 0. TOLING		
Proximate	. <u>(Dry) %</u>	<u>Ultimate (D</u>	<u>ry) %</u>	Ash Fusion Reduc	ing Temp. °F
As	h 99.90	Carbon	0.60	I.D.	
Volatile Matte		Hydrogen		Soft.	
Fixed Carbo	n	Nitrogen		Hemi.	
		Chlorine	0.6200	Fluid	
BTU/I	lb	Sulfur, Total Ash	99.90	Huid	
MAF BTU/	lb	Oxygen (DIFF)	00.00	Ash Fusion Oxidiz	ing Temp. °F
Grindabili	4.7	<u>Free Swellir</u>	<u>ng Index</u>	I.D.	
		FSI		Soft.	
HC At Moisture S				Hemi.	
	0.00	Trace Elemer	<u>nts</u>	Fluid	
Sulfur For	m (Dry)				
Pyritic Sulfur				<u>Major As</u>	
Sulfate Organic				9.5 PG	f
-				SiO2	1.27
Sulfur, Total				Al2O3	0.12
				TiO2	0.01
Mine				Fe2O3	0.08
<u>Misc.</u>				CaO	40.12
A	Melue			MgO	0.33
<u>Analysis</u>	<u>Value</u>			Na2O	0.30
% SOLIDS	10.9			K2O	0.07
				P2O5	0.00
DENSITY	1.098	Hg 0.562	2 ppm	SO3	50.62
		Fluorine		Undetermined	7.08

#### As Determined Moisture 6.12 %

These values have been reviewed and are approved for transmission.

Approved:

Distribution:

S. TSENG J. LOCKE J. WITHUM



### FGD SLURRY SOLIDS 10:11

# UNIT 2 TEST 2 MODULE 2A Sample No.: U2T2 FGDS-2A

Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG Project No.: 1621 - 087 - 000

Analytical No.: 20050717

Proximate	<u>(Dry) %</u>	<u>Ultimate (Dr</u>	<u>v) %</u>	Ash Fusion Reduc	ing Temp. °F
Ash	95.23	Carbon	1.83	I.D.	
Volatile Matter		Hydrogen		Soft.	
Fixed Carbon	I	Nitrogen		Hemi.	
		Chlorine Sulfur, Total	0.4800	Fluid	
BTU/lb		Ash	95.23	ridio	·
MAF BTU/lb		Oxygen (DIFF)		Ash Fusion Oxidiz	ing Temp. °F
Crindahilita		Free Swellin	<u>g Index</u>	I,D.	
<u>Grindability</u>	-	FSI		Soft.	
HGI At Moisture %				Hemi.	
	0.00	Trace Elemen	<u>ts</u>	Fluid	
Sulfur Forn	<u>1 (Dry)</u>				
Pyritic Sulfur Sulfate Organic					l.
Sulfur, Total				SiO2	1.27
Cunar, rota				Al2O3 TiO2	0.07 0.00
				Fe2O3	0.07
<u>Misc.</u>				CaO	43.37
Apolycic	Value	_		MgO	0.40
_				Na2O	0.29
% SOLIDS	10.1			K2O	0.05 0.03
DENSITY	1.088	Hg 0.592	ppm	P2O5 SO3	0.03 45.43
	1.000	Fluorine		Undetermined	9.02

As Determined Moisture 4.60 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLI	DS 10:16		pleted: 04/04/2005	Project No.:	1621 _ 087 -000
UNIT 2 TEST 2 MOI	DULE 2C		ceived: 2/7/05 ited by: S. TSENG	Analytical No.:	20050718
Sample No.: U2T2	FGDS-2C	Subini	ted by. 0. IOLNO		
Proximate (Dry)	<u>%</u>	Ultimat	e (Dry) <u>%</u>	Ash Fusion Reduc	ing Temp. °F
Ash	97.80	Carb	on 0.60	I.D.	
Volatile Matter	01.00	Hydrog		Soft.	
Fixed Carbon		Nitrog		Hemi.	
		Chlori		Fluid	
BTU/lb		Sulfur, To A	tai sh 97.80	Fluid	
MAF BTU/lb		Oxygen (DIF		Ash Fusien Onisia	
		• - ·		Ash Fusion Oxidiz	ang remp. r
<b>Grindability</b>		<u>Free Sw</u>	elling Index	l.D.	
HGI		F	SI	Soft.	
At Moisture % 3.4	2			Hemi.	
0.0	0			Fluid	
0.0	0	<u>Trace Ele</u>	<u>ments</u>		
<u>Sulfur Form</u> (Dry	)				
Pyritic Sulfur				<u>Major As</u>	
Sulfate Organic				acs 3	oct.
-				SiO2	1. <b>1</b> 5
Sulfur, Total				Al2O3	0.06
				TiO2	0.00
Misc.				Fe2O3	0.05
<u>misc.</u>				CaO	40.81
<u>Analysis Value</u>	L			MgO	0.29
	-			Na2O	0.24
% SOLIDS 11.0				K2O	0.04
		Hg C	.562 ppm	P2O5 SO3	0.01 51.29
DENSITY 1.08		U U	loo= ppm	303	01,29
	ſ	Fluorine		Undetermined	6.06

As Determined Moisture 3.42 %

These values have been reviewed and are approved for transmission.

Distribution:

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FGD SLURRY SOLIDS 14:02	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 2 TEST 3 MODULE 2A	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050719
Sample No.: U2T3 FGDS-2A		
Proximate (Dry) <u>%</u>	Ultimate (Dry) <u>%</u>	Ash Fusion Reducing Temp. °F
Ash 94.29	Carbon 1.69	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.6200 Sulfur, Total	Fluid
BTU/Ib	Ash 94.29	Tud
MAF BTU/Ib	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Even Over Wenn Index	LD.
<u>Grindability</u>	Free Swelling Index	
HGI	FSI	Soft.
At Moisture % 2.51		Hemi.
0.00	Trace Elements	Fluid
<u>Sulfur Form (Dry)</u>		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate Organic		as Del.
-		SiO2 1.24
Sulfur, Total		Al2O3 0.06
		TiO2 0.00
<u>Misc.</u>		Fe2O3 0.06 CaO 42.21
	<u> </u>	MgO 0.31
<u>Analysis Value</u>		Na2O 0.22
% SOLIDS 9.5		K2O 0.03
		P2O5 0.00
DENSITY 1.093	Hg 0.639 ppm	SO3 46.15
	Fluorine	Undetermined 9.72

As Determined Moisture 2.51 %

These values have been reviewed and are approved for transmission.

Distribution:

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FGD SLURRY SOLIDS 14:07 UNIT 2 TEST 3 MODULE 2C Sample No.: U2T3 FGDS-2C	Date Completed: 04/04/2005 Date Received: 2/7/05 Submitted by: S. TSENG	Project No.: 1621 - 087 - 000 Analytical No.: 20050720
<u>Proximate (Dry) %</u>	Ultimate (Dry) <u>%</u>	Ash Fusion Reducing Temp. °F
	Carbon 0.66	I.D.
Ash 97.56 Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	
	Chlorine 0.5900	Hemi.
BTU/lb	Sulfur, Total	Fluid
MAF BTU/b	Ash 97.56	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>	FSI	Soft.
HGI	roi	
At Moisture % 2.69		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form (Dry)		
Pyritic Sulfur Sulfate Organic		Major Ash Elem.
-		SiO2 1.18
Sulfur, Total		Al2O3 0.07
		TiO2 0.00
Misc.		Fe2O3 0.07
<u>iviibu.</u>	_	CaO 41.34
<u>Analysis Value</u>		MgO 0.33
		Na2O 0.26
% SOLIDS 10.5		K2O 0.03 P2O5 0.01

DENSITY 1.084

Hg 0.575 ppm

Fluorine

Undetermined 4.98

\$O3

51.73

As Determined Moisture 2.69 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLIDS 09:38	Date Completed: 04/04/2005	Project No.: 1621 - 087 - 000
UNIT 2 TEST 4 MODULE 2A	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050721
Sample No.: U2T4 FGDS-2A		
Proximate (Dry) %	<u>Ultimate (Dry) %</u>	Ash Fusion Reducing Temp. °F
Ash 97.50	Carbon 0.79	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.6400 Sulfur, Total	Fluid
BTU/lb	Ash 97.50	T MM
MAF BTU/Ib	Oxygen (DIFF)	Ash Fusion Oxidizing Temp, °F
	Free Swelling Index	1.D.
<u>Grindability</u>		
HGI	FSI	Soft.
At Moisture % 2.95		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form (Dry)		
Pyritic Sulfur		<u>Major Ash ⋤lem.</u>
Sulfate		as Det
Organic		SiO2 1.19
Sulfur, Total		Al2O3 0.07
		TiO2 0.00
Misc.		Fe2O3 0.06 CaO 40.71
		MgO 0.31
<u>Analysis Value</u>		Na2O 0.26
		K2O 0.05
	Hg 0.592 ppm	P2O5 0.01
	0 11	SO3 49.97
	Fluorine	Undetermined 7.37

As Determined Moisture 2.95 %

These values have been reviewed and are approved for transmission.

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FGD SLURRY SOLIDS 09:	Buto Completion of the theory	Project No.: 1621 - 087 - 000
UNIT 2 TEST 4 MODULE 2	Date Received: 2/7/05 Submitted by: S. TSENG	Analytical No.: 20050722
Sample No.: U2T4 FGDS-		
Proximate %	<u>Ultimate %</u>	Ash Fusion Reducing Temp. °F
Ash 97.70	Carbon 0.59	I.D.
Volatile Matter	Hydrogen	Soft.
Fixed Carbon	Nitrogen	Hemi.
	Chlorine 0.6400 Sulfur, Total	Fluid
BTU/lb MAF BTU/lb	Ash 97.70	
	Oxygen (DIFF)	Ash Fusion Oxidizing Temp. °F
	Free Swelling Index	I.D.
<u>Grindability</u>	FSI	Soft.
HGI	101	
At Moisture % 3.25		Hemi.
0.00	Trace Elements	Fluid
Sulfur Form		
Pyritic Sulfur		<u>Major Ash Elem.</u>
Sulfate		as Det.
Organic		SiO2 1.18
Sulfur, Total		Al2O3 0.05
		TiO2 0.00
Misc.		Fe2O3 0.05
		CaO 40.23
<u>Analysis Value</u>		MgO 0.33 Na2O 0.28
% SOLIDS 9.4		K2O 0.04
76 GOLIDO 9.4		P2O5 0.01
DENSITY 1.090	Hg 0.616 ppm	SO3 51.01
	Fluorine	Undetermined 6.82

As Determined Moisture 3.25 %

These values have been reviewed and are approved for transmission.

Approved:

Distribution:

S. TSENG J. LOCKE J. WITHUM

### **FGD SLURRY FILTRATE 13:05**

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Sample No.: U1T1 FGDS-1A Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050792 Project No.: 1621 -087 -000

Submitter: S. TSENG

		Water Result Inless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
рН					Ion Sum	50967.72
Acidity, CaCO3				· · · · · · · · · · · · · · · · · · ·	Cation Sum	805.05
Alkalinity, CaCO3						
Hydroxide, CaCO3			·		Anion Sum	1004.25
Carbonate, CaCO3					Ion Balance	12.71
Bicarbonate, CaCO3			4		% Ion Imbalance	-11.01
Total Suspended Solids					% Ion Impalance	-11.01
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen Ammonia, N	<10					
Ammonia, N						
Total Elements						ngme
Aluminum					Hg 4.0	
Calcium	3910.37					$\langle \rangle$
Iron	1.42					
Magnesium	4525.65					
Manganese						
Potassium	753.97					
Phosphorous						
Silicon						
Sodium	5021.37					
Chromium						
Anions:						
Sulfate	4059.71					
Chloride	32500		,			
Nitrate, N	44.08	A Construction of the American Construction o				
Nitrite, N	·	11				
Bromide						
Fluoride						

These values have been reviewed and are approved for transmission.

gmL

### FGD SLURRY FILTRATE 13:05

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 Sample No.: U1T1 FGDS-1B Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050793 Project No.: 1621 -087 -000

Submitter: S. TSENG

_	<u>(mg/L ւ</u>	Water Resul	otherwise			
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
рН					lon Sum	38216.08
Acidity, CaCO3				· · · · · · · · · · · · · · · · · · ·	Cation Sum	554.62
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	765.94
Carbonate, CaCO3						
Bicarbonate, CaCO3		al Andre Andre Internetion and Andre An		<u>, 19 (1977) (19 (19 (19 (19 (19 (19 (19 (19 (19 (19</u>	lon Balance	17.64
Total Suspended Solids					% Ion Imbalance	-16.00
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure		s virgi da da sina di si pri d	E ELLEquisions:			
Dissolved Oxygen Ammonia, N	<10					
						,
Total Elements		n an			ila 45	ng/mc
Aluminum Calcium	2981.17				Hg 4.5	ng /me
Iron	3.99					
Magnesium	3011.70					
Manganese						
Potassium	506.33	ile benn sen ser ser i se				
Phosphorous						
		an Madalitista dalam ay dama progr		••••••••••••••••••••••••••••••••••••••		
Sodium	3335.64					
Chromium						
Anions:						
Sulfate	3936.56					
Chloride	24000	a vistinalasti, il piarasta	anda a du kaya in 100 in 100 in 100 in 100 ang ng pagga ulay kaya na ang pagga ulay k			
Nitrate, N Nitrite, N	99.5					
Bromide						
Fluoride		n in the state of				



### FGD SLURRY FILTRATE 11:00

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Sample No.: U1T2 FGDS-1A Date Received: 02/07/2005 Date Completed: 04/05/2005

20050794 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	•	Water Resulf Inless noted		<u>)</u>		
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
ΕH					lon Sum	50671.24
Acidity, CaCO3					Cation Sum	708.70
Alkalinity, CaCO3					Anion Sum	1049.28
Carbonate, CaCO3					Ion Balance	20.80
Bicarbonate, CaCO3						
Total Suspended Solids Total Dissolved Solids					% Ion Imbalance	-19.37
Specific Conductivity Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen Ammonia, N	10					
Total Elements						
Aluminum					Hg 4.8	ng/mc
Calcium	3447.08	a Waldon de parte da bista				0
Iron Magnesium	<1.25 4002.58					
Magacescum Potassium	659.04					
Phosphorous Silicon						
Sodium Chromium	4383.71					
Anions:						
Sulfate	3617,71 34500					
Nitrate, N Nitrite, N	13.8					
Bromide Fluoride			an paratanan ing kang dalam sa kanan sa Salahan ng pang kang sa kanan sa kanan sa Salahan ng pang kang sa kanan sa kang s Salahan sa kang br>Salahan sa kang br>Salahan sa kang			

### FGD SLURRY FILTRATE 11:05

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Sample No.: U1T2 FGDS-1B Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050795 Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L u</u>	Water Result Inless noted	<u>otherwise)</u>		Quality Control (	algulations
Parameter	Value	Value	Units	Avg Value	Quality Control C	
рН					lon Sum	36362.28
Acidity, CaCO3					Cation Sum	560.19
Alkalinity, CaCO3						700 50
Hydroxide, CaCO3		<ul> <li>Orthographic contraction of the second s</li></ul>		STREET, STREET	Anion Sum	706.59
Carbonate, CaCO3					Ion Balance	13.24
Bicarbonate, CaCO3					% Ion Imbalance	-11.56
Total Suspended Solids					% ION IMparance	-11.00
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	10					
						,
Total Elements		5 11.12 11.11.11.11.11.11.11.11.11.11.11.11.11.				ngla
Aluminum					Hg 5.7	ng Im
Calcium	3044.15					U
Iron	4.53					
Magnesium	3017.89					
Manganese						
Potassium	505.00	5	-	e en		
Phosphorous						
Silicon	000040	1. 1972 1971 1971 1971 1971 1971 1971 1971				
Sodium	3380.13					
Chromium						
Anions:						
Sulfate	4478.75					
Chloride	21500					
Nitrate, N	97.5					
Nitrite, N						
Bromide						
Fluoride						

These values have been reviewed and are approved for transmission.

ng /ml

### FGD SLURRY FILTRATE 15:45

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 Sample No.: U1T3 FGDS-1A Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050796 Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L ս</u>	Water Resulf Inless noted	otherwise)		Quality Cantural C	
Parameter	Value	Value	Units	Avg Value	Quality Control C	
5H					lon Sum	50628.59
Acidity, CaCO3					Cation Sum	754.4 <b>7</b>
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	1024.59
Carbonate, CaCO3						
Bicarbonate, CaCO3	ni ministra Elektronet de Mi			·····	Ion Balance	16.90
Total Suspended Solids					% Ion Imbalance	-15.18
Specific Conductivity						
Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	10					
Total Elements						na l
Aluminum					Hg 2.7	ng/m
Calcium	3673.01					Ű
Iron Magnesium	2.29 4276.17					
Manganese						
Potassium	697.68					
Phosphorous Silicon						
Sodium Chromium	4634.72					
Anions:						
Sulfate	3795.12 33500					
Nitrate, N	11.2					
Nitrite, N Bromide Fluoride						



### **FGD SLURRY FILTRATE 15:50**

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Sample No.: U1T3 FGDS-1B Date Received: 02/07/2005 Date Completed: 04/05/2005

20050797 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

<b>D</b>	<u>(mg/L u</u>	Water Result Inless noted	•	Avg Value	Quality Control 0	alculations
Parameter	Value	Value	Units	Avy value	-	
рН					lon Sum	36385.99
Acidity, CaCO3					Cation Sum	521.81
Alkalinity, CaCO3					Anion Sum	728.67
Hydroxide, CaCO3					Anion Sum	120.01
Carbonate, CaCO3					Ion Balance	18.14
Bicarbonate, CaCO3					% Ion Imbalance	-16.54
Total Suspended Solids Total Dissolved Solids					70 TOTT INTIDEIGNOC	10.0-
Specific Conductivity Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
	l · ·					,
Total Elements	·····		a second contraction of the second		11- 2.4	Da/m
Aluminum					Hg 3.6	ng/m
Calcium	2833.62			· · · · · · · · · · · · · · · · · · ·		U
Iron	4.17					
Magnesium	2797.98					
Manganese	470.40					
Potassium	472.19					
Phosphorous						
Silicon	3174.58					
Sodium	3174.00		·			
Chromium						
Anions:						
Sulfate	4230.53					
Chloride	22500					
Nitrate, N	84.2					
Nitrite, N						
Bromide						
Fluoride		1				

7/ml



## FGD SLURRY FILTRATE 11:20

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Sample No.: U1T4 FGDS-1A Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050798 Project No.: 1621 -087 -000

Submitter: S. TSENG

		Nater Result nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
0 <b>H</b>					Ion Sum	49220.75
Acidity, CaCO3		9 (* 1 o annulannan dalami di 1971)			Cation Sum	694.62
Alkalinity, CaCO3						1017.41
Hydroxide, CaCO3					Anion Sum	1017.41
Carbonate, CaCO3 Bicarbonate, CaCO3					Ion Balance	20.33
Total Suspended Solids					% Ion Imbalance	-18.85
Total Dissolved Solids				, da ji bajimani se minima <u>nini siniste di</u> .		
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure			La da haringina ta			
Dissolved Oxygen Ammonia, N	<10					N
Total Elements					Hg 4.0	ng/ml
Aluminum Calcium	3389.53	Contraction of the second s			ing 4.0	0.1
Iron	2.14					
Magnesium	3937.33			a analynyn feridau yn ar yw		
Manganese						
Potassium	639.89					
Phosphorous						
Silicon	4258.81					
Sodium Chromium	4200.01					
Anions:	0474 40					
Sulfate Chloride	3474,18 33500					
Nitrate, N	4.26	Alexandra da compositiva de la compositiva de encompositiva de la compositiva de la				
Nitrite, N		Charles Million La comp	a a an ann an			
Bromide						
Fluoride						

### **FGD SLURRY FILTRATE 11:25**

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Sample No.: U1T4 FGDS-1B Date Received: 02/07/2005 Date Completed: 04/05/2005

20050799 Analytical No.: Project No.: 1621 -087 -000

ng/mL

Submitter: S. TSENG

Parameter	<u>(mg/L )</u> Value	<u>Water Resul</u> unless noted Value	Avg Value	Quality Control 0	alculations
	Value	Value		-	
рН				Ion Sum	33483.01
Acidity, CaCO3				Cation Sum	507.21
Alkalinity, CaCO3				Anion Sum	659.33
Hydroxide, CaCO3				Amon Sum	009.00
Carbonate, CaCO3 Bicarbonate, CaCO3				Ion Balance	14.73
Total Suspended Solids				% Ion Imbalance	-13.04
Total Dissolved Solids				70 Ion Imbalance	10.01
Specific Conductivity					
Hardness					
Turbidity					
Osmotic Pressure					
Dissolved Oxygen					
Ammonia, N	10				
					4
Total Elements		and appropriate to be board and the			mg ml
Aluminum				Hg 4.2	"J /mL
Calcium	2767.72				V
Iron	3,63				
Magnesium	2738.40				
Manganese	154.00				
Potassium	454.20	to (and activity) and a			
Phosphorous					
Silicon	000007	en e			
Sodium	3038.37				
Chromium					
Anions:					
Sulfate	3615.30				
Chloride	20500				
Nitrate, N	82,5				
Nitrite, N					
Bromide					
Fluoride					

#### FGD SLURRY FILTRATE 12:53

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10 10 10

-1 mm

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Sample No.: U2T1 FGDS-2A Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050800 Project No.: 1621 -087 -000

malml

Submitter: S. TSENG

Parameter		<u>Water Resul</u> unless noted Value	-	Avg Value	Quality Control 0	Calculations
	¥aiue	Vulue			lon Sum	44965.26
pH Acidity, CaCO3						44900.20
Alkalinity, CaCO3		1 Translata Adam ay a fi a a			Cation Sum	690.57
Hydroxide, CaCO3	i da di kana kana kana kana kana kana kana kan	19 - U.L. (S. X. K.		an a	Anion Sum	895.17
Carbonate, CaCO3					lan Dalamaa	44.60
Bicarbonate, CaCO3		2 212.0 Index Street of the Interference of		1. C. C. CARLELLING II FARING COMMUNICATION -	Ion Balance	14.63
Total Suspended Solids					% Ion Imbalance	-12.90
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure			····			
Dissolved Oxygen						
Ammonia, N	10					
Total Elements					11	ma li
Aluminum					Hz <1.	o malini
Calcium	3639.67				$\wedge$	()
Iron	1,98				Ú	V
Magnesium	3627.91					
Manganese						
Potassium	668.04			· · · · · · · · · · · · · · · · · · ·		
Phosphorous						
Silicon		1				
Sodium	4447.30					
Chromium						
Anions:						
Sulfate	2882.38					
Chloride	29500					
Nitrate, N	44.7					
Nitrite, N						
Bromide						
Fluoride						



## **FGD SLURRY FILTRATE 12:58**

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Sample No.: U2T1 FGDS-2C Date Received: 02/07/2005 Date Completed: 04/05/2005

20050801 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L</u>	Water Resul unless notec		<u>l</u>		
Parameter	Value	Value	Units	Avg Value	Quality Control C	Calculations
pH					lon Sum	49157.85
Acidity, CaCO3					Cation Sum	729.53
Alkalinity, CaCO3						
Hydroxide, CaCO3					Anion Sum	994.26
Carbonate, CaCO3					lon Balance	17.06
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbalance	-15.36
Total Dissolved Solids						
Specific Conductivity		[11] The set of the				
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	10					
Total Elements						nolui
Aluminum			ander (hoge) produced, fondjurg (* der 1er 1), for ". 1979 - State (* 1986) (* 1997) - State (* 1997) 1979 - State (* 1986) (* 1997) - State (* 1997) 1979 - State (* 1997) (* 1997) (* 1997) (* 1997)		Hg 1.9	ngland
Calcium	3795.69	······································				v
Iron	<1,25					
Magnesium	3869.88	121 yuuni 111 yuuni 112 yuuni 1				
Manganese						
Potassium	706.67			· · · · · · · · · · · · · · · · · · ·		
Phosphorous				to a function of the second		
Silicon	· · · · · · · · · · · · · · · · · · ·	(), <u>alışışırdan</u> yeşterin ev 'alı manı,		, an ang ang ang ang ang ang ang ang ang		
Sodium	4685.44					
Chromium	ar - i ani fi i ani i ain ani an	ini (1900) in ann an 1900 a				
Anions:						
Sulfate	2897,32					
Chloride	33000					
Nitrate, N	45.8	nie rubbie Andreas ( 1				
Nitrite, N						
Bromide	r	an independent oppertuiter ander an opperation (data inder ander				
Fluoride	ei leie leien ei didisaitiet		py bahalanýmután sv			

### FGD SLURRY FILTRATE 10:11

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 Sample No.: U2T2 FGDS-2A Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050802 Project No.: 1621 -087 -000

Submitter: S. TSENG

		Water Result Inless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
Hq					Ion Sum	41714.65
Acidity, CaCO3					Cation Sum	631.70
Alkalinity, CaCO3					Anion Sum	834.52
Hydroxide, CaCO3 Carbonate, CaCO3						
Bicarbonate, CaCO3					Ion Balance	15.55
Total Suspended Solids					% Ion Imbalance	-13.83
Specific Conductivity Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen				i		
Ammonia, N	<10					
Total Elements						ngli
Aluminum					Hg 1.3	ng/mL
Calcium	3313.01					
Iron	1.69 3313.00					
Magnesium Manganese	3313.00					
Potassium	610,91					
Phosphorous Silicon						
Sodium Chromium	4097,95	n (2000) (1000) (2000) (2000) 2000) (2000) (2000) (2000) (2000) 2000) (2000) (2000) (2000) (2000) (2000) 2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (2000) (20				
Anions:						
Sulfate Chloride	2673.03 27500					
Nitrate, N Nitrite, N	46.3					
Bromide Fluoride		re - Alexandro and Alexandro Alexandro and Alexandro and Alexandro and Alexandro and Alexandro and Alexandro and Alexandro and Alexandro and Ale				



## **FGD SLURRY FILTRATE 10:16**

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Sample No.: U2T2 FGDS-2C Date Received: 02/07/2005 Date Completed: 04/05/2005

20050803 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	-	Nater Result nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
pH					Ion Sum	49936.40
Acidity, CaCO3		1111 Malaya Angeler (1997)		" " " popul nu reconcient desenance	Option Our	950 40
Alkalinity, CaCO3					Cation Sum	859.19
Hydroxide, CaCO3	n an an the state of the state of the				Anion Sum	946.89
Carbonate, CaCO3					Ion Balance	5.93
Bicarbonate, CaCO3					ION Dalance	0.90
Total Suspended Solids					% Ion Imbalance	-4.86
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					7	/
Aluminum					Ha <1.0	ng/mL
Calcium	4367.31					0
Iron	<1.25			. Tarrazla la la su altra da la como de la c	O	
Magnesium	4548.29	Ward Antersteiner in der Staten				
Manganese						
Potassium	836.90			· ····································		
Phosphorous						
Silicon		ի վերջանի հեղենի։ Դեղութի ին եւ է հատուտ հեղու 				
Sodium	5651.44					
Chromium	i ja ja ja ja ja kun sana kun na indi pina kip		hranni gradini	· · ··································		
<b>A</b>						
Anions:	202000					
Sulfate	3336.26 31000					
Chloride Nitrate, N	44.3					
Nitrate, N Nitrite, N	44.0					
Bromide		, sinan inggining inggin, si sani sani s Sinan inggining ang si sani si sani si sani s Sinan inggining ang si sani sani sani sani sa		a shi a sha a s		
Fluoride						
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## FGD SLURRY FILTRATE 14:02

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Sample No.: U2T3 FGDS-2A

Date Received: 02/07/2005

Date Completed: 04/05/2005

Analytical No.: 20050804 Project No.: 1621 -087 -000

Submitter: S. TSENG

_ /	<u>(mg/L ւ</u>	Water Result Inless noted	otherwise)		Quality Control C	alculations
Parameter	Value	Value	Units	Avg Value	-	
pH					lon Sum	38070.27
Acidity, CaCO3					Cation Sum	603.79
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	746.72
Carbonate, CaCO3						10.04
Bicarbonate, CaCO3					lon Balance	12.24
Total Suspended Solids					% Ion Imbalance	-10.58
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure		······				
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements						nglim
Aluminum					Hg 1.3	ngilml
Calcium	3122.81					U
Iron	<1.25					
Magnesium	3148.49					
Manganese						
Potassium	586.93					
Phosphorous						
Silicon Sodium	4000.99					
Chromium	4000.99					
Anions:						
Sulfate	2565.78					
Chloride	24500	a successive to a				
Nitrate, N	32.8					
Nitrite, N Bromide						
Fluoride						

### **FGD SLURRY FILTRATE 14:07**

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Sample No.: U2T3 FGDS-2C Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050805 Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L u</u>	Water Result Inless noted	otherwise)			
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
рH					Ion Sum	48263.39
Acidity, CaCO3					Cation Sum	807.07
Alkalinity, CaCO3						
Hydroxide, CaCO3				a Massach Mitter (1997) (1997)	Anion Sum	928.25
Carbonate, CaCO3					Ion Balance	8.36
Bicarbonate, CaCO3 Total Suspended Solids					% Ion Imbalance	-6.98
Total Dissolved Solids						
Specific Conductivity						
Hardness				en poli ini ini ini ili ili ili ili ili ili i		
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	10					
Total Elements						ng lui
Aluminum					Hg 1.0	ng/m(
Calcium	4145.00			· ····································		-
Iron	<1.25					
Magnesium	4277.07					
Manganese Potassium	784.28					
Phosphorous	104.20	the second s				
Silicon						
Sodium	5251.84					
Chromium		1. C.S. giving Intelligious and	:	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
Anions:						
Sulfate	3150.18					
Chloride	30500					
Nitrate, N	35.0					
Nitrite, N						
Bromide						
Fluoride						

## **FGD SLURRY FILTRATE 09:38**

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Sample No.: U2T4 FGDS-2A Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050806 Project No.: 1621 -087 -000

Submitter: S. TSENG

	-	Water Result Inless noted	•			
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
рН					Ion Sum	46286.42
Acidity, CaCO3	10 10000 g +44 09000025002100	NUTRIAL AND AND THE SECTION			Cation Sum	772.61
Alkalinity, CaCO3					Anion Sum	888.03
Hydroxide, CaCO3 Carbonate, CaCO3					Anion Sum	
Bicarbonate, CaCO3					Ion Balance	8.32
Total Suspended Solids					% Ion Imbalance	-6.95
Total Dissolved Solids					70 1011 Milouanou	
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure			1.19.00000000000000000000			
Dissolved Oxygen						
Ammonia, N	<10					
						1
Total Elements	rrra analy. V. of the second state				Ua 1.0	nglac
Aluminum					Hg 1.0	ng/mc
Calcium	3928.41					v
Iron	1.61					
Magnesium	4067.27					
Manganese	752.80					
Potassium	/52.00					
Phosphorous						
Silicon	5121.87					
Sodium	1 0121.07					
Chromium						
Anions:						
Sulfate	3218.26					
Chloride	29000					
Nitrate, N	44.3					
Nitrite, N						
Bromide						
Fluoride						

### FGD SLURRY FILTRATE 09:40

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Sample No.: U2T4 FGDS-2C Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050807 Project No.: 1621 -087 -000

Submitter: S. TSENG

		<u>Water Resul</u> Inless noted	_	1		
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
Hq					lon Sum	50415.24
Acidity, CaCO3					Cation Sum	693.77
Alkalinity, CaCO3						
Hydroxide, CaCO3		- Herdinand March 1997			Anion Sum	1047.82
Carbonate, CaCO3			. Data data kata dar		lon Balance	21.66
Bicarbonate, CaCO3		5 - and an inclusion of the second second			% Ion Imbalance	-20.33
Total Suspended Solids					% ION INDUIANCE	-20.33
Total Dissolved Solids Specific Conductivity						
Hardness	ini i Cuin Cuin Marine ann an 1911 ann					
Turbidity						
Osmotic Pressure				a an		
Dissolved Oxygen						
Ammonia, N	10					
Total Elements						. / .
Aluminum					Hg 1.3	hg/ml
Calcium	3541.98			a na stanisti n	-	0'
Iron	<1.25					
Magnesium	3649.58	an a				
Manganese						
Potassium	682.19					
Phosphorous						
Silicon						
Sodium	4585.21					
Chromium						
Anions:						
Sulfate	2787.98					
Chloride	35000	······································				
Nitrate, N	38.0					
Nitrite, N						
Bromide						
Fluoride						



FGD MAKE-UP WATER 13:00

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Sample No.: FGD MAKEUP U1T1 Date Received: 02/07/2005

Date Completed: 04/05/2005

Analytical No.: 20050808 Project No.: 1621 -087 -000

Submitter: S. TSENG

		Nater Result nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	lculations
PH					Ion Sum	9306.31
Acidity, CaCO3	La chanter (1997) Provide La constant AVII.	JAM-INSIGITS	III/III/III/III/III/III/III/III/III/II		Cation Sum	156.33
Alkalinity, CaCO3 Hydroxide, CaCO3					Anion Sum	165.79
Carbonate, CaCO3						
Bicarbonate, CaCO3		ayayan da da kara ta kara ta kara da ka		set avlaski a di vizioni di Provinsi (Manistria). ;	lon Balance	3.53
Total Suspended Solids					% Ion Imbalance	-2.94
Total Dissolved Solids						
Specific Conductivity Hardness						
Turbidity Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					,]	melin
Aluminum					Hz <1.0	.7)""(
Calcium	917.31			<u>internet in the second s</u>	()	
Iron	0.10					
Magnesium Manganese	679.16					
Potassium	198.57	ingn gill (dilliging ing an air ing				
Phosphorous						
Silicon	la faladi ana kana sa yena peper peng					
Sodium Chromium	1140.83					
Anions:						
Sulfate	1853.07					
Chloride	4500					
Nitrate, N	3.9					
Nitrite, N Bromide				. Bilindinia niyingindalari		
Bromide Fluoride						



#### FGD MAKE-UP WATER 11:00

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Sample No.: FGD MAKEUP U1T2 Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050809 Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L u</u>	Nater Result nless noted	otherwise)			
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	alculations
<b>DH</b>					Ion Sum	8426.92
Acidity, CaCO3		attanténan dan kana ber tike tike kata tan			Options Dum	142.39
Alkalinity, CaCO3					Cation Sum	142.39
Hydroxide, CaCO3	· · · · · · · · · · · · · · · · · · ·				Anion Sum	148.69
Carbonate, CaCO3					Ion Balance	2.61
Bicarbonate, CaCO3					IUII Dalance	2.01
Total Suspended Solids					% Ion Imbalance	-2.16
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					1	
Aluminum					Hg <1.0	mgml
Calcium	828.85					$\mathcal{O}^{\circ}$
Iron	0.13				0	-
Magnesium	609.90					
Manganese		a de la compania de l				
Potassium	170.14					
Phosphorous			· · · · · · · · · · · · · · · · · · ·			
Silicon	t fan Sfileen de terstere de staat		Shinid Stands and a	ru dağığırılarının ayan ayan ayan ayan ayan ayan ayan		
Sodium	1069.51					
Chromium	a profession que de la companya de Companya de la companya de la company	);;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;		: 1. Hülalananal bernebi lebbel Merre He		
Anions:	1700 50			A B das <u>tele men hødelingsbildet bler</u> dit :		
Sulfate	1762.52					
Chloride	3950					
Nitrate, N	8.1					
Nitrite, N				ja se na		
Bromide						
Fluoride						

Hg <1.0 mg/mL



FGD MAKE-UP WATER 15:40

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Sample No.: FGD MAKEUP U1T3 Date Received: 02/07/2005

Date Completed: 04/05/2005

20050810 Analytical No.: Project No.: 1621 -087 -000

<1.0 mg/ml

Submitter: S. TSENG

		Water Result niess noted				
Parameter	Value	Value	Units	Avg Value	Quality Control Ca	lculations
pH					lon Sum	8277.87
Acidity, CaCO3					Cation Sum	138.97
Alkalinity, CaCO3					Anion Sum	146.55
Hydroxide, CaCO3 Carbonate, CaCO3			<u></u>			
Bicarbonate, CaCO3					Ion Balance	3.19
Total Suspended Solids					% Ion Imbalance	-2.65
Total Dissolved Solids			- <u></u>	, <u>19. Letter and a statistica statistica</u>		
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	<10					
Total Elements					Hg <1.0	nalm
Aluminum					Hg <1.0	
Calcium	810.99	- West With Market (chamber			()	U
Iron	0.07				v	
Magnesium	595.92					
Manganese	164.96					
Potassium	104.90					
Phosphorous Silicon						
Sodium	1040.89					
Chromium	y y di kana kana kana kana kana kana kana kan	, and the second se		· ······		
Anions:				-		
Sulfate	1721.64		and a second second second			
Chloride	3900					
Nitrate N	9.8					
Nitrite, N		1 <u>199</u> 1 (Athlew Herner) (1997)	·			
Bromide						
Fluoride				1		



#### **FGD MAKE-UP WATER 11:15**

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Sample No.: FGD MAKEUP U1T4 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050811 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

		<u> Water Result</u> nless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control C	alculations
pH.					lon Sum	7294.38
Acidity, CaCO3	19, 9 9 9 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1				Cation Sum	123.13
Alkalinity, CaCO3						
Hydroxide, CaCO3					Anion Sum	126.74
Carbonate, CaCO3					Ion Balance	1.75
Bicarbonate, CaCO3		second				
Total Suspended Solids					% Ion Imbalance	-1.45
Total Dissolved Solids			Torrent translation in the	www.www.com.com.com.com.com.com.com.com.com.com		
Specific Conductivity						
Hardness		(2011) 10 (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (2011) (20				
Turbidity						
Osmotic Pressure						
Dissolved Oxygen	-10					
Ammonia, N	<10				1	
Total Elements					14	ng/m
Aluminum					TG <1.0	
Calcium	694.67				()	$\mathcal{O}$
Iron	0.08				V	
Magnesium	496.20					
Manganese						
Potassium	153.82			······································		
Phosphorous						
Silicon				11/101 101/01/01 101/01/01/01/01/01/01/01/01/01/01/01/01/		
Sodium	1005.17					
Chromium						
Anions:						
Sulfate	1649,71					
Chloride	3250	- 1920: Andrian de Tambres de 199	· · · · · · · · · · · · · · · · · · ·			
Nitrate, N	10.1					
Nitrite, N		<ul> <li>Astronomic Contraction</li> </ul>		te at strate i fonde fan Halfaden kaar het ferste de see		
Bromide						
Fluoride						

<1.0 hg/ml



#### FGD MAKE-UP WATER 11:45

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Sample No.: FGD MAKEUP U2T1 Date Received: 02/07/2005

Date Completed: 04/05/2005

Analytical No.: 20050812 Project No.: 1621 -087 -000

Submitter: S. TSENG

		<u>Water Resul</u> Inless noted				
Parameter	Value	Value	Units	Avg Value	Quality Control (	Calculations
<b>DH</b>					Ion Sum	31648.04
Acidity, CaCO3					Cation Sum	504.98
Alkalinity, CaCO3						040.40
Hydroxide, CaCO3					Anion Sum	613.12
Carbonate, CaCO3					Ion Balance	1 <b>1.2</b> 5
Bicarbonate, CaCO3	in and an entry of the California				% Ion Imbalance	-9.67
Total Suspended Solids					% ION IMDAIANCe	-9.07
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen	<10					
Ammonia, N						
Total Elements					1/	na Ins
Aluminum					Hg <1.	.0 ng/m
Calcium	2798.04				0	V
Iron	0.64				-	
Magnesium	2565.96	······································				
Manganese						
Potassium	489.87					
Phosphorous						
Silicon						
Sodium	3259.80					
Chromium						
Anions:						
Sulfate	3033.73					
Chloride	19500		· · ·			
Nitrate, N	<0.02					
Nitrite, N						
Bromide						
Fluoride	and an and a provide set of a small					

These values have been reviewed and are approved for transmission.

1.0 ng/ml

### FGD MAKE-UP WATER 09:17

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Sample No.: FGD MAKEUP U2T2 Date Received: 02/07/2005 Date Completed: 04/05/2005 Analytical No.: 20050813 Project No.: 1621 -087 -000

**Quality Control Calculations** 

34596.96

572.54

660.79

8.53

-7.16

Submitter: S. TSENG

Ion Sum

Cation Sum

Anion Sum

Ion Balance

% Ion Imbalance

	<u>(mg/L ւ</u>			
Parameter	Value	Value	Units	Avg Value
рН				
Acidity, CaCO3				
Alkalinity, CaCO3				
Hydroxide, CaCO3				
Carbonate, CaCO3				
Bicarbonate, CaCO3				
Total Suspended Solids				
Total Dissolved Solids				
Specific Conductivity				
Hardness				
Turbidity				
Osmotic Pressure				
Dissolved Oxygen				
Ammonia, N	10			
Total Elements				
Aluminum				
Calcium	3173.55	E COMPANY IN T		
	0.94			
Iron	2938.35			
Magnesium	2930.35			
Manganese	549.83			
Potassium	049.00			
Phosphorous		e de la chaquara		
Silicon	0040 54			
Sodium	3642.54			
Chromium				
Anions:				
Sulfate	3291.75			
Chloride	21000	- 1		
Nitrate, N	<0.02			
Nitrite, N	n provinski se kolenis	SE SECONDERPRESE.	t u.du. Alabatiliter in 1977	
Bromide				
Fluoride	, gi ann an Ionach an Ion Mharanna air a' suitean an suitean an suitean an suitean an suitean suitean suitean s		und miterminidergepen	

the <1.0 ng/ml



#### FGD MAKE-UP WATER 13:30

10.42

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Sample No.: FGD MAKEUP U2T3 Date Received: 02/07/2005 Date Completed: 04/05/2005

20050814 Analytical No.: Project No.: 1621 -087 -000

Submitter: S. TSENG

	<u>(mg/L u</u>	Water Result niess noted	<u>otherwise)</u>			
Parameter	Value	Value	Units	Avg Value	Quality Control C	Calculations
<b>DH</b>					lon Sum	28457.16
Acidity, CaCO3			t daardal daalaa daalaa da boorda ah sh		Cation Sum	474.56
Alkalinity, CaCO3					Callon Sum	474.00
Hydroxide, CaCO3	1.110-1.011.1.01010.1014				Anion Sum	539.80
Carbonate, CaCO3					Ion Balance	7.70
Bicarbonate, CaCO3						
Total Suspended Solids					% Ion Imbalance	-6.43
Total Dissolved Solids						
Specific Conductivity						
Hardness						
Turbidity						
Osmotic Pressure						
Dissolved Oxygen						
Ammonia, N	10					
Total Elements					/	n .
Aluminum					Ha <1.	o ng/mi
Calcium	2693.57	**************************************			1	0
lron	0.97				0	
Magneslum	2404.54	2 (				
Manganese						
Potassium	452.63					
Phosphorous						
Silicon						
Sodium	3006.98					
Chromium						
Anions:						
Sulfate	2898.47					
Chloride	17000		4 1977 (1997), (1997) (1997) 			
Nitrate, N	<0.02					
Nitrite, N		s <b>e-effette to the Base of A</b> ller		2 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		
Bromide						
Fluoride						
	•	•	•	-		

<1.0 ng/mC



### FGD MAKE-UP WATER 09:00

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Sample No.: FGD MAKEUP U2T4 Date Received: 02/07/2005 Date Completed: 04/05/2005

Analytical No.: 20050815 Project No.: 1621 -087 -000

**Quality Control Calculations** 

25299.25

400.75

489.88

11.58

-10.01

Submitter: S. TSENG

Ion Sum

Cation Sum

Anion Sum

Ion Balance

% Ion Imbalance

	<u>)</u> (mg/L u			
Parameter	Value	Value	Units	Avg Value
pH				
Acidity, CaCO3		·		· · · · · · · · · · · · · · · · · · ·
Alkalinity, CaCO3				
Hydroxide, CaCO3				
Carbonate, CaCO3				
Bicarbonate, CaCO3				
Total Suspended Solids				
Total Dissolved Solids				
Specific Conductivity				
Hardness				
Turbidity				
Osmotic Pressure				
Dissolved Oxygen				
Ammonia, N	<10		· · · · · · · · · · · · · · · · · · ·	
Total Elements				
Aluminum	A MONTA -	renerative de la des la des la des la des la des de la des d La desta de la d		
Calcium	2225,20	uladidinin kabil diserinta 1971).		
Iron	0.77			i
Magnesium	1999.49			
Manganese				
Potassium	392.08			
Phosphorous			ing to the second of the second s	
Silicon			rangga pagaani a	
Sodium	2649.03		· · · · · · · · · · · · · · · · · · ·	
Chromium				
Anions:	0520.60			
Sulfate	2532,68			
Chloride	15500			
Nitrate, N	<0.02			
Nitrite, N			<u>Allaha (para ispano e</u>	
Bromide				
Fluoride	1			

they <1.0 mg/mC