2.0 SUMMARY OF RESULTS

During the test program, three (3) PM, SO_2, CO_2 and O_2 tests were performed at each of two furnace stack test locations on Furnaces 1, and three (3) PM, NO_x, SO_2, CO_2 and O_2 tests were performed at each of two furnace stack test locations on Furnaces 2 and 3. The following table summarizes the tests results:

Parameters		Furnace 1 Overall Average	Furnace 2 Overall Average	Furnace 3 Overall Average
PM (Filterable)	grains/dscf	0.0153	0.0166	0.0265
	lb/hr	3.14	3.13	3.70
	lb/ton	0.39	0.41	0.46
Sulfur Dioxide	lb/hr	7.30	10.90	17.28
	lb/ton	0.90	1.42	2.13
Nitrogen Oxides	lb/hr	---	26.36	40.23
	lb/ton	---	3.43	4.95

Complete test results can be found in Section 6.0.

3.0 DISCUSSION OF RESULTS

As reported to Illinois Environmental Protection Agency (IEPA) on 9/30/09 by email (see appendix), a total of four complete test runs were performed at the Furnace 1 stack location. Test results from the first test are not included in the test averages at this location. Otherwise, source operation appeared normal during the entire test program. Unit operating data was recorded and retained by plant personnel.

4.0 SAMPLING AND ANALYSIS PROCEDURES

All testing, sampling, analytical, and calibration procedures used for this test program were performed in accordance with the methods presented in the following sections. Where applicable, the *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volume III, Stationary Source Specific Methods, USEPA 600/R-94/038c, September 1994 was used to supplement procedures.

2.0 SUMMARY OF RESULTS

During the test program, three (3) PM, SO_2, CO_2, O_2 and sulfuric acid (H_2SO_4) mist tests were performed at each of two furnace stack test locations on Furnaces 1, and three (3) PM, NO_x, SO_2, CO_2, O_2 and sulfuric acid (H_2SO_4) mist tests were performed at each of two furnace stack test locations on Furnaces 2 and 3. The following table summarizes the tests results:

Parameters		Furnace 1 Overall Average	Furnace 2 Overall Average	Furnace 3 Overall Average
Filterable Particulate	grains/dscf	0.0208	0.0259	0.0275
	lb/hr	4.56	5.32	4.77
	lb/ton	0.51	0.64	0.56
Condensible Particulate	grains/dscf	0.0037	0.0054	0.0051
	lb/hr	0.81	1.10	0.85
	lb/ton	0.09	0.13	0.10
Total Particulate	grains/dscf	0.0245	0.0313	0.0326
	lb/hr	5.37	6.42	5.63
	lb/ton	0.60	0.77	0.66
Nitrogen Oxides	lb/hr	---	22.22	35.60
	lb/ton	---	2.68	4.15
Sulfur Dioxide	lb/hr	12.68	14.24	12.67
	lb/ton	1.42	1.72	1.48
Sulfuric acid (H_2SO_4)	lb/hr	0.38	0.34	0.33
	lb/ton	0.04	0.04	0.04

Complete test results can be found in Section 6.0.

3.0 DISCUSSION OF RESULTS

During the first test on Furnace 2, Stack A, the field technician realized during the first twenty-minute traverse that he was not able to sample isokinetically. Sampling on Stack B was paused while the Stack A train was cleaned and re-charged. Sampling commenced with no further interruptions. Source operation appeared normal during the entire test program.

The test samples were analyzed by TEI Analytical, Inc. in Niles, Illinois. The Glass Pull Production Rate of 213.06 ton/day (8.9 ton/hr) for Furnace 1, 199.22 ton/day (8.3 ton/hr) for

Furnace 2 and 205.69 ton/day (8.6 ton/hr) for Furnace 3 was provided by Saint-Gobain Containers, Inc. personnel. Complete process data and the results are appended to the report.

4.0 SAMPLING AND ANALYSIS PROCEDURES

All testing, sampling, analytical, and calibration procedures used for this test program were performed in accordance with the methods presented in the following sections. Where applicable, the *Quality Assurance Handbook for Air Pollution Measurement Systems*, Volume III, Stationary Source Specific Methods, USEPA 600/R-94/038c, September 1994 was used to supplement procedures.

4.1 Determination of Sample Point Locations by USEPA Method 1

This method is applicable to gas streams flowing in ducts, stacks, and flues and is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rates from stationary sources. In order to qualify as an acceptable sample location, it must be located at a position at least two stack or duct equivalent diameters downstream and a half equivalent diameter upstream from any flow disturbance.

The cross-section of the measurement site was divided into a number of equal areas, and the traverse points were then located in the center of these areas. The minimum number of points were determined from either Figure 1-1 (particulate) or Figure 1-2 (non-particulate) of USEPA Method 1.

4.2 Volumetric Flow Rate Determination by USEPA Method 2

This method is applicable for the determination of the average velocity and the volumetric flow rate of a gas stream.

The gas velocity head (ΔP) and temperature were measured at traverse points defined by USEPA Method 1. The velocity head was measured with a Type S (Stausscheibe or reverse type) pitot tube and oil-filled manometer; and the gas temperature was measured with a Type K thermocouple. The average gas velocity in the flue was calculated based on: the gas density (as determined by USEPA Methods 3 and 4); the flue gas pressure; the average of the square roots of the velocity heads at each traverse point, and the average flue gas temperature.