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Volume I
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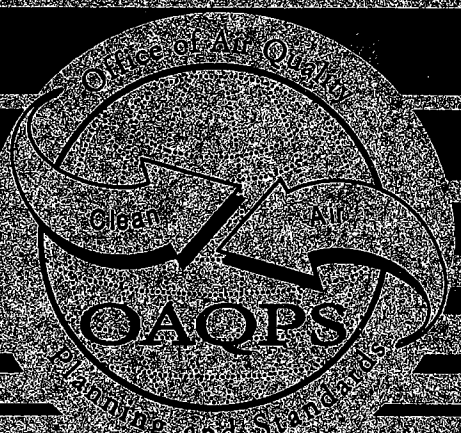
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Medical Waste Incineration Emission Test Report

AMI Central Carolina Hospital Sanford, North Carolina



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MEDICAL WASTE INCINERATION

EMISSION TEST REPORT

VOLUME 1

Central Carolina Hospital
Sanford, North Carolina

EMB Project No. 90-MWI-05
Work Assignment 26
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Prepared for:

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1. INTRODUCTION

Under Section 11008 of the Medical Waste Tracking Act of 1988 (MWTA), the United States Environmental Protection Agency (EPA) must prepare a series of reports to Congress that provide information concerning the characterization of medical wastes, treatment and disposal technologies, and an assessment of the impact of medical waste on human health and the environment. The MWTA specifically requires that incineration methods be evaluated to determine their advantages and disadvantages, including their ability to render a medical waste non-infectious or less infectious, and unrecognizable.

The Office of Solid Waste (OSW) is responsible for implementation of the MWTA and for managing the various studies that are required to prepare the report to Congress. One of the basic needs in the evaluation of incineration as a treatment technology is a characterization of emissions and ash from existing MWI's. These data are required to assess the actual potential impacts on health and the environment from existing sources that do not have advanced combustion controls or air pollution control devices.

Therefore, OSW and the Office of Air Quality Planning and Standards (OAQPS) are working jointly to perform additional studies at typical existing medical waste incinerator (MWI) facilities. The emission test program described in this report is one of the studies.

The MWI facility at Central Carolina Hospital in Sanford, North Carolina, was selected for emissions testing because it is typical of many existing units in which pathological wastes are burned with a secondary chamber gas retention time of 0.3 to 0.4 seconds, and with no add-on emission control equipment (see Figure 1-1). Other factors in the selection were that the proximity to Research Triangle Park (RTP), North Carolina minimized travel expenditures and because the hospital administration had expressed an interest in cooperating with the EPA in the emission test program.

1.1 TEST OBJECTIVES

The objectives of the testing program at the Central Carolina Hospital MWI were:

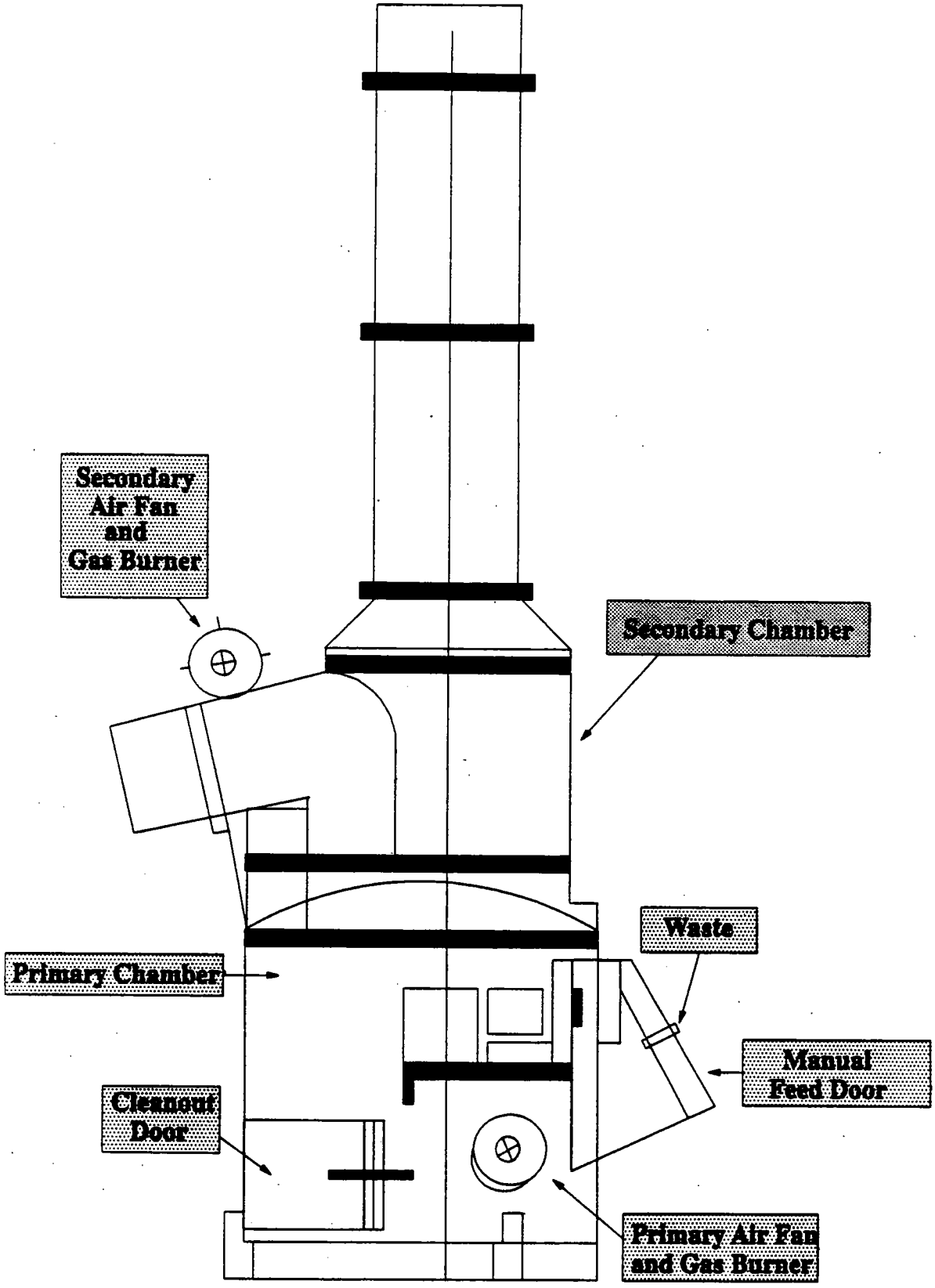


Figure 1-1. AMI Central Carolina Hospital Incinerator

- To obtain emission data from a facility that is not equipped with air pollution control devices and is typical of the existing population of medical waste incinerators.

- To collect data and evaluate the impact of incinerator operation variations on the emissions and ash as a factor in the overall effectiveness of incineration as a treatment method.

The measurements that were performed at this facility provided data to:

- Determine the mass emission rates of particulate matter (PM), selected metals, carbon monoxide (CO), total hydrocarbons (THC), sulfur dioxide (SO_2), nitrogen oxides (NO_x), hydrogen chloride (HCl), and polychlorinated dibenzo-p-dioxins (CDD) and polychlorinated dibenzofurans (CDF).

- Determine, if possible, the microorganism destruction efficiencies based on a surrogate indicator organism that is spiked into the incinerator feed during each test run.

- Determine the degree of combustion (burnout) of the wastes based on residual carbon, or loss on ignition (LOI), of the bottom ash that is collected for each test day.

- Determine the relationship, if any, between visible emissions and other emissions, such as PM.

The measurements described above were repeated at three operating conditions while the incinerator was burning hospital wastes (including red bag waste) to evaluate the effect of waste feed rate, charging frequency, and secondary chamber temperature on the emissions. These conditions were:

- Condition 1 - 100 percent pathological wastes at a charge rate of 100 pounds per hour (lb/hr) with a 15 minute charge cycle (25 lb/charge) and a secondary chamber temperature setpoint between 1800°F and 1900°F.

- Condition 2 - A mix of pathological and red bag waste typically burned at this facility (between 5 and 10 percent pathological waste) at a charge rate of 250 lb/hr (manufacturer's rating) with a 15 minute charge cycle and a 1600°F secondary chamber temperature setpoint.

- Condition 3 - 100 percent pathological wastes at a charge rate of 160 lb/hr with a 15 minute charge cycle (40 lb/charge) and a 1600°F secondary chamber temperature setpoint.

(These conditions were revised from those listed in the final test plan.)

Key process operating variables including flue gas oxygen (O_2), carbon dioxide (CO_2), primary and secondary chamber temperatures, and the amount and frequency of waste charging were monitored and recorded to document the operating conditions during each test.

The test program included an internal quality control program. The goal of the quality assurance/quality control (QA/QC) activities was to ensure that the results are of known precision and accuracy, and that they are complete, representative and comparable.

1.2 BRIEF SITE DESCRIPTION

AMI Central Carolina Hospital is located in Sanford, North Carolina. The MWI at this facility is a Consumat Model C-75P. It has a rated capacity of 175 lb/hr of Type IV (pathological) waste. A plan view of the facility is shown in Figure 1-1. Two natural gas-fired auxiliary burners in the primary chamber are used to maintain a preset minimum combustion temperature. Primary chamber temperatures normally vary between 1200°F and 1600°F. The unit is charged manually by operating a large refractory-lined charging door that opens at the front of the primary chamber. It is designed for 8 to 12 hours of operation each day, and ashes must be removed manually after cooldown.

The secondary chamber on this unit is sized for a design gas retention time of about 0.3 to 0.4 seconds. A gas-fired auxiliary burner in the secondary chamber is activated automatically when the temperature falls below a preset level, normally 1600°F. Setpoint and actual temperatures in each chamber are displayed on a dial in the control panel. There is no add-on air pollution control device on this MWI. The stack is about 16 to 18 feet high and has no sampling ports. The unit is located outside, at the rear of the hospital.

There is a full time operator for the AMI Central Carolina Hospital MWI. The typical hours of operation are from 7:00 a.m. to 3:00 p.m. A burn down period of

5 hours on gas-firing is timed by the control panel. The gas is then extinguished and the incinerator is allowed to cool. The ash is typically removed from the incinerator from 7:00 a.m. to 8:00 a.m., and stored in 30 gallon metal cans. Two to five cans are filled each day.

Waste materials are collected by the hospital housekeeping staff. Waste is collected from all patient contact areas, including patient rooms, examination rooms, operating and recovery rooms, and laboratories. Included in the waste stream are waste drugs and chemicals; patient contact items such as disposable garments, dressings, disposable surgical tools and sharps and diagnostic devices; and human and animal tissue. Pathological waste is generally from 5 to 10 percent of the total waste weight.

Non-red bag wastes are collected by the housekeeping staff and placed in standard 30 gallon plastic trash bags, which are twist tied. The bags are transported via plastic bin type carts from the collection area to the incinerator area. Red bag wastes bags can be and are mixed with the other bags. The hospital incinerator operator hand feeds the bags through the incinerator feed door.

The combustion process utilized to incinerate wastes in this type of incinerator is known as controlled or "starved" air incineration. The unit is designed with two separate chambers (a primary chamber and a secondary chamber) in which controlled amounts of combustion air and combustible material are admitted. The lower chamber, known as the primary air ignition chamber, is operated at below stoichiometric or air starved conditions when operating on mixed medical waste (dry mode). Excess air conditions exist when the unit is operated on pathological waste (wet mode). A gas-fired pilot burner is used to drive moisture and volatiles from the wastes, and initiate the ignition of the fixed carbon portion of the waste material. Limited amounts of underfire air are admitted through ports in the lower chamber so that combustion of the fixed carbon matter can be sustained. Heat input from the gas burner is modulated to keep the lower chamber temperature within a certain range and to maintain the oxidation of fixed carbon at varying levels of waste moisture only when burning pathological waste (wet mode).

The volatile matter is vaporized in the lower chamber and passes into the secondary combustion chamber. A second gas-fired burner is used to ignite the

combustible gases and maintain secondary chamber temperatures within a specified temperature range. In the secondary chamber, excess air is supplied to achieve more complete combustion of the volatile matter and entrained solids by providing an adequate oxygen supply and turbulent mixing.

Detailed descriptions of the MWI facility, its operation, the waste and waste handling procedures are given in Section 3.

1.3 EMISSIONS MEASUREMENT PROGRAM

This section provides an overview of the emissions measurement program conducted at Central Carolina Hospital. Included in this section are summaries of the test matrix, sampling locations, sampling methods, and laboratory analysis. Greater detail on these topics is provided in the sections that follow.

1.3.1 Test Matrix

The sampling and analytical matrix for this test program is presented in Table 1-1. Sampling locations are shown in Figure 1-2. Both manual emissions tests and continuous emission monitors (CEM) were employed for the Central Carolina Hospital MWI test program. In addition to flue gas sampling, incinerator bottom ash and ash quality pipe samples were also taken. Each of the tests are briefly described in Sections 1.3.3 and 1.3.4.

1.3.2 Sampling Locations

The stack gas sampling was conducted at a series of three sets of double ports in the stack wall. The double ports were located 90° from each other. The top-most ports were used for microbial survivability emission tests. The middle set of ports was used for PM/metals tests as well as CDD/CDF tests. The bottom set of ports was used for halogen emission tests and for the CEM probes. Incinerator ash was sampled every day. Ash was completely removed from the incinerator every day, screened through 1/2" mesh, and placed in the bulk ash containers where it was sampled to obtain a representative sample.

1.3.3 Sampling Methods

Total PM emissions along with a series of 11 toxic metals [lead (Pb), chromium (Cr), cadmium (Cd), mercury (Hg), nickel (Ni), arsenic (As), beryllium (Be), antimony

TABLE 1-1. AMI CENTRAL CAROLINA HOSPITAL MWI TEST MATRIX

Sample Location	Number of Runs	Sample Type	Sample Method	Sample Duration	Analysis Method	Laboratory
Stack	9	Particulates/Metals (Pb, Cr, Cd, Be, Hg, Ni, As, Sb, Ag, Ba, Tl)	EPA Method 5/Combined Metals Train	4 hours	Gravimetric Atomic Adsorption/ICAP	Radian
Stack	9	CDD/CDF	EPA Method 23 and GC/MS Method 8290	4 hours	Mass Spectrometry and High Resolution MS for CDD/CDF	Triangle Labs, Inc.
Stack	25[a]	HCl/HBr/HF	EPA Method 26	1 hour[a]	Ion Chromatography	Radian
Stack	18[b]	Indicator Spores	Draft EPA Method	2 hours[b]	Microbial Draft Method	RTI
Stack	9[c]	SO_2	EPA Method 6C	Continuous[c]	UV Analyzer CEM	Radian
Stack	9[c]	O_2 /CO_2	EPA Method 3A	Continuous[c]	Zirconium Oxide Cell/ NDIR CEM	Radian
Stack	9[c]	NO_x	EPA Method 7E	Continuous[c]	Chemiluminescence CEM	Radian
Stack	9[c]	CO	EPA Method 10	Continuous[c]	NDIR CEM	Radian
Stack	9[c]	THC	EPA Method 25A	Continuous[c]	FID CEM	Radian
Stack	9[c]	HCl	CEM	Continuous[c]	NDIR CEM	Radian
Stack	9[d]	Opacity	EPA Method 9	4 hour[d]	Visual	Radian
Incinerator	9	Incinerator Ash	Representative Composite Sample	1 day	LOI, Carbon, Metals	Radian
	9		Representative Composite Sample	1 day	Dioxins	Triangle Labs, Inc.
	9		Representative Composite Sample	1 day	Microbial Draft Method	RTI
Incinerator	54	Indicator Spore Pipes	Manual	1 day	Microbial Draft Method	RTI

[a]3 one-hour runs per test day (2 runs out of 27 planned were not completed).
[b]2 one-hour 45 minute runs per test day.
[c]Continuous during test periods.
[d]Four-hour run concurrent with particulate/metals run.

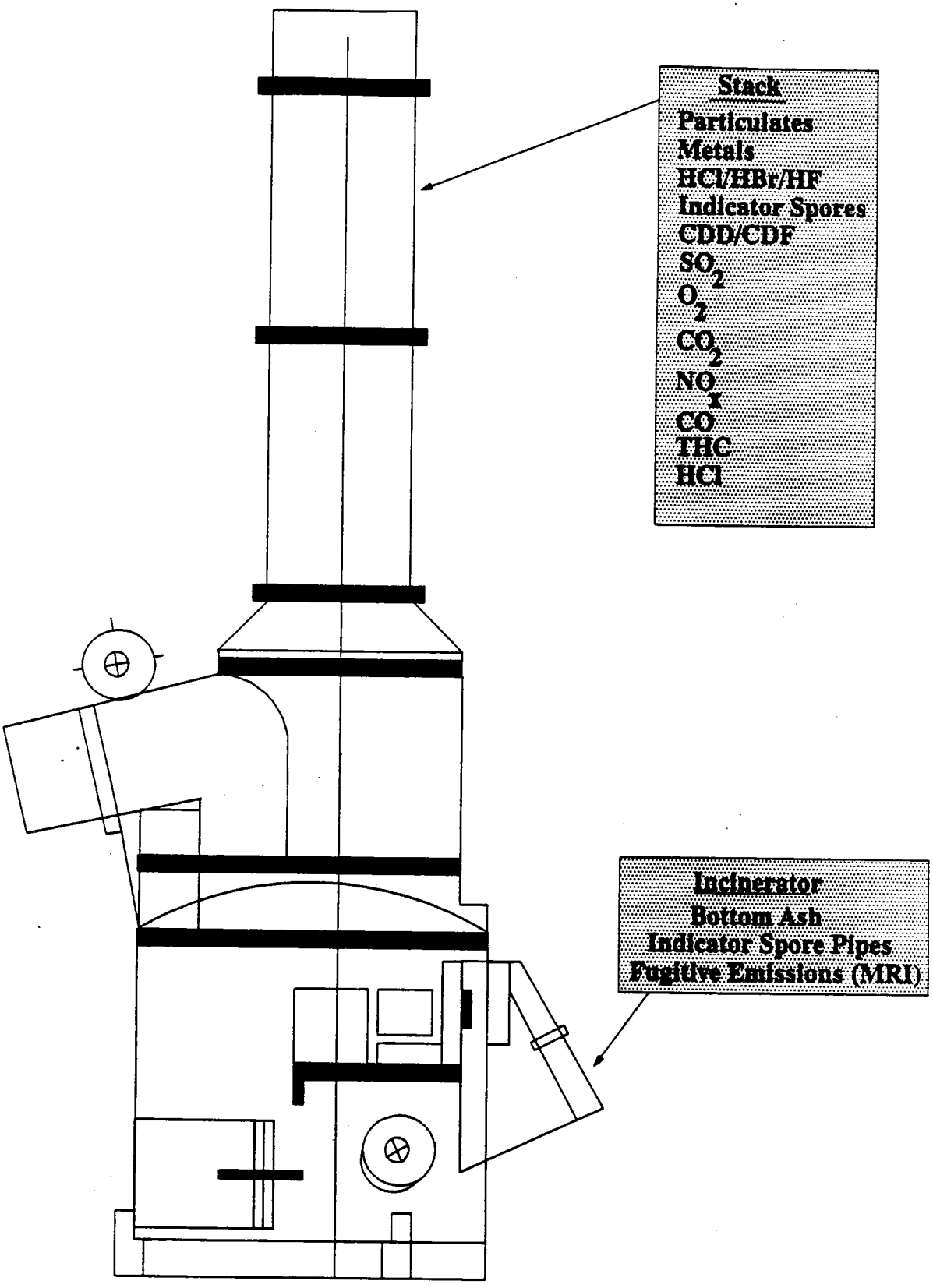


Figure 1-2. Sampling Locations at the AMI Central Carolina Hospital MWI

(Sb), barium (Ba), silver (Ag), and thallium (Tl)], were determined using a single sample train. Particulate loading on the filter and front half (nozzle/probe, filter holder) rinse was determined gravimetrically. Metals analyses were then completed on the filter front half rinses and back half impinger catches using atomic absorption (AA) and inductively coupled argon plasma (ICAP) techniques. Flue gas samples for CDD/CDF were collected using EPA Method 23. Flue gas was extracted isokinetically and CDD/CDF was collected on the filter, on a chilled adsorbent trap, and in the impingers. The analysis was completed using High Resolution Gas Chromatography (HRCG) coupled with High Resolution Mass Spectrometry (HRMS) detection.

Hydrogen chloride, hydrogen bromide (HBr), and hydrogen fluoride (HF) concentrations in the stack gas were determined using EPA Method 26. Gas was extracted from the stack and passed through a acidified collection solution which stabilized the respective halogen ions (Cl^-, Br^-, F^-). The quantity of ions collected was then determined using ion chromatography (IC) analyses.

Three types of microbial survivability tests were completed on the incinerator. These tests were intended to evaluate the effectiveness of the MWI in destroying indicator organisms in the waste. This was achieved by direct ash sampling and by spiking the incinerator with surrogate indicator spores encased in insulated double-pipe containers. Indicator spore spikes were loaded onto material commonly found in the medical waste stream and then charged into the incinerator to determine the ability of the indicator organisms to survive in the combustion gases and the incinerator bottom ash. Flue gas testing for spore emissions was conducted simultaneously with the other emissions testing. The next day following the daily burn cycle, ash samples and pipe samples were recovered and subsequently analyzed for spore viability. Direct ash sampling and pipe sampling was conducted daily when the ash was removed manually from the incinerator. Flue gas samples were collected isokinetically and passed through a circulating phosphate buffer solution. Following the test, the buffer solution samples were analyzed for viable spores using culturing, identification, and quantification techniques outlined in the EPA draft method "Microbial Survivability Test for Medical Waste Incinerator Emissions." Ash samples and pipe samples were analyzed as outlined

in the EPA draft method "Microbial Survivability Test for Medical Waste Incinerator Ash."

Visual opacity measurements were also taken continuously during the particulate test periods. A certified observer documented incinerator stack gas opacity by following EPA Method 9 protocol.

Gaseous emissions (NO_x, CO, SO_2, THC, and HCl) were measured using CEMs continuously during the day. The diluent gases (O_2, CO_2) were measured using CEMs at all times when tests were being performed so that the emission results could be normalized to a reference O_2 or CO_2 basis. The O_2 and CO_2 results were also used for flue gas molecular weight calculations for stack gas flow rate calculations.

Ash was sampled manually and mixed to provide a representative composite sample. Samples were taken for analysis as follows: LOI, carbon, toxic metals, dioxins, and microbial analysis. An archive sample was also saved for each test condition. Indicator spore pipes were charged at regular intervals into the incinerator and recovered manually for microbial analysis. Detailed descriptions of the sampling and analytical procedures are provided in Section 5.

1.3.4 Laboratory Analyses

All manual flue gas tests were sent out for extensive laboratory analyses. Samples from CDD/CDF emission tests were analyzed for tetra-octa CDD/CDF isomers by Triangle Laboratories, Inc (Triangle). Ash samples were also analyzed by Triangle for these analytes. Analytical procedures followed EPA Method 23 protocols (Analytical Method 8290X). This technique incorporates High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS) analytical procedures.

Samples from particulate matter/metals emission tests were analyzed by Radian's Perimeter Park (PPK) laboratory. Analytical procedures were completed using Inductively Coupled Argon Plasma Spectroscopy (ICAPS), Graphite Furnace Atomic Absorption Spectroscopy (GFAAS), and Cold Vapor Atomic Absorption Spectroscopy (CVAAS). Incinerator ash was also analyzed for metals content using these techniques. Particulate matter was analyzed using gravimetric techniques following EPA Method 5 guidelines. Samples from halogen emission tests were analyzed by Radian's PPK

laboratory. Quantities of chloride, bromide, and fluoride ions in the impinger solutions were determined using IC techniques.

Microbial survivability samples from the emissions tests and the ash and pipe tests were analyzed for viable spores of Bacillus stearothermophilus (B. stearothermophilus) by Research Triangle Institute (RTI). Impinger samples (emissions), ash, and pipe samples were cultured and enumerated using analytical techniques recently developed specific for this test method. This protocol is given in the EPA draft methods "Microbial Survivability Test for Medical Waste Incinerator Emissions" and "Microbial Survivability Test for Medical Waste Incinerator Ash.

The incinerator ash was analyzed by McCoy Labs for volatile matter (LOI) by Standard Methods of Water and Wastes, Method 209G, and for carbon content by ASTM Method D 3178-84.

1.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

All flue gas testing procedures followed comprehensive QA/QC procedures as outlined in the Central Carolina MWI test plan and EPA reference methods. A full description of the resulting QA parameters is given in Section 6.

All post-test leak check criteria were met for all four manual sampling trains. The allowable isokinetic QC range of ±10 percent of 100 percent was met for all CDD/CDF, PM/Metals and Microbial emissions test runs. All post-test dry gas meter calibration checks were within 5 percent of the full calibration factor. Field blanks (FB) results showed no contamination in the CDD/CDF MM5; sample however, the toluene FB had relatively high concentrations. The halogen FB showed virtually no contamination; however, the PM/metals FB had high levels of arsenic, chromium, and nickel. Also the front half analysis for metals Run 10 has not been completed at this time. Final toluene rinses of the CDD/CDF samples collected only a small portion of the total MM5 catch.

From an analytical QA perspective, all analyses were completed under a strict QA/QC regimen. The CDD/CDF MM5 analytical protocol was varied to accommodate the expected high organic loading of the Runs 2, 4, and 8 (Condition 2) MM5 samples.

The manual flue gas test data reflected variation from run to run as indicated by the coefficient of variation (CV) analyses. Overall pooled CVs ranged from 64.4 percent for CDD/CDF flue gas concentrations to 65.0 percent for metals flue gas concentrations. The overall pooled CV for the CEM data was 159 percent. These values reflect a strong variability in process operation.

1.5 DESCRIPTION OF REPORT CONTENTS

Section 1 of this report provides an introduction to the medical waste testing program conducted at Central Carolina Hospital in Sanford, North Carolina. This section includes the test objective, a brief site description, an overview of the emissions measurement program, a brief overview of the QA/QC program, and this description of the report contents.

Section 2 gives a summary of the test results. Included in the contents of this section are the emissions test log, CDD/CDF results, toxic metals results, PM/visible emissions results, halogen results, CEM results, ash LOI and carbon results, and microbial survivability results.

Section 3 details the process and operation of the Central Carolina incinerator and gives process results. Included in the process results are the waste feed rates and incineration chamber temperatures.

Section 4 provides a detailed description and drawings of the sample locations.

Section 5 presents detailed descriptions of sampling and analytical procedures. The descriptions that are covered in this section are the CDD/CDF testing method, the PM and toxic metals testing method, microbial survivability testing methods, the manual halogen emissions testing method, EPA Methods 1 through 4, CEM methods, the visible emissions method, particle size distribution tests, and process sampling procedures.

Section 6 provides details of the QA/QC procedures used on this program and the QC results. Included in this section is a summary of QA/QC objectives, QC procedures for the manual flue gas sampling methods, QC procedures for the ash and

pipe (microbial) sampling, analytical QC procedures and QA parameters, and CEM QC procedure and QA parameters.

Appendices containing the actual field data sheets and computer data listings are contained in a separate volume.

2. SUMMARY OF RESULTS

This section provides results of the emissions test program conducted at the Central Carolina Hospital MWI from September 20 to October 2, 1990. Included in this section are results of manual tests conducted for CDD/CDF, toxic metals, PM, visible emissions, halogens, and microbial survivability. This section also contains the results of continuous emissions monitoring for O_2, CO_2, CO, NO_x, SO_2, THC, and HCl gases as well as particle size distribution (PSD) results.

2.1 EMISSIONS TEST LOG

Ten tests were conducted over a 13 day period. A probe liner for the CDD/CDF sampling train broke during Run 7 and the entire run was invalidated and repeated (samples from other sampling trains for Run 7 were not analyzed). Table 2-1 presents the emissions test log. This table shows the test date, run number, test type, run times and port change times for all the stack testing conducted during this program.

2.2 CDD/CDF RESULTS

2.2.1 Overview

Nine 4-hour CDD/CDF emission test runs were completed at Central Carolina Hospital during the September 1990 test program. Three runs were completed under each of three test conditions. Testing protocol followed EPA Method 23 which requires a final sample recovery rinse with toluene to be analyzed separately from the rest of the sample. Because this data was not incorporated into the final emission results, it will be presented with the sampling QA parameters in Section 6.2.1.

As well as flue gas samples, daily ash samples were also taken. Each ash sample was also analyzed for tetra through octa CDD/CDF isomers.

The following sections report CDD/CDF emissions test results in Section 2.2.2 and incinerator ash CDD/CDF concentrations in Section 2.2.3.

2.2.2 CDD/CDF Emission Results

Tables 2-2 through 2-5 present the average emission parameters for each of the three test conditions. Data from each individual test run are presented in Tables 2-6 through 2-12. Emission tests analyses were targeted for the tetra through octa 2378

TABLE 2-1. EMISSIONS TEST LOG; CENTRAL CAROLINA HOSPITAL (1990)

DATE	LOCATION	RUN NUMBER	OPERATING CONDITION[a]	TEST TYPE	RUN TIME	PORT CHANGES
9/20/90	Stack	1	1	Toxic Metals	14:00-18:18	16:10-16:18
9/20/90	Stack	1	1	CDD/CDF	14:00-18:18	16:10-16:18
9/20/90	Stack	1A	1	HCl	14:09-15:09	
9/20/90	Stack	1B	1	HCl	15:21-16:21	
9/20/90	Stack	1C	1	HCl	16:35-17:35	
9/20/90	Stack	1A	1	Spore	13:58-15:58	
9/20/90	Stack	1B	1	Spore	15:58-17:58	
9/21/90	Stack	2	2	Toxic Metals	09:46-13:57	11:47-11:58
9/21/90	Stack	2	2	CDD/CDF	09:45-13:57	11:45-11:57
9/21/90	Stack	2A	2	HCl	09:53-11:43	
9/21/90	Stack	2B	2	HCl	12:23-14:36	
9/21/90	Stack	2A	2	Spore	09:43-11:28	
9/21/90	Stack	2B	2	Spore	11:28-13:43	
9/22/90	Stack	3	1	Toxic Metals	09:47-14:00	11:47-12:00
9/22/90	Stack	3	1	CDD/CDF	09:45-14:00	11:45-12:00
9/22/90	Stack	3A	1	HCl	09:53-11:53	
9/22/90	Stack	3B	1	HCl	12:22-13:22	
9/22/90	Stack	3C	1	HCl	13:35-14:35	
9/22/90	Stack	3A	1	Spore	09:43-11:43	
9/22/90	Stack	3B	1	Spore	11:43-13:43	
9/23/90	Stack	4	2	Toxic Metals	11:40-15:47	13:40-13:47
9/23/90	Stack	4	2	CDD/CDF	11:40-15:47	13:40-13:47
9/23/90	Stack	4A	2	HCl	11:42-12:42	
9/23/90	Stack	4B	2	HCl	12:52-13:52	
9/23/90	Stack	4C	2	HCl	14:03-15:03	
9/23/90	Stack	4A	2	Spore	11:38-13:40	
9/23/90	Stack	4B	2	Spore	13:40-15:40	
9/24/90	Stack	5	3	Toxic Metals	11:45-15:52	13:45-13:52
9/24/90	Stack	5	3	CDD/CDF	11:45-15:52	13:45-13:52
9/24/90	Stack	5A	3	HCl	11:54-12:54	
9/24/90	Stack	5B	3	HCl	13:17-14:17	
9/24/90	Stack	5C	3	HCl	14:29-15:29	
9/24/90	Stack	5A	3	Spore	11:44-13:44	
9/24/90	Stack	5B	3	Spore	13:44-15:44	

a Condition 1: 100 percent pathological wastes (100 lb/hr, 15 min. cycle, 1800-1900°F)
Condition 2: Pathological/red bag waste mix (250 lb/hr, 15 min. cycle, 1600°F)
Condition 3: 100 percent pathological wastes (160 lb/hr, 15 min. cycle, 1600°F)

TABLE 2-1. EMISSIONS TEST LOG (continued);
CENTRAL CAROLINA HOSPITAL (1990)

DATE	LOCATION	RUN NUMBER	OPERATING CONDITION[a]	TEST TYPE	RUN TIME	PORT CHANGES
9/25/90	Stack	6	3	Toxic Metals	10:10-14:15	12:10-12:15
9/25/90	Stack	6	3	CDD/CDF	10:10-14:15	12:10-12:15
9/25/90	Stack	6A	3	HCl	10:22-11:22	
9/25/90	Stack	6B	3	HCl	11:33-12:33	
9/25/90	Stack	6C	3	HCl	12:41-13:41	
9/25/90	Stack	6A	3	Spore	10:08-12:08	
9/25/90	Stack	6B	3	Spore	12:08-14:08	
9/26/90	Stack	7 b	1	Toxic Metals	10:00-14:06	12:00-12:06
9/26/90	Stack	7 b	1	CDD/CDF	10:00-14:06	12:00-12:06
9/26/90	Stack	7A b	1	HCl	10:06-11:06	
9/26/90	Stack	7B b	1	HCl	11:17-12:17	
9/26/90	Stack	7C b	1	HCl	12:27-13:27	
9/26/90	Stack	7A b	1	Spore	09:58-11:58	
9/26/90	Stack	7B b	1	Spore	11:58-13:58	
9/27/90	Stack	8	2	Toxic Metals	13:45-17:50	15:45-15:50
9/27/90	Stack	8	2	CDD/CDF	13:45-17:50	15:45-15:50
9/27/90	Stack	8A	2	HCl	13:51-14:51	
9/27/90	Stack	8B	2	HCl	15:01-16:01	
9/27/90	Stack	8C	2	HCl	16:12-17:12	
9/27/90	Stack	8A	2	Spore	13:43-15:44	
9/27/90	Stack	8B	2	Spore	15:44-17:56	
9/28/90	Stack	9	3	Toxic Metals	11:00-15:05	13:00-13:05
9/28/90	Stack	9	3	CDD/CDF	11:00-15:05	13:00-13:05
9/28/90	Stack	9A	3	HCl	11:11-12:11	
9/28/90	Stack	9B	3	HCl	12:22-13:22	
9/28/90	Stack	9C	3	HCl	13:32-14:32	
9/28/90	Stack	9A	3	Spore	10:58-12:58	
9/28/90	Stack	9B	3	Spore	12:58-14:58	
10/02/9	Stack	10	1	Toxic Metals	10:15-14:21	12:15-12:21
10/02/9	Stack	10	1	CDD/CDF	10:15-14:21	12:15-12:21
10/02/9	Stack	10A	1	HCl	10:26-11:26	
10/02/9	Stack	10B	1	HCl	11:38-12:38	
10/02/9	Stack	10C	1	HCl	12:47-13:47	
10/02/9	Stack	10A	1	Spore	10:13-12:13	
10/02/9	Stack	10B	1	Spore	12:13-14:13	

a Condition 1: 100 percent pathological wastes (100 lb/hr, 15 min. cycle, 1800-1900°F)
Condition 2: Pathological/red bag waste mix (250 lb/hr, 15 min. cycle, 1600°F)
Condition 3: 100 percent pathological wastes (160 lb/hr, 15 min. cycle, 1600°F)

b Run 7 data were invalidated due to an incomplete data set (CDD/CDF sampling probe broke during run)

TABLE 2-2. AVERAGE CDD/CDF STACK GAS CONCENTRATIONS FOR EACH TEST CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION [a] (ng/dscm, as measured)		
	CONDITION 1	CONDITION 2	CONDITION 3
DIOXINS			
2378 TCDD	0.26	11.7	0.38
Other TCDD	22.5	242	23.9
12378 PCDD	0.85	47.01	0.94
Other PCDD	19.1	311	18.2
123478 HxCDD	0.80	45.5	0.58
123678 HxCDD	1.35	53.4	0.89
123789 HxCDD	2.49	98.6	1.58
Other HxCDD	16.6	410	10.8
1234678-HpCDD	8.27	249	4.75
Other HpCDD	9.89	270	5.51
Octa-CDD	10.4	259	6.21
Total CDD	92.5	2,000	73.8
FURANS			
2378 TCDF	1.43	32.2	1.75
Other TCDF	73.6	934	67.2
12378 PCDF	2.14	149	2.03
23478 PCDF	5.27	184	3.28
Other PCDF	58.7	2367	38.1
123478 HxCDF	8.44	474	4.26
123678 HxCDF	3.74	294	2.21
234678 HxCDF	7.33	233	3.03
123789 HxCDF	0.24	18.4	0.15
Other HxCDF	25.0	1614	13.5
1234678-HpCDF	13.4	681	6.71
1234789-HpCDF	2.23	86.9	0.94
Other HpCDF	12.0	500	5.15
Octa-CDF	14.6	285	5.82
Total CDF	228	7,850	154
Total CDD+CDF	321	9,850	228

a dscm = dry standard cubic meter. Standard conditions are defined as 1 atm and 68°F.

TABLE 2-3. CDD/CDF STACK GAS CONCENTRATIONS ADJUSTED TO 7% OXYGEN FOR EACH TEST CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION (ng/dscm, adjusted to 7 percent O2)		
	CONDITION 1	CONDITION 2	CONDITION 3
DIOXINS			
2378 TCDD	0.72	29.35	0.97
Other TCDD	64.6	613	60.3
12378 PCDD	2.41	118	2.37
Other PCDD	54.6	782	46.0
123478 HxCDD	2.27	115	1.46
123678 HxCDD	3.83	135	2.25
123789 HxCDD	7.07	248	4.01
Other HxCDD	47.4	1034	27.4
1234678-HpCDD	23.3	631	12.1
Other HpCDD	27.9	683	14.0
Octa-CDD	29.4	661	15.8
Total CDD	264	5,050	187
FURANS			
2378 TCDF	4.06	80.1	4.40
Other TCDF	210	2324	169
12378 PCDF	6.06	373	5.13
23478 PCDF	14.9	461	8.29
Other PCDF	167	5906	96.0
123478 HxCDF	24.0	1189	10.8
123678 HxCDF	10.6	736	5.61
234678 HxCDF	20.9	585	7.70
123789 HxCDF	0.67	46.1	0.38
Other HxCDF	71.0	4045	34.2
1234678-HpCDF	38.2	1716	17.1
1234789-HpCDF	6.32	219	2.41
Other HpCDF	34.2	1262	13.1
Octa-CDF	41.5	728	14.9
Total CDF	650	19,700	389
Total CDD+CDF	914	24,700	576

a dscm = dry standard cubic meter. Standard conditions are defined as 1 atm and 68°F.

TABLE 2-4. AVERAGE CDD/CDF STACK GAS EMISSIONS FOR EACH TEST CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	EMISSIONS (ug/hr)		
	CONDITION 1	CONDITION 2	CONDITION 3
DIOXINS			
2378 TCDD	0.41	18.6	0.64
Other TCDD	36.7	387	39.7
12378 PCDD	1.38	75.6	1.56
Other PCDD	31.1	499	30.3
123478 HxCDD	1.30	73.3	0.96
123678 HxCDD	2.20	85.9	1.48
123789 HxCDD	4.05	159	2.63
Other HxCDD	27.1	658	18.0
1234678-HpCDD	13.4	402	7.90
Other HpCDD	16.1	435	9.18
Octa-CDD	16.9	416	10.3
Total CDD	151	3,210	123
FURANS			
2378 TCDF	2.32	51.2	2.91
Other TCDF	120	1481	112
12378 PCDF	3.48	240	3.38
23478 PCDF	8.56	296	5.45
Other PCDF	95.5	3,799	63.44
123478 HxCDF	13.7	764	7.09
123678 HxCDF	6.08	473	3.69
234678 HxCDF	11.9	374	5.05
123789 HxCDF	0.39	29.6	0.25
Other HxCDF	40.6	2,598	22.5
1234678-HpCDF	21.8	1,097	11.2
1234789-HpCDF	3.63	140	1.57
Other HpCDF	19.6	805	8.57
Octa-CDF	23.8	457	9.71
Total CDF	371	12,600	256
Total CDD+CDF	522	15,800	379

TABLE 2-5. AVERAGE CDD/CDF 2378 TOXIC EQUIVELENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR EACH TEST CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	2378-TCDD a TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, @ 7 percent O2) b		
		CONDITION 1	CONDITION 2	CONDITION 3
DIOXINS				
2378 TCDD	1.000	0.719	29.348	0.967
Other TCDD	0.000	0.000	0.000	0.000
12378 PCDD	0.500	1.203	59.161	1.183
Other PCDD	0.000	0.000	0.000	0.000
123478 HxCDD	0.100	0.227	11.505	0.146
123678 HxCDD	0.100	0.383	13.457	0.225
123789 HxCDD	0.100	0.707	24.807	0.401
Other HxCDD	0.000	0.000	0.000	0.000
1234678-HpCDD	0.010	0.233	6.310	0.121
Other HpCDD	0.000	0.000	0.000	0.000
Octa-CDD	0.001	0.029	0.661	0.016
Total CDD		3.50	145	3.06
FURANS				
2378 TCDF	0.100	0.406	8.014	0.440
Other TCDF	0.000	0.000	0.000	0.000
12378 PCDF	0.050	0.303	18.642	0.257
23478 PCDF	0.500	7.471	230.514	4.143
Other PCDF	0.000	0.000	0.000	0.000
123478 HxCDF	0.100	2.405	118.859	1.081
123678 HxCDF	0.100	1.063	73.562	0.561
234678 HxCDF	0.100	2.089	58.528	0.770
123789 HxCDF	0.100	0.067	4.612	0.038
Other HxCDF	0.000	0.000	0.000	0.000
1234678-HpCDF	0.010	0.382	17.155	0.171
1234789-HpCDF	0.010	0.063	2.195	0.024
Other HpCDF	0.000	0.000	0.000	0.000
Octa-CDF	0.001	0.041	0.728	0.015
Total CDF		14.3	533	7.50
Total CDD+CDF		17.8	678	10.6

a North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No.176, August 1988.

b ng/dscm = nanogram per dry standard cubic meter. Standard conditions defined as 1 atm. and 68øF.

TABLE 2-6. CDD/CDF STACK GAS CONCENTRATIONS AND EMISSIONS RATES AT CONDITION 1; CENTRAL CAROLINA HOSPITAL (1990)

	CONCENTRATION a (ng/dscm, as measured)				EMISSIONS (ug/hr)			
CONGENER	RUN 1	RUN 3	RUN 10	AVERAGE	RUN 1	RUN 3	RUN 10	AVERAGE
DIOXINS								
2378 TCDD	0.22	(0.419)	(0.130)	0.26	0.34	(0.688)	(0.208)	0.41
Other TCDD	6.17	54.5	6.77	22.5	9.73	89.5	10.8	36.7
12378 PCDD	0.52	1.61	0.42	0.85	0.82	2.64	0.68	1.38
Other PCDD	5.45	44.9	6.84	19.1	8.61	73.7	11.0	31.1
123478 HxCDD	0.34	1.57	0.49	0.80	0.53	2.58	0.79	1.30
123678 HxCDD	0.52	2.55	0.99	1.35	0.82	4.19	1.58	2.20
123789 HxCDD	1.10	4.89	1.48	2.49	1.74	8.03	2.37	4.05
Other HxCDD	5.12	35.4	9.45	16.6	8.07	58.1	15.1	27.1
1234678-HpCDD	2.93	14.6	7.30	8.27	4.63	23.9	11.7	13.4
Other HpCDD	3.52	17.9	8.21	9.89	5.56	29.4	13.2	16.1
Octa-CDD	3.45	18.7	9.13	10.4	5.45	30.6	14.6	16.9
Total CDD	29.3	197	51.2	92.5	46.3	323	82.1	151
FURANS								
2378 TCDF	0.72	2.73	0.85	1.43	1.14	4.47	1.36	2.32
Other TCDF	24.7	165	30.9	73.6	38.9	271	49.5	120
12378 PCDF	1.10	3.95	1.37	2.14	1.74	6.48	2.20	3.48
23478 PCDF	2.11	10.4	3.31	5.27	3.32	17.0	5.31	8.56
Other PCDF	23.5	125	27.4	58.7	37.1	205	44.0	95.5
123478 HxCDF	2.59	18.2	4.55	8.44	4.08	29.8	7.29	13.7
123678 HxCDF	1.35	7.55	2.33	3.74	2.12	12.39	3.73	6.08
234678 HxCDF	1.66	15.65	4.69	7.33	2.61	25.7	7.51	11.9
123789 HxCDF	0.06	0.45	0.20	0.24	0.10	0.75	0.32	0.39
Other HxCDF	7.98	51.5	15.4	25.0	12.6	84.5	24.7	40.6
1234678-HpCDF	3.31	28.4	8.49	13.4	5.23	46.6	13.6	21.8
1234789-HpCDF	0.41	4.40	1.87	2.23	0.65	7.23	2.99	3.63
Other HpCDF	2.38	24.8	8.81	12.0	3.76	40.8	14.1	19.6
Octa-CDF	2.00	29.0	12.9	14.6	3.16	47.6	20.6	23.8
TOTAL CDF	73.9	487	123	228	117	800	197	371
TOTAL CDD+CDF	103	684	174	321	163	1,120	279	522

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

( ) = estimated maximum possible concentration. [ ] = minimum detection limit

TABLE 2-7. CDD/CDF STACK GAS CONCENTRATIONS AND EMISSIONS RATES AT CONDITION 2; CENTRAL CAROLINA HOSPITAL (1990)

	CONCENTRATION a (ng/dscm, as measured)				EMISSIONS (ug/hr)			
CONGENER	RUN 2	RUN 4	RUN 8	AVERAGE	RUN 2	RUN 4	RUN 8	AVERAGE
DIOXINS								
2378 TCDD	7.27	19.2	8.54	11.7	10.8	30.9	14.2	18.6
Other TCDD	171	341	215	242	254	549	357	387
12378 PCDD	22.6	75.1	43.4	47.0	33.6	121	72.0	75.6
Other PCDD	150	503	280	311	223	810	465	499
123478 HxCDD	21.5	64.6	50.5	45.5	32.0	104	83.8	73.3
123678 HxCDD	25.4	82.3	52.5	53.4	37.8	133	87.2	85.9
123789 HxCDD	45.1	156.4	94.2	98.6	67.3	252	156	159
Other HxCDD	209	614	406	410	312	990	674	658
1234678-HpCDD	120	335	292	249	180	540	485	402
Other HpCDD	126	365	318	270	188	589	528	435
Octa-CDD	156	254	366	259	233	409	608	416
Total CDD	1,050	2,810	2,130	2,000	1,570	4,530	3,530	3,210
FURANS								
2378 TCDF	22.1	70.8	3.86	32.2	32.9	114	6.41	51.2
Other TCDF	659	1991	151	934	982	3210	250	1481
12378 PCDF	63.5	288	96.5	149	94.6	465	160	240
23478 PCDF	88.3	341	123	184	132	550	205	296
Other PCDF	1015	4596	1491	2367	1512	7409	2476	3799
123478 HxCDF	189	831	403	474	282	1339	670	764
123678 HxCDF	114	524	244	294	169	844	406	473
234678 HxCDF	111	372	214	233	166	600	356	374
123789 HxCDF	7.88	32.5	14.8	18.4	11.7	52.5	24.6	29.6
Other HxCDF	649	2809.6	1382.9	1613.8	967	4529	2297	2598
1234678-HpCDF	301	1058	684	681	449	1706	1137	1097
1234789-HpCDF	45.5	128	87.4	86.9	67.8	206	145	140
Other HpCDF	242	743	516	500	361	1197	856	805
Octa-CDF	210	324	322	285	313	523	535	457
TOTAL CDF	3,720	14,100	5,730	7,850	5,540	22,700	9,520	12,600
TOTAL CDD+CDF	4,770	16,900	7,860	9,850	7,110	27,300	13,100	15,800

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

( ) = estimated maximum possible concentration

TABLE 2-8. CDD/CDF STACK GAS CONCENTRATIONS AND EMISSIONS RATES AT CONDITION 3; CENTRAL CAROLINA HOSPITAL (1990)

	CONCENTRATION [a] (ng/dscm, as measured)				EMISSIONS (ug/hr)			
CONGENER	RUN 5	RUN 6	RUN 9	AVERAGE	RUN 5	RUN 6	RUN 9	AVERAGE
DIOXINS								
2378 TCDD	0.25	(0.074)	0.83	0.38	0.41	(0.125)	1.37	0.64
Other TCDD	19.7	3.77	48.1	23.9	32.6	6.38	80.0	39.7
12378 PCDD	0.66	0.23	1.92	0.94	1.09	0.39	3.19	1.56
Other PCDD	12.4	3.87	38.4	18.2	20.5	6.56	63.9	30.3
123478 HxCDD	0.42	0.19	1.12	0.58	0.69	0.32	1.87	0.96
123678 HxCDD	0.63	0.32	1.72	0.89	1.04	0.55	2.86	1.48
123789 HxCDD	1.29	0.61	2.84	1.58	2.13	1.03	4.73	2.63
Other HxCDD	8.25	3.93	20.3	10.8	13.6	6.65	33.8	18.0
1234678-HpCDD	4.31	2.12	7.80	4.75	7.14	3.59	13.0	7.90
Other HpCDD	4.66	2.49	9.39	5.51	7.71	4.22	15.6	9.18
Octa-CDD	5.98	2.56	10.1	6.21	9.90	4.33	16.8	10.3
Total CDD	58.6	20.2	143	73.8	96.9	34.1	237	123
FURANS								
2378 TCDF	1.18	0.29	3.77	1.75	1.96	0.49	6.27	2.91
Other TCDF	44.7	9.77	147	67.2	74.0	16.6	245	112
12378 PCDF	1.43	0.54	4.13	2.03	2.36	0.91	6.87	3.38
23478 PCDF	2.44	0.94	6.45	3.28	4.03	1.60	10.72	5.45
Other PCDF	22.1	8.31	84.0	38.1	36.6	14.1	140	63.4
123478 HxCDF	3.17	1.62	8.00	4.26	5.24	2.74	13.3	7.09
123678 HxCDF	1.64	0.81	4.20	2.21	2.71	1.37	6.98	3.69
234678 HxCDF	2.26	1.28	5.56	3.03	3.74	2.17	9.24	5.05
123789 HxCDF	0.11	0.06	0.27	0.15	0.19	0.10	0.45	0.25
Other HxCDF	9.28	4.62	26.6	13.5	15.4	7.82	44.3	22.5
1234678-HpCDF	6.19	2.86	11.08	6.71	10.2	4.84	18.4	11.2
1234789-HpCDF	0.80	0.57	1.46	0.94	1.32	0.97	2.42	1.57
Other HpCDF	4.63	2.32	8.50	5.15	7.66	3.93	14.1	8.57
Octa-CDF	4.18	4.51	8.76	5.82	6.91	7.64	14.6	9.71
TOTAL CDF	104	38.5	320	154	172	65.2	532	256
TOTAL CDD+CDF	163	58.7	462	228	269	99.3	769	379

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

() = estimated maximum possible concentration

TABLE 2-9. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 1; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 1	RUN 3	RUN 10	AVERAGE		RUN 1	RUN 3	RUN 10	AVERAGE
DIOXINS									
2378 TCDD	0.59	(1.221)	(0.349)	0.72	1.000	0.588	(1.221)	(0.349)	0.719
Other TCDD	16.7	159	18.2	64.6	0.000	0.000	0.000	0.000	0.000
12378 PCDD	1.40	4.68	1.14	2.41	0.500	0.700	2.342	0.568	1.203
Other PCDD	14.7	131	18.3	54.6	0.000	0.000	0.000	0.000	0.000
123478 HxCDD	0.91	4.58	1.32	2.27	0.100	0.091	0.458	0.132	0.227
123678 HxCDD	1.40	7.43	2.65	3.83	0.100	0.140	0.743	0.265	0.383
123789 HxCDD	2.99	14.3	3.97	7.07	0.100	0.299	1.425	0.397	0.707
Other HxCDD	13.8	103	25.3	47.4	0.000	0.000	0.000	0.000	0.000
1234678-HpCDD	7.93	42.5	19.6	23.3	0.010	0.079	0.425	0.196	0.233
Other HpCDD	9.52	52.2	22.0	27.9	0.000	0.000	0.000	0.000	0.000
Octa-CDD	9.33	54.4	24.5	29.4	0.001	0.009	0.054	0.024	0.029
Total CDD	79.3	574	137	264		1.91	6.67	1.93	3.50
FURANS									
2378 TCDF	1.96	7.94	2.27	4.06	0.100	0.196	0.794	0.227	0.406
Other TCDF	66.7	482	82.9	210	0.000	0.000	0.000	0.000	0.000
12378 PCDF	2.99	11.51	3.69	6.06	0.050	0.149	0.575	0.184	0.303
23478 PCDF	5.69	30.2	8.89	14.9	0.500	2.847	15.120	4.446	7.471
Other PCDF	63.6	365	73.6	167	0.000	0.000	0.000	0.000	0.000
123478 HxCDF	7.00	52.9	12.2	24.0	0.100	0.700	5.295	1.220	2.405
123678 HxCDF	3.64	21.99	6.24	10.6	0.100	0.364	2.199	0.624	1.063
234678 HxCDF	4.48	45.6	12.6	20.9	0.100	0.448	4.561	1.258	2.089
123789 HxCDF	0.17	1.32	0.53	0.67	0.100	0.017	0.132	0.053	0.067
Other HxCDF	21.6	150	41.4	71.0	0.000	0.000	0.000	0.000	0.000
1234678-HpCDF	8.96	82.8	22.8	38.2	0.010	0.090	0.828	0.228	0.382
1234789-HpCDF	1.12	12.8	5.01	6.32	0.010	0.011	0.128	0.050	0.063
Other HpCDF	6.44	72.4	23.6	34.2	0.000	0.000	0.000	0.000	0.000
Octa-CDF	5.41	84.5	34.5	41.5	0.001	0.005	0.085	0.035	0.041
Total CDF	200	1,420	330	650		4.83	29.7	8.32	14.3
Total CDD+CDF	279	1,990	468	914		6.73	36.4	10.3	17.8

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

TABLE 2-10. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 2; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 2	RUN 4	RUN 8	AVERAGE		RUN 2	RUN 4	RUN 8	AVERAGE
DIOXINS									
2378 TCDD	19.4	46.4	22.2	29.3	1.000	19.385	46.438	22.221	29.348
Other TCDD	455	825	560	613	1.000	0.000	0.000	0.000	0.000
12378 PCDD	60.2	182	113	118	0.500	30.097	90.952	56.434	59.161
Other PCDD	399	1,217	728	782	0.000	0.000	0.000	0.000	0.000
123478 HxCDD	57.2	157	131	115	0.100	5.724	15.654	13.138	11.505
123678 HxCDD	67.6	199	137	135	0.100	6.764	19.940	13.667	13.457
123789 HxCDD	120	379	245	248	0.100	12.039	37.868	24.513	24.807
Other HxCDD	558	1,487	1,056	1,034	0.000	0.000	0.000	0.000	0.000
1234678-HpCDD	321	812	760	631	0.010	3.214	8.116	7.601	6.310
Other HpCDD	337	885	827	683	0.000	0.000	0.000	0.000	0.000
Octa-CDD	417	614	952	661	0.001	0.417	0.614	0.952	0.661
Total CDD	2,810	6,800	5,530	5,050		77.6	220	139	145
FURANS									
2378 TCDF	59.0	171	10.1	80.1	0.100	5.897	17.141	1.005	8.014
Other TCDF	1,757	4,822	392	2,324	0.000	0.000	0.000	0.000	0.000
12378 PCDF	169	698	251	373	0.050	8.468	34.894	12.565	18.642
23478 PCDF	236	826	321	461	0.500	117.839	413.220	160.483	230.514
Other PCDF	2,707	11,130	3,881	5,906	0.000	0.000	0.000	0.000	0.000
123478 HxCDF	505	2,011	1,049	1,189	0.100	50.502	201.144	104.931	118.859
123678 HxCDF	303	1,268	636	736	0.100	30.301	126.808	63.576	73.562
234678 HxCDF	297	901	558	585	0.100	29.689	90.078	55.816	58.528
123789 HxCDF	21.0	78.8	38.5	46.1	0.100	2.102	7.880	3.853	4.612
Other HxCDF	1,731	6,804	3,600	4,045	0.000	0.000	0.000	0.000	0.000
1234678-HpCDF	803	2,562	1,781	1,716	0.010	8.029	25.624	17.812	17.155
1234789-HpCDF	121	310	227	219	0.010	1.214	3.096	2.275	2.195
Other HpCDF	647	1,798	1,342	1,262	0.000	0.000	0.000	0.000	0.000
Octa-CDF	560	785	838	728	0.001	0.560	0.785	0.838	0.728
Total CDF	9,920	34,200	14,900	19,700		255	921	423	533
Total CDD+CDF	12,700	41,000	20,500	24,700		332	1140	562	678

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b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

TABLE 2-11. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 3; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 5	RUN 6	RUN 9	AVERAGE		RUN 5	RUN 6	RUN 9	AVERAGE
DIOXINS									
2378 TCDD	0.66	(0.198)	2.04	0.97	1.000	0.657	(0.198)	2.045	0.967
Other TCDD	51.7	10.1	119	60.3	0.000	0.000	0.000	0.000	0.000
12378 PCDD	1.73	0.62	4.74	2.37	0.500	0.867	0.310	2.372	1.183
Other PCDD	32.5	10.4	95.0	46.0	0.000	0.000	0.000	0.000	0.000
123478 HxCDD	1.10	0.51	2.78	1.46	0.100	0.110	0.051	0.278	0.146
123678 HxCDD	1.64	0.86	4.25	2.25	0.100	0.164	0.086	0.425	0.225
123789 HxCDD	3.38	1.62	7.03	4.01	0.100	0.338	0.162	0.703	0.401
Other HxCDD	21.6	10.5	50.2	27.4	0.000	0.000	0.000	0.000	0.000
1234678-HpCDD	11.3	5.67	19.3	12.1	0.010	0.113	0.057	0.193	0.121
Other HpCDD	12.2	6.66	23.2	14.0	0.000	0.000	0.000	0.000	0.000
Octa-CDD	15.7	6.84	24.9	15.8	0.001	0.016	0.007	0.025	0.016
Total CDD	154	54	353	187		2.26	0.87	6.04	3.06
FURANS									
2378 TCDF	3.10	0.77	9.32	4.40	0.100	0.310	0.077	0.932	0.440
Other TCDF	117	26.1	364	169	0.000	0.000	0.000	0.000	0.000
12378 PCDF	3.74	1.44	10.2	5.13	0.050	0.187	0.072	0.511	0.257
23478 PCDF	6.39	2.52	15.9	8.29	0.500	3.194	1.260	7.974	4.143
Other PCDF	57.9	22.2	207.7	96.0	0.000	0.000	0.000	0.000	0.000
123478 HxCDF	8.30	4.32	19.8	10.8	0.100	0.830	0.432	1.979	1.081
123678 HxCDF	4.29	2.16	10.4	5.61	0.100	0.429	0.216	1.039	0.561
234678 HxCDF	5.93	3.42	13.7	7.70	0.100	0.593	0.342	1.374	0.770
123789 HxCDF	0.30	0.16	0.67	0.38	0.100	0.030	0.016	0.067	0.038
Other HxCDF	24.3	12.3	65.8	34.2	0.000	0.000	0.000	0.000	0.000
1234678-HpCDF	16.2	7.65	27.4	17.1	0.010	0.162	0.076	0.274	0.171
1234789-HpCDF	2.10	1.53	3.60	2.41	0.010	0.021	0.015	0.036	0.024
Other HpCDF	12.1	6.21	21.0	13.1	0.000	0.000	0.000	0.000	0.000
Octa-CDF	11.0	12.1	21.7	14.9	0.001	0.011	0.012	0.022	0.015
Total CDF	273	103	791	389		5.77	2.52	14.2	7.50
Total CDD+CDF	427	157	1,140	576		8.03	3.39	20.3	10.6

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

TABLE 2-12. CDD/CDF EMISSIONS SAMPLING AND FLUE GAS PARAMETERS; CENTRAL CAROLINA HOSPITAL (1990)

	Test Condition 1			
Run No.	1	3	10	Average
Date	9/20/90	9/22/90	10/02/90	
Total Sampling Time (min.)	240	240	240	NA
Average Stack Temperature (°F)	753	734	697	728
Carbon Dioxide Concentration (%V)	3.14	3.07	3.37	3.19
Oxygen Concentration (%V)	15.8	16.1	15.7	15.9
Average Sampling Rate (dscfm)	0.426	0.421	0.417	0.422
Standard Metered Volume,Vm (dscm)	2.897	2.862	2.837	2.87
Stack Moisture (%V)	9.42	9.24	7.61	8.76
Volumetric Flow Rate (acfm)	2359	2431	2311	2367.28
Volumetric Flow Rate (dscfm)	929	966	943	946.07
Volumetric Flow Rate (dscmm)	26.3	27.4	26.7	26.8
Percent Isokinetic	101	95.7	97.2	NA
	Test Condition 2			
Run No.	2	4	8	Average
Date	9/21/90	9/23/90	9/27/90	
Total Sampling Time (min.)	240	240	240	NA
Average Stack Temperature (°F)	813	773	750	779
Carbon Dioxide Concentration (%V)	3.76	4.01	3.86	3.88
Oxygen Concentration (%V)	15.7	15.2	15.6	15.5
Average Sampling Rate (dscfm)	0.385	0.407	0.434	0.409
Standard Metered Volume,Vm (dscm)	2.61	2.77	2.95	2.78
Stack Moisture (%V)	7.60	6.93	6.71	7.08
Volumetric Flow Rate (acfm)	2293	2405	2404	2367
Volumetric Flow Rate (dscfm)	877	949	978	934
Volumetric Flow Rate (dscmm)	24.8	26.9	27.7	26.5
Percent Isokinetic	96.3	94.3	97.6	NA
	Test Condition 3			
Run No.	5	6	9	Average
Date	9/24/90	9/25/90	9/28/90	
Total Sampling Time (min.)	240	240	240	NA
Average Stack Temperature (F)	748	727	735	736
Carbon Dioxide Concentration (%V)	3.46	3.4	3.67	3.51
Oxygen Concentration (%V)	15.6	15.7	15.3	15.5
Average Sampling Rate (dscfm)	0.423	0.437	0.445	0.435
Standard Metered Volume,Vm (dscm)	2.87	2.97	3.02	2.96
Stack Moisture (%V)	7.60	8.08	8.83	8.17
Volumetric Flow Rate (acfm)	2415	2424	2432	2424
Volumetric Flow Rate (dscfm)	974	997	979	983
Volumetric Flow Rate (dscmm)	27.6	28.2	27.7	27.8
Percent Isokinetic	95.4	96.9	99.9	NA

NA = Not Applicable

substituted CDD/CDF isomers. Results are presented for each isomer as well as for each tetra octa homologue total (Total CDD, Total CDF). All CDD/CDF results have been formatted to three significant figures.

Average CDD/CDF stack gas concentrations for each test condition are presented in Table 2-2. Stack gas concentrations of all target CDD/CDF congeners were detected during each test condition throughout the program. However, flue gas concentrations from Condition 2 (250 lbs/hr-medical waste) were substantially higher than for either of the other conditions. The average 2378 TCDD concentration for Condition 2 was 11.7 ng/dscm compared to 0.26 and 0.38 for Conditions 1 and 3, respectively. The Total CDD/CDF concentrations for Condition 2 was 9,850 ng/dscm compared to 321 and 228 ng/dscm for Conditions 1 and 3, respectively.

Average oxygen concentrations for the 3 conditions varied by only 0.9 percent by volume (see Section 2.7). Therefore, relative corrected flue gas concentrations for each condition are proportionately similar to the uncorrected values. Corrected 2378 TCDD flue gas concentrations for Conditions 1, 2, and 3 were 0.72, 29.35, and 0.97 ng/dscm at 7 percent 0_2, respectively. Total CDD/CDF corrected concentrations for the above conditions were 914, 24,700, and 576 ng/dscm at 7 percent O_2, respectively.

Average CDD/CDF emission rates for each condition are shown in Table 2-4. Average emissions of 2378 TCDD for Conditions 1, 2, and 3 were 0.41, 18.6, and 0.64 ug/hr, respectively. Average Total CDD/CDF emissions for Conditions 1, 2, and 3 were 522, 15,800, and 379 μg/hr, respectively.

Table 2-5 presents average corrected CDD/CDF gas concentrations in 2378 Toxic Equivalents. The concentration of each congener corrected to 7 percent O_2 was multiplied by its respective Toxic Equivalency Factor (TEF) to determine 2378 Toxic Equivalents. The TEF's used in this report are the international TEF (I-TEF) developed by the North Atlantic Treaty Organization Committee of the Challenges of Modern Society (NATO/CCMS(1)).were developed by EPA.(1) The average 2378 Toxic Equivalent Concentrations for Total CDD/CDF for Conditions 1, 2, and 3 were 17.8, 678, and 10.6 ng/dscm at 7 percent O_2, respectively.

Table 2-6 gives both the CDD/CDF stack gas concentrations and emission rates for each test run in Condition 1. Tables 2-7 and 2-8 give similar information for Conditions 2 and 3, respectively. Non-detected results are presented in brackets (i.e., [1.023]) and other values classified as estimated maximum possible concentration (EMPC) are presented in parenthesis. The EMPCs represent analytical results which have a signal to noise ratio above 2.5:1, but do not meet all of the qualitative identification criteria. These values are included in all averages and summations. Non-detected values are considered to be zero in calculating averages and summations. Condition 1 was made up of Runs 1, 3, and 10, whereas Conditions 2 and 3 were made up of Runs 2, 4, and 8 and Runs 5, 6, and 9, respectively.

Table 2-9 presents both the CDD/CDF stack gas concentration corrected to 7 percent O_2 and the 2378 Toxic Equivalent Concentrations for each run in Condition 1. Tables 2-10 and 2-11 give similar information for Conditions 2 and 3, respectively.

The CDD/CDF sampling and flue gas parameters for each run are shown in Table 2-12. Information on sample rates, sample gas volumes, O_2/CO_2 concentrations, moisture content, stack gas flow, and other parameters are given.

2.2.3 CDD/CDF Ash Results

Incinerator ash was completely removed from the incinerator every morning following a test day. The ash was passed through a one-half inch mesh sieve to remove large pieces of glass, metal, or other large objects. The sifted ash was stored in a pre-cleaned stainless steel drum and allowed to cool. Daily composite ash samples were then taken using a 4 foot sample thief. Three daily ash samples from each run from a given condition were composite into a single ash sample per Condition.

Ash samples were analyzed for the same CDD/CDF isomers that the flue gas samples were analyzed for. Average ash CDD/CDF concentrations for each condition are presented in Table 2-13.

Average ash CDD/CDF concentrations are given in units of parts-per-billion by weight (ppb.wt). Ash 2378 TCDD Toxic Equivalencies are also presented. As was the case with CDD/CDF flue gas emissions, ash from Condition 2 had the highest concentration of congeners. The 2378 TCDD concentration for Conditions 1, 2, and 3

TABLE 2-13. CDD/CDF AVERAGE ASH RESULTS FOR EACH CONDITION; CENTRAL CAROLINA HOSPITAL HOSPITAL (1990)

CONGENER	COND 1 ASH (ppb.wt)	COND 2 ASH (ppb.wt)	COND 3 ASH (ppb.wt)	2378-TCDD b TOXIC EQUIV. FACTOR	COND 1 TEF (ppb.wt)	COND 2 TEF (ppb.wt)	COND 3 TEF (ppb.wt)
DIOXINS							
2378 TCDD	0.030	0.120	(0.010)	1.00000	0.030	0.120	(0.0100)
Other TCDD	1.070	13.080	0.350	0.00000	0.000	0.000	0.000
12378 PCDD	0.110	0.630	0.030	0.50000	0.055	0.315	0.015
Other PCDD	1.190	18.970	0.550	0.00000	0.000	0.000	0.000
123478 HxCDD	0.120	0.810	0.040	0.10000	0.012	0.081	0.004
123678 HxCDD	0.110	1.400	0.050	0.10000	0.011	0.140	0.005
123789 HxCDD	0.350	2.500	0.100	0.10000	0.035	0.250	0.010
Other HxCDD	1.120	26.090	0.490	0.00000	0.000	0.000	0.000
1234678-HpCDD	0.620	10.800	0.270	0.01000	0.006	0.108	0.003
Other HpCDD	0.780	14.900	0.380	0.00000	0.000	0.000	0.000
Octa-CDD	0.830	12.500	0.360	0.00100	0.001	0.013	0.000
Total CDD	6.330	101.800	2.630		0.150	1.027	0.047
FURANS							
2378 TCDF	7.100	9.900	1.700	0.10000	0.710	0.990	0.170
Other TCDF	22.700	32.900	4.100	0.00000	0.000	0.000	0.000
12378 PCDF	0.830	1.400	0.160	0.05000	0.042	0.070	0.008
23478 PCDF	2.500	4.000	0.650	0.50000	1.250	2.000	0.325
Other PCDF	24.570	37.800	5.890	0.00000	0.000	0.000	0.000
123478 HxCDF	6.000	10.300	1.700	0.10000	0.600	1.030	0.170
123678 HxCDF	1.200	3.200	0.360	0.10000	0.120	0.320	0.036
234678 HxCDF	3.300	7.500	1.200	0.10000	0.330	0.750	0.120
123789 HxCDF	0.030	(0.180)	0.010	0.10000	0.003	(0.0180)	0.001
Other HxCDF	8.570	19.800	2.430	0.00000	0.000	0.000	0.000
1234678-HpCDF	6.000	15.600	2.100	0.01000	0.060	0.156	0.021
1234789-HpCDF	0.210	1.300	0.090	0.01000	0.002	0.013	0.001
Other HpCDF	2.590	8.400	1.010	0.00000	0.000	0.000	0.000
Octa-CDF	1.300	8.000	0.550	0.00100	0.001	0.008	0.001
Total CDF	86.9	160	22.0		3.118	5.355	0.852
Total CDD+CDF	93.2	262	24.6		3.268	6.382	0.900

a [ ] = minimum detection limit

( ) = estimated maximum possible concentration

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

were 0.03, 0.12 and 0.010 ppb, respectively. Total CDD/CDF concentrations for the three conditions were 93.2, 262, and 24.6 ppb, respectively. The total CDD/CDF TEF concentrations for the three conditions were 3.27, 6.38, and 0.90 ppb wt., respectively.

2.3 TOXIC METALS RESULTS

2.3.1 Data Reduction Overview

A single sampling train was used to determine emission rates of a series of 11 metals (Sb, As, Ba, Be, Cd, Cr, Pb, Hg, Ni, Ag, and Tl) and PM. Three sampling runs were performed under each of the three test conditions in order to assure representative test results. Sampling locations, methods, and QA/QC are discussed in Sections 4, 5, and 6, respectively. The average metals concentrations and emission rates for each test condition are summarized in Table 2-14. The results for each individual run are presented in Tables 2-15 through 2-17. Concentrations at dry, standard conditions, and concentrations adjusted to 7 percent O_2 are shown.

The values reported in Tables 2-14 through 2-17 include the respective detection limits for metals which were not detected in the samples. Since the samples were analyzed in three separate fractions (see Section 5 for details), guidelines for mathematically handling detection limits were required. The guidelines used for this report are:

- If a metal was detected in one or more fractions of the sample train but not in all fractions, only the detected values were used to determine total sample mass (non detects = zero).
- If a metal was not detected in any fractions of a sample train, the lowest detection limit reported for an individual fraction was used as the overall sample detection limit.

For the purpose of calculating average results:

- If a metal was detected in one or more of the test runs but not in all, only those runs for which a detected result was obtained were used in calculating the average. Runs where the metal was not detected were not included for averaging.

TABLE 2-14. AVERAGE METALS STACK GAS CONCENTRATIONS AND EMISSION RATES AT EACH CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

TEST CONDITION		1 a	2	3
RUN NUMBERS		1,3,10	2,4,8	5,6,9
Antimony	(ug/dscm)	51.9	237	22.8
	(ug/dscm @7% O2)	142	612	59.0
	(g/hr)	0.078	0.368	0.037
Arsenic	(ug/dscm)	16.1	4.29	33.5
	(ug/dscm @7% O2)	43.9	11.1	83.3
	(g/hr)	0.026	0.007	0.056
Barium	(ug/dscm)	8.43	33.5	11.5
	(ug/dscm @7% O2)	23.9	86.2	29.7
	(g/hr)	0.013	0.052	0.019
Beryllium	(ug/dscm)	[0.080]	0.442	[0.075]
	(ug/dscm @7% O2)	[0.222]	1.11	[0.196]
	(g/hr)	[0.0001]	0.001	[0.0001]
Cadmium	(ug/dscm)	89.5	21.3	7.91
	(ug/dscm @7% O2)	260	55.0	20.5
	(g/hr)	0.130	0.033	0.013
Chromium	(ug/dscm)	8.74	14.1	71.61
	(ug/dscm @7% O2)	25.0	36.3	190
	(g/hr)	0.013	0.022	0.112
Lead	(ug/dscm)	234	726	119
	(ug/dscm @7% O2)	663	1878	307
	(g/hr)	0.356	1.12	0.197
Mercury	(ug/dscm)	22.5	3.08	69.6
	(ug/dscm @7% O2)	60.3	7.96	182
	(g/hr)	0.034	0.005	0.115
Nickel	(ug/dscm)	10.0	10.0	112
	(ug/dscm @7% O2)	29.2	25.8	298
	(g/hr)	0.014	0.016	0.177
Silver	(ug/dscm)	[1.312]	5.516	[1.230]
	(ug/dscm @7% O2)	[3.634]	14.233	[3.189]
	(g/hr)	[0.002]	0.008	[0.002]
Thallium	(ug/dscm)	2.34	[2.116]	[2.005]
	(ug/dscm @7% O2)	6.34	[5.428]	[5.196]
	(g/hr)	0.004	[0.003]	[0.003]

a Condition 1 averages do not include Run 10, front half, and therefore are biased low.

NOTE: Values enclosed in brackets represent the minimum detection limits for compounds not detected in the samples. Detection limits are only presented if the compound was not detected in any of the three test runs.

TABLE 2-15. METALS STACK GAS CONCENTRATIONS AND EMISSION RATES FOR CONDITION 1;
CENTRAL CAROLINA HOSPITAL (1990)

DATE		09/20/90	09/22/90	10/02/90	
TIME		14:00-18:18	09:47-14:00	10:15-14:21	
RUN NUMBER		RUN 1	RUN 3	RUN 10	
O2 CONCENTRATION (%V)		15.8	16.1	15.7	
FLOW RATE (dscmm)		27.1	24.1	25.0	AVERAGE
Antimony	(ug/dscm)	20.8	32.3	103	51.9
	(ug/dscm @7% O2)	56.3	94.1	275	142
	(g/hr)	0.034	0.047	0.154	0.078
Arsenic	(ug/dscm)	43.7	4.20	0.48	16.1
	(ug/dscm @7% O2)	118	12.2	1.30	43.9
	(g/hr)	0.071	0.006	0.001	0.026
Barium	(ug/dscm)	8.82	16.2	0.275	8.43
	(ug/dscm @7% O2)	23.9	47.2	0.737	23.9
	(g/hr)	0.014	0.023	0.000	0.013
Beryllium	(ug/dscm)	[0.076]	[0.084]	[0.080]	[0.080]
	(ug/dscm @7% O2)	[0.206]	[0.245]	[0.215]	[0.222]
	(g/hr)	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Cadmium	(ug/dscm)	5.94	173	[0.197]	89.5
	(ug/dscm @7% O2)	16.1	504	[0.529]	260
	(g/hr)	0.010	0.250	[0.000]	0.130
Chromium	(ug/dscm)	5.87	19.84	0.509	8.74
	(ug/dscm @7% O2)	15.9	57.8	1.37	25.0
	(g/hr)	0.010	0.029	0.001	0.013
Lead	(ug/dscm)	189	279	[0.116]	234
	(ug/dscm @7% O2)	512	814	[0.311]	663
	(g/hr)	0.308	0.404	[0.000]	0.356
Mercury	(ug/dscm)	1.60	[0.316]	43.3	22.5
	(ug/dscm @7% O2)	4.32	[0.921]	116	60.3
	(g/hr)	0.003	[0.000]	0.065	0.034
Nickel	(ug/dscm)	[0.763]	10.0	[0.801]	10.0
	(ug/dsem @7% O2)	[2.063]	29.2	[2.149]	29.2
	(g/hr)	[0.001]	0.014	[0.001]	0.014
Silver	(ug/dscm)	[1.249]	[1.376]	[1.310]	[1.312]
	(ug/dscm @7% O2)	[3.378]	[4.010]	[3.515]	[3.634]
	(g/hr)	[0.002]	[0.002]	[0.002]	[0.002]
Thallium	(ug/dscm)	2.34	[2.254]	[2.111]	2.34
	(ug/dscm @7% O2)	6.34	[6.568]	[5.665]	6.34
	(g/hr)	0.004	[0.003]	[0.003]	0.004

Note: Run 10 Values do not include the front half catch and therefore are biased low

Values enclosed in brackets represent the minimum detection limits for compounds not detected in the samples. Detection limits are included in the averages unless otherwise indicated.

TABLE 2-16. METALS STACK GAS CONCENTRATIONS AND EMISSION RATES FOR CONDITION 2;
CENTRAL CAROLINA HOSPITAL (1990)

DATE		09/21/90	09/23/90	09/27/90	
TIME		09:46-13:57	11:40-15:47	13:45-17:50	
RUN NUMBER		2	4	8	
O2 CONCENTRATION (%V)		15.69	15.16	15.56	
FLOW RATE (dscmm)		24.45	26.26	27.04	AVERAGE
Antimony	(ug/dscm)	265	164	282	237
	(ug/dscm @7% O2)	706	398	733	612
	(g/hr)	0.388	0.259	0.457	0.368
Arsenic	(ug/dscm)	6.40	3.81	2.65	4.29
	(ug/dscm @7% O2)	17.1	9.23	6.90	11.1
	(g/hr)	0.009	0.006	0.004	0.007
Barium	(ug/dscm)	40.3	31.4	28.9	33.5
	(ug/dscm @7% O2)	108	76.1	75.1	86.2
	(g/hr)	0.059	0.049	0.047	0.052
Beryllium	(ug/dscm)	[0.083]	0.446	0.437	0.442
	(ug/dscm @7% O2)	[0.221]	1.08	1.14	1.11
	(g/hr)	[0.0001]	0.001	0.001	0.001
Cadmium	(ug/dscm)	20.8	17.5	25.8	21.3
	(ug/dscm @7% O2)	55.4	42.4	67.1	55.0
	(g/hr)	0.030	0.028	0.042	0.033
Chromium	(ug/dscm)	16.3	12.9	13.1	14.1
	(ug/dscm @7% O2)	43.6	31.2	34.1	36.3
	(g/hr)	0.024	0.020	0.021	0.022
Lead	(ug/dscm)	891	500	786	726
	(ug/dscm @7% O2)	2380	1210	2050	1880
	(g/hr)	1.31	0.787	1.28	1.12
Mercury	(ug/dscm)	4.02	2.14	[0.266]	3.08
	(ug/dscm @7% O2)	10.7	5.19	[0.692]	7.96
	(g/hr)	0.006	0.003	[0.0004]	0.005
Nickel	(ug/dscm)	5.34	5.28	19.4	10.0
	(ug/dscm @7% O2)	14.2	12.8	50.5	25.8
	(g/hr)	0.008	0.008	0.031	0.016
Silver	(ug/dscm)	7.11	3.93	[1.258]	5.52
	(ug/dscm @7% O2)	19.0	9.51	[3.275]	14.2
	(g/hr)	0.010	0.006	[0.002]	0.008
Thallium	(ug/dscm)	[2.180]	[2.106]	[2.062]	[2.116]
	(ug/dscm @7% O2)	[5.816]	[5.100]	[5.367]	[5.428]
	(g/hr)	[0.003]	[0.003]	[0.003]	[0.003]

Note:

Values enclosed in brackets represent the minimum detection limits for compounds not detected in the samples. Detection limits are not included in the averages unless otherwise indicated.

TABLE 2-17. METALS STACK GAS CONCENTRATIONS AND EMISSION RATES FOR CONDITION 3;
CENTRAL CAROLINA HOSPITAL (1990)

DATE		09/24/90	09/25/90	09/28/90	
TIME		11:45-15:52	10:10-14:15	11:00-15:05	
RUN NUMBER		5	6	9	
O2 CONCENTRATION (%V)		15.60	15.70	15.28	
FLOW RATE (dscmm)		27.49	25.90	28.21	AVERAGE
Antimony	(ug/dscm)	22.0	21.0	25.6	22.8
	(ug/dscm @7% O2)	57.6	56.1	63.3	59.0
	(g/hr)	0.036	0.033	0.043	0.037
Arsenic	(ug/dscm)	3.78	4.90	91.7	33.5
	(ug/dscm @7% O2)	9.92	13.1	227	83.3
	(g/hr)	0.006	0.008	0.155	0.056
Barium	(ug/dscm)	9.00	13.5	11.9	11.5
	(ug/dscm @7% O2)	23.6	36.0	29.4	29.7
	(g/hr)	.0.015	0.021	0.020	0.019
Beryllium	(ug/dscm)	[0.075]	[0.078]	[0.073]	[0.075]
	(ug/dscm @7% O2)	[0.197]	[0.209]	[0.181]	[0.196]
	(g/hr)	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Cadmium	(ug/dscm)	5.11	9.72	8.91	7.91
	(ug/dscm @7% O2)	13.4	26.0	22.0	20.5
	(g/hr)	0.008	0.015	0.015	0.013
Chromium	(ug/dscm)	14.1	189	11.5	71.6
	(ug/dscm @7% O2)	37.1	506	28.4	190
	(g/hr)	0.023	0.294	0.019	0.112
Lead	(ug/dscm)	125	75.6	157	119
	(ug/dscm @7% O2)	329	202	389	307
	(g/hr)	0.207	0.117	0.266	0.197
Mercury	(ug/dscm)	69.6	[0.273]	[0.215]	69.6
	(ug/dscm @7% O2)	182	[0.730]	[0.532]	182
	(g/hr)	0.115	[0.0004]	[0.0004]	0.115
Nickel	(ug/dscm)	12.2	292	33.3	112
	(ug/dscm @7% O2)	32.0	780	82.4	298
	(g/hr)	0.020	0.454	0.056	0.177
Silver	(ug/dscm)	[1.226]	[1.277]	[1.188]	[1.230]
	(ug/dscm @7% O2)	[3.215]	[3.414]	[2.938]	[3.189]
	(g/hr)	[0.002]	[0.002]	[0.002]	[0.002]
Thallium	(ug/dscm)	[2.010]	[2.057]	[1.947]	[2.005]
	(ug/dscm @7% O2)	[5.272]	[5.499]	[4.816]	[5.196]
	(g/hr)	[0.003]	[0.003]	[0.003]	[0.003]

Note:

Values enclosed in brackets represent the minimum detection limits for compounds not detected in the samples. Detection limits are not included in the averages unless otherwise indicated.

- If the metal was not detected in any of the three runs, then the average results was reported as not detected at the average detection limit.

This approach assumes that it is most likely that an element would be found in the train fraction with the lowest detection limit; therefore, the minimum detection limit for the entire train is based on the lowest fraction detection limit.

The ash samples were analyzed for the same series of metals as were the emissions test sample. These results will be reported in Section 2.3.3.

2.3.2 Metals Emission Results

Table 2-14 presents the metals emission parameters averaged for each condition. Concentrations at standard conditions, concentrations corrected to 7 percent O_2, and emission rates are shown. No condition consistently had higher emission rates of all metals. Average emissions of antimony, barium, beryllium, lead, and silver were highest for Condition 2. Emissions of cadmium and thallium were highest during Condition 1 and emissions of arsenic, chromium, mercury, and nickel were highest during Condition 3. Lead had the highest emission rates of all metals under each condition at 0.356, 1.12, and 0.197 g/hr for Conditions 1, 2, and 3, respectively. Beryllium, silver, and thallium were not detected in two out of the three test conditions.

Table 2-15 presents the metals emission results for Condition 1 (100 lb/hr pathological waste, 15 minute cycle, 1800-1900°F secondary setpoint). The results for Run 10 do not include the front half catch (probe rinses, filter). The results for this run should therefore be considered suspect low. Lead had the highest emission rates during Runs 1 and 3 at 0.308 and 0.404 g/hr, respectively. Arsenic emissions during run 1 were substantially higher than those from run 3 with values of 0.071 and 0.006 g/hr, respectively.

The metals emission results for Condition 2 (250 lb/hr-medical waste, 15 minute cycle) are presented in Table 2-16. Lead showed the highest metals flue gas concentrations of 891, 500, and 786 μg/dscm (1.31, 0.787, and 1.28 g/hr) for Runs 2, 4, and 8, respectively.

Table 2-17 presents the metals emission results for Condition 3 (160 lb/hr pathological waste, 15 minute cycle). Emission rates of nickel during Run 6 at 0.454 g/hr were higher than any other metals. Arsenic emissions during Run 9 at 0.155 g/hr were substantially higher than for Runs 5 and 6 (0.006 and 0.008 g/hr), respectively.

A summary of the ratio by weight of metals to PM is presented in Table 2-18. Metals to PM ratios are given in units of milligrams of metal to grams of PM collected by the sampling train. The range of values were 0.001 mg beryllium per gram of PM during run 4 to 8.092 mg lead per gram of PM during Run 3.

Table 2-19 presents a summary of the amounts of metals collected in each of the sample fractions from each run. The front half fraction includes the acetone probe/filter holder rinse, nitric acid (HNO_3) probe/filter holder rinse, and the filter itself. The back half fraction included the HNO_3/hydrogen peroxide (H_2O_2) impinger contents (Impingers 1 and 2), and the third fraction consisted of the potassium permanganate ($KMnO_4$) impinger contents analyzed only for mercury. Except for thallium (Run 1), silver (Runs 2 and 4) and mercury, (Run 5), the higher proportion of most metals was collected in the front half fractions. The above metals had higher catches in the Impingers 1 and 2 fractions. Laboratory analytical results for each sample fraction are presented in detail in Appendix E.2.

Sampling and flue gas parameters for the metals and PM runs are shown in Table 2-20. Total sampling times, sample volumes, and isokinetic results for each sampling run are presented. Appendix C.2 contains a complete listing of these and additional sampling and flue gas parameters for each run. The field data sheets are contained in Appendix A.2.

2.3.3 Metals In Ash

A sample of the incinerator bottom ash was collected after each sampling run (the following day) to determine metals concentrations in the ash. The metals of interest were the same as those sampled for in the flue gas. Concentrations of the metals in the ash were determined by extracting the metals from 1 gram of ash in 100 ml of extraction fluid. The analyses were then completed as discussed in Section 5.

TABLE 2-18. RATIO OF METALS TO PARTICULATE MATTER; CENTRAL CAROLINA HOSPITAL (1990)

METALS/PARTICULATE RATIO (mg metal per gram of particulate)												
TEST CONDITION	CONDITION 1				CONDITION 2				CONDITION 3			
RUN NUMBER	1	3	10	AVERAGE	2	4	8	AVERAGE	5	6	9	AVERAGE
Antimony	0.592	0.936	2.896	1.475	1.709	0.187	1.320	1.072	0.657	0.401	0.579	0.546
Arsenic	1.244	0.122	0.014	0.460	0.041	0.004	0.012	0.019	0.113	0.093	2.075	0.761
Barium	0.251	0.469	0.008	0.243	0.260	0.036	0.135	0.144	0.269	0.257	0.269	0.265
Beryllium	ND	ND	ND	ND	ND	0.001	0.002	0.001	ND	ND	ND	ND
Cadmium	0.169	5.013	ND	2.591	0.134	0.020	0.121	0.092	0.153	0.186	0.202	0.180
Chromium	0.167	0.575	0.014	0.252	0.105	0.015	0.061	0.061	0.423	3.612	0.260	1.432
Lead	5.392	8.092	ND	6.742	5.755	0.568	3.686	3.336	3.749	1.442	3.561	2.918
Mercury	0.046	0.000	1.222	0.422	0.026	0.002	ND	0.014	2.082	ND	ND	2.082
Nickel	ND	0.290	ND	0.290	0.034	0.006	0.091	0.044	0.365	5.573	0.754	2.231
Silver	ND	ND	ND	ND	0.046	0.004	ND	0.025	ND	ND	ND	ND
Thallium	0.067	ND	ND	0.067	ND	ND	ND	ND	ND	ND	ND	ND

ND = Metal not detected in the flue gas.

TABLE 2-19. METALS AMOUNTS IN FLUE GAS SAMPLES BY SAMPLE FRACTION; CENTRAL CAROLINA HOSPITAL (1990)

METAL	RUN 1 FRONT HALF	RUN 1 IMPINGERS 1,2	RUN 1 IMPINGER 3,4 b	RUN 3 FRONT HALF	RUN 3 IMPINGERS 1,2	RUN 3 IMPINGER 3,4 b	RUN 10 FRONT HALF	RUN 10 IMPINGERS 1,2	RUN 10 IMPINGER 3,4 b
CONDITION 1									
Antimony	60	[6.900]		76.5	8.05		NC	282	
Arsenic	126	[0.430]		11.0	[0.440]		NC	1.33	
Barium	25.0	0.433		41.8	0.544		NC	0.755	
Beryllium	[0.500]	[0.220]		[0.500]	[0.220]		NC	[0.220]	
Cadmium	16.2	0.92		452	0.871		NC	[0.540]	
Chromium	14.6	2.33		48.0	3.92		NC	1.4	
Lead	546	[3.200]		731	[3.300]		NC	[0.320]	
Mercury	[2.400]	[6.500]	4.61	[2.400]	[6.000]	[0.826]	NC	119	[0.550]
Nickel	[5.000]	[2.200]		26.2	[2.200]		NC	[2.200]	
Silver	[8.200]	[3.600]		[8.200]	[3.600]		NC	[3.600]	
Thallium	[14.00]	6.76		[14.00]	[5.900]		NC	[5.800]	
CONDITION 2									
	RUN 2			**RUN 4**			**RUN 8**		
METAL	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**
Antimony	655	49.0		412	47.8		748	58.0	
Arsenic	15.8	1.23		8.93	1.75		6.80	0.780	
Barium	106.0	1.19		85.8	2.18		80.2	2.39	
Beryllium	[0.500]	[0.220]		1.25	[0.220]		1.25	[0.220]	
Cadmium	55.2	[0.540]		49.0	[0.540]		73.8	[0.540]	
Chromium	40.0	3.45		27.0	9.05		32.8	4.68	
Lead	2370	[3.200]		1400	[3.300]		2250	[3.300]	
Mercury	[2.400]	[6.700]	10.7	6.00	[5.900]	[0.670]	[2.400]	[6.100]	[0.760]
Nickel	14.2	[2.200]		14.8	[2.200]		55.5	[2.200]	
Silver	[8.200]	18.9		[8.200]	11.0		[8.200]	[3.600]	
Thallium	[14.00]	[5.800]		[14.00]	[5.900]		[14.00]	[5.900]	
CONDITION 3									
	RUN 5			**RUN 6**			**RUN 9**		
METAL	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**	**FRONT HALF**	**IMPINGERS 1,2**	**IMPINGER 3,4 b**
Antimony	64.5	[7.000]		59.2	[6.900]		77.5	[7.000]	
Arsenic	11.1	[0.440]		13.8	[0.430]		278	[0.440]	
Barium	26.0	0.435		33.2	4.76		34.8	1.20	
Beryllium	[0.500]	[0.220]		[0.500]	[0.220]		[0.500]	[0.220]	
Cadmium	15.0	[0.540]		26.0	1.41		27.0	[0.540]	
Chromium	41.5	[1.100]		532.0	1.41		33.5	1.30	
Lead	368	[3.300]		213	[3.200]		477	[3.300]	
Mercury	4.80	113	86.5	[2.400]	[6.400]	[0.770]	[2.400]	[6.100]	[0.650]
Nickel	35.8	[2.200]		823	[2.200]		101	[2.200]	
Silver	[8.200]	[3.600]		[8.200]	[3.600]		[8.200]	[3.600]	
Thallium	[14.00]	[5.900]		[14.00]	[5.800]		[14.00]	[5.900]	

a Values enclosed in brackets represent minimum detection limits for elements not detected in the samples.

b Impingers 3 & 4 analyzed for mercury content only.

NC = Analysis not completed at this time.

TABLE 2-20. METALS AND PM EMISSIONS SAMPLING AND FLUE GAS PARAMETERS CENTRAL CAROLINA HOSPITAL (1990)

	TEST CONDITION 1			
RUN NUMBER	1	3	10	AVERAGE
DATE	09/20/90	09/22/90	10/02/90	
Total Sampling Time (min.)	240	240	240	NA
Average Sampling Rate (dscfm)	0.42	0.39	0.40	0.40
Metered Volume (dscf)	101.81	92.41	97.02	97.08
Metered Volume (dscm)	2.883	2.617	2.748	2.749
Average Stack Temperature (°F)	751.5	759.0	749.4	753.3
O2 Concentration (%V)	15.8	16.1	15.7	15.9
CO2 Concentration (%V)	3.1	3.1	3.4	3.2
Stack Gas Moisture (%V)	9.4	9.9	8.1	9.1
Volumetric Flow Rate (dscfm)	956.00	850.54	882.08	896.21
Volumetric Flow Rate (dscmm)	27.07	24.09	24.98	25.38
Percent Isokinetic	97.0	98.9	100	NA
	TEST CONDITION 2			
RUN NUMBER	2	4	8	AVERAGE
DATE	09/21/90	09/23/90	09/27/90	
Total Sampling Time (min.)	240	240	240	NA
Average Sampling Rate (dscfm)	0.39	0.41	0.42	0.41
Metered Volume (dscf)	93.92	98.89	101.01	97.94
Metered Volume (dscm)	2.660	2.801	2.861	2.774
Average Stack Temperature (°F)	809.4	778.9	766.3	784.9
O2 Concentration (%V)	15.7	15.2	15.6	15.5
CO2 Concentration (%V)	3.76	4.0	3.9	3.9
Stack Gas Moisture (%V)	8.4	7.8	6.8	7.7
Volumetric Flow Rate (dscfm)	863.34	927.14	954.69	915.05
Volumetric Flow Rate (dscmm)	24.45	26.26	27.04	25.91
Percent Isokinetic	99.1	97.1	96.3	NA
	TEST CONDITION 3			
RUN NUMBER	5	6	9	AVERAGE
DATE	09/24/90	09/25/90	09/28/90	
Total Sampling Time (min.)	240	240	240	NA
Average Sampling Rate (dscfm)	0.43	0.42	0.45	0.43
Metered Volume (dscf)	103.67	99.55	106.98	103.40
Metered Volume (dscm)	2.936	2.819	3.030	2.928
Average Stack Temperature (°F)	746.4	724.6	770.9	747.3
O2 Concentration (%V)	15.6	15.7	15.3	15.5
CO2 Concentration (%V)	3.5	3.4	3.7	3.5
Stack Gas Moisture (%V)	8.3	8.6	9.0	8.6
Volumetric Flow Rate (dscfm)	970.52	914.65	996.12	960.43
Volumetric Flow Rate (dscmm)	27.49	25.90	28.21	27.20
Percent Isokinetic	97.3	99.1	97.8	NA

NA = Not Applicable

The metals in ash results are shown in Table 2-21 for each test condition. Barium was the most prevalent metal found in the ash from all test conditions at 2,630, 7,260, and 245 mg/kg for Conditions 1, 2, and 3, respectively. All metals except silver were detected in at least 1 of the samples. Analytical results of the ash analyses are contained in Appendix E.2.

2.4 PARTICULATE MATTER/VISIBLE EMISSIONS

2.4.1 Particulate Matter Results

Particulate matter emissions were determined from the same sampling train used for metals analysis. Before metals analysis, PM collected on the filter and in the front half acetone rinse (probe, nozzle, filter holder) was analyzed gravimetrically. The PM stack gas concentrations and emission rates for each sampling run, as well as averages for each test condition are presented in Table 2-22. Uncorrected concentrations and concentrations adjusted to 7 percent O_2 are shown. Test Condition 2 had the highest concentrations and emission rates (0.182 gr/dscf and 1.439 lb/hr) while Test Condition 1 had the lowest (0.015 gr/dscf and 0.118 lb/hr). A brief summary of the sampling and flue gas parameters for the PM runs is given in Table 2-20 and Appendix C.2 presents a detailed listing of the parameters for each sampling run. The results of the gravimetric analyses are presented in Appendix E.2.

2.4.2 Visible Emissions

The opacity of emissions from the stack were determined visually by a qualified observer following EPA Method 9 protocol. Observations were recorded during the full duration of each PM/metals sampling run.

Opacity observations were recorded at 15 second intervals to the nearest 5 percent. Opacity for each run was determined by grouping the 15-second field observations into set of 24 (6 minutes) consecutive observations and then calculating the average percent opacity of each set. An average percent opacity for each run was also calculated as well as a test condition average. A summary of the observations is presented in Table 2-23. Test Conditions 1 and 3 both had an average percent opacity of 0 and Test Condition 2 had an average percent opacity of 13.

TABLE 2-22. PARTICULATE MATTER CONCENTRATIONS AND EMISSIONS RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

DATE	SAMPLING CONDITION	RUN NUMBER	TIME	FLUE GAS CONCENTRATION				FLUE GAS EMISSION RATE	
				(grains/dscf)	(grains/dscf @7% O2)	(grams/dscm)	(grams/dscm @7% O2)	(lb/hr)	(kg/hr)
09/20/90	1	1	14:00-18:18	0.015	0.042	0.035	0.095	0.126	0.057
09/22/90	1	3	09:47-14:00	0.015	0.044	0.035	0.101	0.110	0.050
10/02/90	1	10	10:15-14:21	0.015	0.042	0.035	0.095	0.117	0.053
			AVERAGES:	0.015	0.043	0.035	0.097	0.118	0.053
09/21/90	2	2	09:46-13:57	0.068	0.181	0.155	0.413	0.501	0.227
09/23/90	2	4	11:40-15:47	0.384	0.931	0.879	2.129	3.054	1.385
09/27/90	2	8	13:45-17:50	0.093	0.243	0.213	0.555	0.763	0.346
			AVERAGES:	0.182	0.451	0.416	1.033	1.439	0.653
09/24/90	3	5	11:45-15:52	0.015	0.038	0.033	0.088	0.122	0.055
09/25/90	3	6	10:10-14:15	0.023	0.061	0.052	0.140	0.179	0.081
09/28/90	3	9	11:00-15:05	0.019	0.048	0.044	0.109	0.165	0.075
			AVERAGES:	0.019	0.049	0.043	0.112	0.155	0.070

TABLE 2-21. METALS IN ASH CONCENTRATIONS;
CENTRAL CAROLINA HOSPITAL (1990)

Test Condition	1	2	3
Run No.'s	1,3,10 (mg/kg)	2,4,8 (mg/kg)	5,6,9 (mg/kg)
Antimony	9.60	19.2	[6.4]
Arsenic	11.7	45.5	[4.0]
Barium	2630	7260	245
Beryllium	1.60	4.10	1.00
Cadmium	3.30	1.20	[0.50]
Chromium	30.4	26.7	8.30
Lead	78.4	232	[15.7]
Mercury	[0.039]	0.0450	[0.039]
Nickel	7.20	15.1	[2.0]
Silver	[3.3]	[3.3]	[3.3]
Thallium	72.7	1820	410

a Values enclosed in brackets represent minimum detection limits for elements not dectected in the samples.

TABLE 2-23. PERCENT OPACITY OBSERVATIONS SUMMARY; CENTRAL CAROLINA HOSPITAL (1990)

	TEST CONDITION 1		
RUN NUMBER	1	3	10
DATE	09/20/90	09/22/90	10/02/90
TIME	14:00-18:18	09:47-14:00	10:15-14:21
Range of Individual Observations (% opacity) (a)	0-5	0-5	0-10
Range of Set Averages (% opacity) (b)	0	0-1	0-1
Run Average (% opacity) (c)	0	0	0
Test Conditions Average (% opacity)		0	
	TEST CONDITION 2		
RUN NUMBER	2	4	8
DATE	09/21/90	09/23/90	09/27/90
TIME	09:46-13:57	11:40-15:47	13:45-17:50
Range of Individual Observations (% opacity)	0-100	0-100	0-80
Range of Set Averages (% opacity)	0-23	0-71	0-21
Run Average (% opacity)	5	28	6
Test Conditions Average (% opacity)		13	
	TEST CONDITION 3		
RUN NUMBER	5	6	9
DATE	09/24/90	09/25/90	09/28/90
TIME	11:45-15:52	10:10-14:15	11:00-15:05
Range of Individual Observations (% opacity)	0-25	0-25	0-25
Range of Set Averages (% opacity)	0-1	0-3	0-2
Run Average (% opacity)	0	0	0
Test Conditions Average (% opacity)		0	

a Individual observations recorded at 15 second intervals, to the nearest five percent

b A set is composed of 24 consecutive individual observations.

c The run average is calculated by averaging the set averages in a run, or averaging all the individual observations.

2.5 HALOGEN GAS EMISSIONS

Hydrogen chloride (HCl), HF, and HBr, incinerator stack gas concentrations were manually sampled following EPA Method 26 procedures. In this method, flue gas was extracted from the stack and passed through acidified water. The HCl solubilizes and forms chloride (Cl^-) ions in acidified water. Ion chromatography was used to detect the Cl^-, bromide (Br^-), and fluoride (F^-) ions present in the sample. Three test runs were performed at each of the three operating conditions described previously.

2.5.1 Halogen Gas Emissions Results

Table 2-24 presents a summary of the average HCl, HF, and HBr test results with concentrations reported on a ppmV and ppmV corrected to 7 percent O_2 basis. Conditions 1 and 3 had similar average HCl concentrations at 45.1 and 43.7 ppmV, respectively. The Condition 2 average was 593 ppmV HCl. When compared to the HCl gas concentrations, substantially lower amounts of HF and HBr were found. Average HF concentrations for Conditions 1, 2, and 3 were 2.15, 9.96, and 1.28 ppmV, respectively. Average HBr concentrations were 0.20, 0.55, and 0.16 ppmV for the above conditions, respectively.

Table 2-25 presents the HCl results for each run performed under each condition. Three "sub-runs" were conducted during each day's overall test interval (i.e, 1A, 1B, and 1C). Concentrations as well as emission rates are presented. Emission rates used an average of the stack gas flows determined from the PM/Metals and CDD/CDF sampling trains. The HCl concentrations ranged from 19.4 ppmV for Run 1A to 943 ppmV for Run 8C. The corresponding HCl emission rates were 47.1 and 2,347 g/hr, respectively.

Table 2-26 presents the HF emissions results for all test runs. Certain values in this table are enclosed in parenthesis, denoting them as "maximum estimated concentration." These numbers were flagged by the analytical laboratory as estimates because they were less than five times the detection limit. These values are included in all averages. Run 2B had a concentration substantially higher than the rest of the runs at 23.7 ppmV, respectively. The range of concentrations for the other runs was 0.755 to 10.7 ppmV for Runs 1A and 8A, respectively. Emissions rates ranged from 1.006 to 29.1 g/hr.

TABLE 2-24. SUMMARY OF HALOGEN ACID TESTING RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	HCl CONCENTRATION (ppmv)	(ppmv @7% O2)	HF CONCENTRATION (ppmv)	(ppmv @7% O2)	HBr CONCENTRATION (ppmv)	(ppmv @7% O2)
AVERAGE 1	32.1	84.1	(1.17)	(3.07)	0.21	0.54
AVERAGE 3	65.3	186	3.11	8.96	0.21	0.60
AVERAGE 10	38.1	99.0	2.16	5.64	0.19	0.49
AVERAGE COND 1	45.1	123	1.76	4.87	0.20	0.54
AVERAGE 2	487	1,277	16.2	46.6	0.47	1.15
AVERAGE 4	647	1,583	5.75	13.44	0.47	1.09
AVERAGE 8	644	1,753	7.95	20.06	0.71	1.88
AVERAGE COND 2	593	1,537	9.96	26.7	0.55	1.37
AVERAGE 5	37.6	100	(1.431)	(3.771)	[0.032]	[0.084]
AVERAGE 6	31.1	81.2	(0.942)	(2.46)	(0.158)	(0.412)
AVERAGE 9	62.3	153	(1.456)	(3.58)	0.17	0.42
AVERAGE COND 3	43.7	111	0.00	0.00	0.16	0.42

[ ] = Minimum Detection Limit

TABLE 2-25. SUMMARY OF HCl RESULTS FOR EACH CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	MEASURED CONCENTRATIONS (mg/dscm)	(mg/dscm @7% O2)	(ppmv)	(ppmv @7% O2)	EMISSION RATE (g/hr)
RUN 1A	29.4	79.3	19.4	52.3	47.1
RUN 1B	54.1	135	35.7	88.9	86.6
RUN 1C	62.3	169	41.1	111	99.8
AVERAGE	48.6	128	32.1	84.1	77.8
RUN 2A	802	1,764	529	1,164	1,186
RUN 2B	674	2,109	444	1,391	996
RUN 2C	NA	NA	NA	NA	NA
AVERAGE	738	1,936	487	1,277	1,091
RUN 3A	101	278	66.8	184	156
RUN 3B	96.7	285	63.8	188	149
RUN 3C	NA	NA	NA	NA	NA
AVERAGE	99.0	282	65.3	186	153
RUN 4A	327	715	216	471	521
RUN 4B	1,276	3,068	841	2,024	2,033
RUN 4C	1,342	3,415	885	2,253	2,138
AVERAGE	981	2,399	647	1,583	1,564
RUN 5A	49.7	131	32.8	86.4	82.0
RUN 5B	48.1	117	31.7	77.1	79.4
RUN 5C	73.1	206	48.2	136	121
AVERAGE	57.0	151	37.6	100	94.1
RUN 6A	47.8	125	31.5	82.2	77.6
RUN 6B	43.3	111	28.6	73.1	70.3
RUN 6C	50.5	134	33.3	88.2	82.0
AVERAGE	47.2	123	31.1	81.2	76.6
RUN 8A	630	1,334	416	880	1,035
RUN 8B	868	2,436	572	1,607	1,424
RUN 8C	1,430	4,201	943	2,771	2,347
AVERAGE	976	2,657	644	1,753	1,602
RUN 9A	120	283	79.1	187	201
RUN 9B	60.0	141	39.6	93.0	101
RUN 9C	104	271	68.4	179	174
AVERAGE	94.5	232	62.3	153	159
RUN 10A	97.0	252	64.0	166	150
RUN 10B	40.0	97.9	26.4	64.6	62.0
RUN 10C	36.1	100.5	23.8	66.3	56.0
AVERAGE	57.7	150.1	38.1	99.0	89.5

NA = Not Applicable (Runs not completed)

TABLE 2-26. SUMMARY OF HF RESULTS FOR EACH CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	MEASURED CONCENTRATIONS (mg/dscm)	(mg/dscm @7% O2)	(ppmv)	(ppmv @7% O2)	EMISSION RATE (g/hr)
RUN 1A	(0.628)	(1.695)	(0.755)	(2.038)	(1.006)
RUN 1B	(1.075)	(2.678)	(1.292)	(3.218)	(1.721)
RUN 1C	(1.216)	(3.288)	(1.462)	(3.954)	(1.947)
AVERAGE	0.97	2.55	1.17	3.07	1.56
RUN 2A	7.23	15.9	8.69	19.1	10.7
RUN 2B	19.7	61.7	23.7	74.2	29.1
RUN 2C	NA	NA	NA	NA	NA
AVERAGE	13.5	38.8	16.2	46.6	19.9
RUN 3A	(1.825)	(5.013)	(2.194)	(6.027)	(2.817)
RUN 3B	3.35	9.90	4.03	11.9	5.18
RUN 3C	NA	NA	NA	NA	NA
AVERAGE	2.59	7.45	3.11	8.96	4.00
RUN 4A	7.17	15.7	8.61	18.8	11.4
RUN 4B	2.98	7.17	3.58	8.62	4.75
RUN 4C	4.21	10.7	5.06	12.9	6.71
AVERAGE	4.79	11.2	5.75	13.4	7.63
RUN 5A	(0.835)	(2.202)	(1.004)	(2.648)	(1.379)
RUN 5B	(1.296)	(3.149)	(1.558)	(3.786)	(2.141)
RUN 5C	(1.439)	(4.057)	(1.730)	(4.878)	(2.377)
AVERAGE	1.19	3.14	1.43	3.77	1.97
RUN 6A	(0.734)	(1.914)	(0.882)	(2.300)	(1.192)
RUN 6B	(0.670)	(1.715)	(0.805)	(2.061)	(1.088)
RUN 6C	(0.948)	(2.510)	(1.140)	(3.018)	(1.539)
AVERAGE	0.78	2.05	0.94	2.46	1.27
RUN 8A	8.89	18.8	10.7	22.6	14.6
RUN 8B	6.96	19.5	8.37	23.5	11.4
RUN 8C	3.99	11.7	4.79	14.1	6.54
AVERAGE	6.61	16.7	7.95	20.1	10.9
RUN 9A	(0.939)	(2.220)	(1.129)	(2.669)	(1.576)
RUN 9B	(1.279)	(3.008)	(1.538)	(3.617)	(2.146)
RUN 9C	(1.416)	(3.707)	(1.702)	(4.455)	(2.376)
AVERAGE	1.21	2.98	1.46	3.58	2.03
RUN 10A	3.32	8.63	3.99	10.4	5.15
RUN 10B	(0.955)	(2.337)	(1.148)	(2.809)	(1.481)
RUN 10C	(1.117)	(3.111)	(1.343)	(3.741)	(1.732)
AVERAGE	1.80	4.69	2.16	5.64	2.79

NA = Not Applicable (runs not completed)

( ) = Maximum estimated concentration

Table 2-27 presents the HBr emission results for all test runs. Hydrogen bromide was detected in the flue gas in 19 out of 25 test runs. Detected concentrations ranged from 0.18 to 0.76 ppmV for Runs 10A and 8C, respectively. Corresponding emission rates were 0.96 to 4.21 g/hr.

2.5.2 HCl CEM-Manual Comparison

Continuous emissions monitoring was performed to measure HCl in addition to other gas concentrations. The average HCl CEM concentrations calculated over the duration of the PM/Metals, CDD/CDF, and Microbial Survivability emissions test runs are presented in Section 2.7. The following paragraphs and Table 2-28 present HCl CEM data averaged over the same time period as each manual halogen "sub-run." A direct comparison can then be made between the CEM HCl data and the manual HCl data.

The results show generally good agreement between the manual and CEM concentrations. The CEM values in 7 out of 18 runs were within 30 percent of the manual values. Eleven out of 18 runs were within 40 percent. Only did Run 10 exhibit deviations greater than 100 percent. Recent state-of-the art HCl CEM sampling and instrument methods were employed during this test program. Especially important hardware developments included the use of a high temperature in-stack probe which allowed for fast, accurate responses to extreme and quick changes in stack gas HCl concentrations.

Additional agreement may have been gained if more post-test HCl calibrations could have been performed. The HCl CEM calibrations needed to be completed at the same stack gas temperature as during the test. However, following several tests, the incinerator went into a burn down mode (decrease in temperature) before final calibrations could be performed. Post-test calibrations may have revealed slight calibration drift which could be incorporated into data drift corrections for more accurate data.

For the purpose of determining the most accurate HCl flue gas concentrations, data generated by the EPA test protocol (EPA Method 26) should be used.

TABLE 2-27. SUMMARY OF HBr RESULTS AT EACH CONDITION; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	MEASURED CONCENTRATIONS (mg/dscm)	(mg/dscm @7% O2)	(ppmv)	(ppmv @7% O2)	EMISSION RATE (g/hr)
RUN 1A	0.69	1.85	0.20	0.55	1.10
RUN 1B	0.73	1.82	0.22	0.54	1.17
RUN 1C	0.66	1.78	0.20	0.53	1.05
AVERAGE	0.69	1.82	0.21	0.54	1.11
RUN 2A	2.32	5.11	0.69	1.52	3.43
RUN 2B	0.85	2.65	0.25	0.79	1.25
RUN 2C	NA	NA	NA	NA	NA
AVERAGE	1.58	3.88	0.47	1.15	2.34
RUN 3A	0.66	1.82	0.20	0.54	1.02
RUN 3B	0.74	2.20	0.22	0.65	1.15
RUN 3C	NA	NA	NA	NA	NA
AVERAGE	0.70	2.01	0.21	0.60	1.09
RUN 4A	1.80	3.93	0.53	1.17	2.86
RUN 4B	2.02	4.85	0.60	1.44	3.22
RUN 4C	0.89	2.26	0.26	0.67	1.41
AVERAGE	1.57	3.68	0.47	1.09	2.50
RUN 5A	[0.108]	[0.285]	[0.032]	[0.084]	[0.178]
RUN 5B	[0.109]	[0.265]	[0.032]	[0.078]	[0.180]
RUN 5C	[0.108]	[0.305]	[0.032]	[0.090]	[0.178]
AVERAGE	[0.108]	[0.285]	[0.032]	[0.084]	[0.179]
RUN 6A	(0.530)	(1.382)	(0.158)	(0.412)	(0.861)
RUN 6B	[0.109]	[0.279]	[0.032]	[0.082]	[0.177]
RUN 6C	[0.111]	[0.294]	[0.033]	[0.087]	[0.180]
AVERAGE	0.53	1.38	0.16	0.41	0.86
RUN 8A	2.10	4.43	0.62	1.32	3.44
RUN 8B	2.48	6.96	0.74	2.07	4.07
RUN 8C	2.57	7.54	0.76	2.24	4.21
AVERAGE	2.38	6.31	0.71	1.88	3.91
RUN 9A	0.63	1.49	0.19	0.44	1.06
RUN 9B	[0.113]	[0.266]	[0.034]	[0.080]	[0.190]
RUN 9C	(0.521)	(1.364)	(0.155)	(0.406)	(0.874)
AVERAGE	0.58	1.43	0.17	0.42	0.96
RUN 10A	0.62	1.60	0.18	0.48	0.96
RUN 10B	0.73	1.80	0.22	0.53	1.14
RUN 10C	(0.541)	(1.507)	(0.161)	(0.448)	(0.839)
AVERAGE	0.63	1.64	0.19	0.49	0.98

NA = Not applicable (runs not completed)

[ ] = Minimum detection limit; ( ) = maximum estimated concentration

TABLE 2-28. COMPARISON OF MANUAL AND CEM HCl RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	MANUAL HCl RESULTS		CEM HCl RESULTS	
	(ppmV/ dry)	(ppmV @7% O2)	(ppmV/ dry)	(ppmV @7% O2) a
RUN 1A	19.4	52.3	NC	NC
RUN 1B	35.7	88.9	NC	NC
RUN 1C	41.1	111	42.7	120
AVERAGE	32.1	84.1	NA	NA
RUN 2A	529	1164	548	1279
RUN 2B	444	1391	397	1253
RUN 2C	NC	NC	NC	NC
AVERAGE	487	1277	473	1266
RUN 3A	66.8	184	93.8	284
RUN 3B	63.8	188	18.6	60.0
RUN 3C	NC	NC	32.7	123
AVERAGE	65.3	186	NA	NA
RUN 4A	216	471	NC	NC
RUN 4B	841	2024	625	1441
RUN 4C	885	2253	659	1633
AVERAGE	647	1583	NA	NA
RUN 5A	32.8	86.4	NC	NC
RUN 5B	31.7	77.1	39.9	89.3
RUN 5C	48.2	136	31.0	81.0
AVERAGE	37.6	99.8	NA	NA
RUN 6A	31.5	82.2	NC	NC
RUN 6B	28.6	73.1	41.5	107
RUN 6C	33.3	88.2	55.2	148
AVERAGE	31.1	81.2	NA	NA
RUN 8A	416	880	NC	NC
RUN 8B	572	1607	351	1006
RUN 8C	943	2771	594	1737
AVERAGE	644	1753	NA	NA
RUN 9A	79.1	187	NC	NC
RUN 9B	39.6	93.0	74.2	179
RUN 9C	68.4	179	65.1	185
AVERAGE	62.3	153	NA	NA
RUN 10A	64.0	166	NC	NC
RUN 10B	26.4	64.6	84.9	225
RUN 10C	23.8	66.3	55.2	181
AVERAGE	38.1	99.0	NA	NA

a Averages of corrected 30 second readings

NC = Run not completed.

NA = Averages not valid for comparisons.

2.6 CEM RESULTS

Three test runs were performed at each of three operating conditions while the incinerator was burning hospital waste. Continuous emissions monitoring was performed using an extractive sample system and instrument methods to measure NO_x, CO, SO_2, THC, and HCl concentrations. The diluent gases (O_2, CO_2) were measured using CEMs at all times so that the emission results could be normalized to a reference 7 percent O_2. Concentrations of NO_x, SO_2, CO, CO_2, and O_2 were measured on a dry basis with the sample stream conditioned as shown in Figure 5-16. Concentrations of HCl using a separate monitor were measured using a dilution probe system and were on a wet basis. The THC concentrations were also monitored on a wet basis, but did not employ the dilution probe system. All CEM data were recorded as 30-second averages over each sampling interval, a copy of which are included in Appendix D.

The 30-second CEM values were averaged over the sampling interval for each test run. Both actual and values corrected to 7 percent O_2 are summarized in Tables 2-29 and 2-30. Actual concentrations are presented as they were measured (NO_x, SO_2, CO, CO_2, and O_2-dry; THC and HCl-wet). All values corrected to 7 percent O_2 are presented on a dry basis. Each 30-second CEM reading was corrected to 7 percent O_2 based on the corresponding O_2 value. Averages of the corrected values were then calculated. For HCl and THC, stack gas moisture determined from the average of the PM/Metals and CDD/CDF sampling trains was used for the corrections. Overall averages are presented for each CEM parameter under each of the three incinerator operating conditions.

Average O_2 concentrations varied by only 0.9 percent by volume during the 9 test runs, ranging from 15.2 to 16.1 percent/dry. The average percent O_2 values for each set of tests was 15.9 (Condition 1), 15.5 (Condition 2), and 15.5 (Condition 3). The CO_2 concentrations varied inversely with the O_2 concentrations at 3.19, 3.88, and 3.51 percent by volume (%V) for Conditions 1 through 3, respectively. The CO_2 run averages ranged from 3.07 to 4.01 percent by volume over the nine test runs.

Average CO concentrations ranged from 14.9 ppmV to 42.1 ppmV under Condition 1, with the overall average concentration at 29.2 ppmV. For the second

TABLE 2-29. CONTINUOUS EMISSIONS MONITORING TEST AVERAGES FOR O2, CO2, C0, and HCl; CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER/ MANUAL TEST TYPE	CONDITION	TEST TIME a	MOISTURE	OXYGEN (%vol.dry)	CO2 (%vol.dry)	CO actual (ppmV,dry)	CO corrected b (ppmV,dry) @7% O2	HCL c actual (ppmV,wet)	HCL c corrected d (ppmV,dry) @7% O2
09/20/90	1	1	14:00 - 18:18	9.39	15.8	3.14	42.1	119	107	305
09/22/90	3	1	9:47 - 14:00	9.57	16.1	3.07	14.9	40.6	33.6	110
10/02/90	10	1	10:15-14:21	7.88	15.7	3.37	30.6	81	64.6	143
	AVERAGE			8.95	15.9	3.19	29.2	80.2	68.4	186
09/21/90	2	2	9:45 - 13:57	7.98	15.7	3.76	132	407	413	1273
09/23/90	4	2	11:43 - 15:47	7.35	15.2	4.01	1187	2780	568	1480
09/27/90	8	2	13:45 - 17:50	6.78	15.6	3.87	181	453	445	1350
	AVERAGE			7.37	15.5	3.88	500	1213	475	1368
09/24/90	5	3	11:45 - 15:52	7.96	15.6	3.46	37.6	104	33.9	90.3
09/25/90	6	3	10:10 - 14:15	8.29	15.7	3.40	65.3	196	45.8	138
09/28/90	9	3	11:00 - 15:05	8.93	15.3	3.67	36.1	107	55.6	164
	AVERAGE			8.39	15.5	3.51	46.3	136	45.1	131

a For metals/CDD/CDF runs.
b Averages are corrected to 7% oxygen (corrected value = actual * (13.9 /(20.9 - O2)). 30 second values were corrected and then averaged.
c HCl concentrations were determined by manual methods as well. A comparison of CEM vs. manual results is presented in Section 2.6.
d Averages are corrected to 7% oxygen and for moisture, where the corrected value = actual * 13.9/(20.9 - O2) * (1/(1 - moist). Thirty second values were corrected and then averaged.

TABLE 2-30. CONTINUOUS EMISSIONS MONITORING TEST AVERAGES FOR O2, SO2, NOx, and THC; CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	CONDITION	TEST TIME a	MOISTURE (%volume)	OXYGEN (%vol.dry)	SO2 actual (ppmV,dry)	SO2 corrected b (ppmV,dry)	NOX actual mV,d	NOX corrected b (ppmV,dry)	THC actual (ppm C,wet)	THC corrected c (ppm C, dry)
09/20/90	1	1	14:00-18:18	9.39	15.8	40.2	106	132	340	7.15	23.0
09/22/90	3	1	9:47-14:00	9.57	16.1	42.1	119	109	289	9.84	32.3
10/02/90	10	1	10:15-14:21	7.88	15.7	31.4	80.7	125	313	2.52	7.74
	AVERAGE			8.95	15.9	37.9	102	122	314	6.50	21.0
09/21/90	2	2	9:45-13:57	7.98	15.7	15.0	37.2	79.9	208	23.0	82.7
09/23/90	4	2	11:40-15:47	7.35	15.2	18.2	44.2	62.9	143	60.2	183
09/27/90	8	2	13:45-17:50	6.78	15.6	19.0	47.0	73.7	195	30.0	91.3
	AVERAGE:			7.37	15.5	17.4	42.8	72.2	182	37.7	119
09/24/90	5	3	11:45-15:52	7.96	15.6	51.5	134	150	384	3.79	11.7
09/25/90	6	3	10:10-14:15	8.29	15.7	51.1	135	153	402	5.63	17.9
09/28/90	9	3	11:00-15:05	8.93	15.3	43.1	108	165	397	3.62	11.7
	AVERAGE:			8.39	15.5	48.6	126	156	394	4.35	13.8

a Time is for metals and CDD/CDF runs.

b SO2 and NOx are corrected to 7.0% oxygen, where the corrected value = actual * 13.9/(20.9 - O2).

c THC is corrected to 7.0% oxygen and corrected for moisture where the corrected value = actual * 13.9/(20.9 - O2) * 1/(1 - moist).

NOTE: For all CEM Data, 30 second values were corrected and then averaged.

condition, the CO run averages ranged from 132 ppmV to 1187 ppmV, with an overall average CO concentration of 500 ppmV. For the third condition, the CO run averages ranged from 36.1 ppmV to 65.3 ppmV, with the overall average for this condition being 46.3 ppmV.

The average NO_x concentrations varied from 62.9 ppmV to 165 ppmV over the nine test runs. Averages for Condition 1 ranged from 109 to 132 ppmV, with an overall average of 122 ppmV. Averages for Condition 2 ranged from 62.9 to 79.9 ppmV, with an overall average of 72.2 ppmV, and the Condition 3 range was 150 to 165 ppmV, with the average value being 156 ppmV.

The SO_2 run averages for each condition ranged from 31.4 to 42.1 ppmV for Condition 1, 15.0 to 19.0 ppmV for Condition 2, and 43.1 to 51.5 ppmV for Condition 3. The condition averages were 37.9 ppmV, 17.4 ppmV, and 48.6 ppmV SO_2 for Conditions 1 through 3, respectively.

Average THC concentrations varied from 2.52 to 60.2 ppmV-wet over the nine runs. The average THC for each condition ranged from 2.52 to 9.84 ppmV for Condition 1, 23.0 to 60.2 ppmV for Condition 2, and 3.62 to 5.63 ppmV for Condition 3. The Condition 1 average was 6.50 ppmV, the Condition 2 average was 37.7 ppmV, and the Condition 3 average was 4.35 ppmV.

2.7 CEM BURN DOWN RESULTS

After the daily test run was completed, combustion gas concentrations were continuously analyzed and recorded during a "burn down" period by the CEMS. At this time no waste was fed to the incinerator. The primary and secondary chambers operated under burn down set point routines. Two days of burn down conditions were monitored with all CEM analyzers operational. Concentrations of O_2, CO_2, SO_2, NO_x, CO, HCl, and THC were monitored. The 30-second CEM averages were reported in ppm or percent by volume as measured and also corrected to 7 percent O_2.

Table 2-31 reports the burn down CEM data. Burn down parameters were measured after test Run 6 (9/25/90) and Run 10 (10/2/90). Oxygen values were 17.5 and 17.7 percent by volume for these two runs. Carbon dioxide values were 2.14 and 1.92, respectively. The CO concentrations were 8.5 and 6.2 ppmV dry and NO_x values

TABLE 2-31. CEM BURN DOWN AVERAGES
CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	COND.	BURNDOWN TEST TIME a	OXYGEN (%vol.dry)	SO2 actual (ppmV,dry)	SO2 corrected b (ppmV,dry)	NOX actual (ppmV,dry)	NOX corrected b (ppmV,dry)	THC actual (ppm C, wet)	THC corrected c (ppm C, dry)
09/25/90	6	3	14:15-17:28	17.5	26.1	92.6	62.8	217	1.1	3.1
10/02/90	10	1	14:22-17:35	17.7	7.10	24.6	38.5	154	0.0	0.0

				CO2 (%vol.dry)	CO actual (ppmV,dry)	CO corrected b (ppmV,dry) @7% O2	HCL c,d actual (ppmV,wet)	HCL c,d corrected (ppmV,dry) @7% O2
09/25/90	6	3	14:15-17:28	2.14	8.5	31.4	16.6	67.9
10/02/90	10	1	14:22-17:35	1.92	6.2	24.5	31.1	141

a Time is for approximate burndown period.

b Thirty-second CEM averages were corrected to 7% oxygen (corrected value = actual * (13.9 /(20.9 - O2)).

c THC and HCl is corrected to 7% oxygen and corrected for moisture where the corrected value = actual * 13.9/(20.9 - O2) / (1 - moist)). Moistu assumed to be the same as during the test run conducted on the same day.

d HCl concentrations were determined by manual methods as well. A comparison of CEM vs. manual results is presented in Section 2.5. HCl calibrations were performed at different stack gas temperatures than the burndown stack temperatures thereby affecting the sampling rate/dilution ratio which may have affected the HCl accuracy.

were 62.8 and 38.5 ppmV dry, respectively. The THC average concentrations were below 2 ppm for both runs.

2.8 ASH LOSS-ON-IGNITION AND CARBON CONTENT RESULTS

This section presents results of laboratory analyses of ash samples collected daily. During the test period, ash was removed manually from the incinerator each morning, screened through 1/2-inch mesh, weighed and placed in 35-gallon metal cans. After the ash was allowed to cool, samples were taken manually and composited to obtain a representative sample. Portions were taken from the composite sample for the various analyses, including one sample which was analyzed for moisture content, LOI, and carbon content.

Samples were collected for three replicate tests at the three different incinerator operating conditions (total of 9 runs).

Table 2-32 presents a summary of the ash analysis results. The moisture content of the samples ranged from 0.27 percent for Run 10 (Test Condition 1) to 44.26 percent for Run 8 (Test Condition 2). The average moisture values for each test condition are shown. The lowest value shown was for Condition 1 (0.33 percent) and the highest value for Condition 2 (27.10 percent). The ash from Runs 4, 8, and 6 were cooled down in the incinerator using a water spray. This was done in order to allow the ash to be removed and the next test run to be started. Ash moisture values for these runs reflect the presence of this additional water.

Loss-on-ignition results varied from 17.8 percent for Run 10 (Condition 1) to 78.0 percent for Run 8 (Condition 2). Average values for each test condition ranged from 22.2 percent for Condition 1 to 53.2 percent for Condition 2.

Carbon content in the ash samples varied from 9.77 percent for Run 10 (Condition 1) to 35.7 percent for Run 8 (Condition 2). Average values for each test condition showed a low value of 14.2 percent for Condition 1 and a high value of 27.4 percent for Condition 2.

TABLE 2-32. SUMMARY OF ASH CARBON CONTENT, LOI AND MOISTURE RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

CONDITION a	TEST DATE	TEST NUMBER	SAMPLE DATE	MOISTURE (%)	L.O.I. (%)	TOTAL LOSS (%)	CARBON (%)
PRE TEST 1	PRE TEST	NA	9/20/90	28.55	62.68	73.34	18.12
PRE TEST 2	PRE TEST	NA	9/20/90	15.83	58.88	65.39	28.25
			AVERAGE	22.19	60.78	69.37	23.19
1	9/20/90	1	9/21/90	0.41	29.66	24.17	15.03
1	9/22/90	3	9/23/90	0.30	19.19	19.48	17.87
1	10/02/90	10	10/03/90	0.27	17.80	18.02	9.77
			AVERAGE	0.33	22.22	20.56	14.22
2	9/21/90	2	9/22/90	2.12	45.72	46.87	30.17
2	9/23/90	4	9/24/90	34.92 b	35.90	58.28	16.39
2	9/27/90	8	9/25/90	44.26 b	78.02	87.75	35.70
			AVERAGE	27.10	53.21	64.30	27.42
3	9/24/90	5-MC c	9/25/90	3.16	23.64	26.05	20.36
3	9/24/90	5-MF	9/25/90	0.64	23.79	24.28	22.80
3	9/25/90	6-MC	9/26/90	30.03 b	40.39	50.29	21.85
3	9/25/90	6-MF	9/26/90	0.47	32.45	32.77	16.66
3	9/28/90	9	9/29/90	1.13	27.63	28.45	20.41
			AVERAGE	7.09	29.58	32.37	20.42

a CONDITIONS:
(1) '100 lb/hr., 1800–1900° F, 25 lb/15 min.
(2) 250 lb/hr., 1600° F, 62.5 lb/15 min.
(3) 160 lb/hr., 1600° F, 40 lb/15 min.

b For these runs, a water spray was used to extinguish the fire in order to allow ash to be removed.

c MF = Fine Ash (sifted through 1/2" mesh) MC = Course Ash (would not pass through 1/2" mesh). Course and fine ash comparison was only completed during Runs 5 and 6 to examine any relative differences in properties.

2.9 MICROBIAL SURVIVABILITY RESULTS

This section provides the background and test matrix for microbial survivability testing and presents the test results for microbial survivability in emissions, in ash and in ash quality pipes.

2.9.1 Background and Test Matrix

One of the objectives of this test program was to further develop testing methods to determine microbial survivability in incinerator processes. As part of the MWI test program at Central Carolina Hospital, testing was conducted to determine microbial survivability based on a surrogate indicator organism that was spiked into the incinerator feed during each test run. The surrogate indicator organism used was a type of soil spore known as Bacillus stearothermophilus. This organism as chosen because it survives at high temperatures and it is easy to culture and identify. Also, it is non-pathogenic and is not commonly found in medical waste streams.

Two types of testing were performed. The first test method was aimed at determining microbial survivability in the combustion gases (emissions) and the bottom ash. For these tests, a known quantity of B. stearothermophilus in solution was absorbed onto materials commonly found in the medical waste stream (i.e., gauze, paper, bandages, etc.) and introduced into the incinerator at regular intervals. Simultaneous emissions testing was conducted at the incinerator stack following the EPA draft method "Microbial Survivability Test for Medical Waste Incinerator Emissions." This testing was performed concurrently with other emissions testing (PM/Metals, CDD/CDF, halogens, and CEMs). Spiked waste was charged into the incinerator four times during a 4-hour test run (essentially once per hour). Ash samples were taken daily each morning following the previous days' test run when the incinerator was cleaned manually. The ash was sampled and analyzed as described in the EPA Draft Method "Microbial Survivability Test for Medical Waste Incinerator Ash" (Appendix K).

The second Microbial Survivability test method utilized freeze dried spores encased in double pipes which were insulated. These tests were performed as a comparison to the direct ash method. Two sizes of pipes were used during this test program to determine if pipe size was a determining factor in microbial survivability.

Large pipes samples (6 in. x 2.0 in. diameter) were compared to small pipes (6 in. x 1.25 in. diameter). Three spiked pipes sets (1 large, 1 small) were charged daily at nearly even intervals: (1) the first charge of the day, (2) midday, and (3) last charge of the day.

Complete details of the microbial spiking, recovery and analysis procedures are given in Section 5.3.

Three triplicate runs were performed at the three different incinerator operating conditions for a total of nine runs. Four medical waste (wet spore) spikes and three pipe samples (dry spore) spikes were added during each run. One run was performed daily.

Table 2-33 summarizes the spore spiking times and quantities as well as waste feed and total ash quantities.

2.9.2 Overall Microbial Survivability

By comparing the number of spores spiked to the incinerator with the number of viable spores exiting in both the stack gas and incinerator ash, an overall microbial survivability value can be determined as follows:

$$MS = \left(\frac{S_e + A_e}{S_s}\right) \times 100$$

MS	=	spore microbial survivability (wet)
S_e	=	Number of viable spores exiting the stack
A_e	=	Number of viable spores detected in the incinerator ash
S_s	=	Number of viable spores spiked in the waste feed

This is an adaptation of the destruction efficiency (DE) calculation presented in the reference test protocol which calculates DE based only on stack emissions and a separate DE based on spores in ash. By combining the two DE estimates a more complete estimate of Microbial Survivability (1 - DE) is obtained. The total number of spores in the ash was calculated by multiplying the number of spores found in 1 gram of ash by the total weight of ash removed from the incinerator per day. The values presented in

TABLE 2-33. SUMMARY OF INCINERATOR FEED AMOUNTS AND ASH GENERATION PER RUN; CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	DATE	CONDITION	WET SPORE SPIKES a		DRY SPORE (PIPE) SPIKES a		TOTAL WASTE FEED (lbs) AND TYPE	TOTAL ASH WEIGHT (lbs)
			TIMES	AMOUNTS (TOTAL SPORES)	TIMES	AMOUNTS (TOTAL SPORES)		
1	09/20/90	1	14:00	1.5E+12	14:00	5.2E+06	21.2	503.4
			15:15	1.5E+12	16:15	5.2E+06	PATHOLOGICAL	
			16:00	1.5E+12	16:00	5.2E+06		
			17:00	1.5E+12				
2	09/21/90	2	09:45	1.5E+12	09:45	5.2E+06	139	1015.8
			11:00	1.5E+12	12:03	5.2E+06	MEDICAL	
			12:03	1.5E+12	15:45	5.2E+06		
			12:45	1.5E+12				
3	09/22/90	1	09:45	1.5E+12	09:45	5.2E+06	22.4	649.5
			11:00	1.5E+12	12:15	5.2E+06	PATHOLOGICAL	
			12:00	1.5E+12	14:30	5.2E+06		
			13:00	1.5E+12				
4	09/23/90	2	11:40	1.5E+12	11:40	5.2E+06	172.7	905.3
			12:45	1.5E+12	14:15	5.2E+06	MEDICAL	
			13:45	1.5E+12	17:15	5.2E+06		
			14:45	1.5E+12				
5	09/24/90	3	11:45	1.5E+12	11:45	5.2E+06	45.1	674.6
			12:40	1.5E+12	13:45	5.2E+06	PATHOLOGICAL	
			13:45	1.5E+12	15:50	5.2E+06		
			14:40	1.5E+12				

TABLE 2-33. SUMMARY OF INCINERATOR FEED AMOUNTS AND ASH GENERATION PER RUN; (continued)
CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	DATE	CONDITION	WET SPORE SPIKES [a]		DRY SPORE (PIPE) SPIKES [a]		TOTAL WASTE FEED (lbs) AND TYPE	TOTAL ASH WEIGHT (lbs)
			TIMES	AMOUNTS (TOTAL SPORES)	TIMES	AMOUNTS (TOTAL SPORES)		
6	09/25/90	3	10:10 11:15 12:10 13:15	1.5E+12 1.5E+12 1.5E+12 1.5E+12	10:10 12:10 14:15	5.2E+06 5.2E+06 5.2E+06	411.4 PATHOLOGICAL	697.2
8	09/27/90	2	13:45 14:45 15:56 16:45	1.5E+12 1.5E+12 1.5E+12 1.5E+12	13:45 16:15 18:00	5.2E+06 5.2E+06 5.2E+06	137.3 MEDICAL	727.3
9	09/29/90	3	11:00 12:00 13:00 14:00	1.5E+12 1.5E+12 1.5E+12 1.5E+12	11:00 13:15 15:53	5.2E+06 5.2E+06 5.2E+06	77 PATHOLOGICAL	867.2
10	10/02/90	1	10:15 11:15 12:15 13:15	1.5E+12 1.5E+12 1.5E+12 1.5E+12	10:15 12:15 14:30	5.2E+06 5.2E+06 5.2E+06	17.2 PATHOLOGICAL	453.5

NOTE:
Condition 1 = 100 lb/hr; 1800–1900°F; 25 lb/15 min
Condition 2 = 250 lb/hr; 1600°F; 62.5 lb/15 min
Condition 3 = 160 lb/hr; 1600°F; 40 lb/15 min

a Spike amounts were taken from the confirmation analysis results (see Tables 6-24 and 6-25).

this section were taken from a "quantitative summary" performed on the raw analytical data by the analytical laboratory. These results are included in the analytical results shown in Appendix E.3, and calculations are shown in Appendix F.

Table 2-34 presents the overall survivability of the indicator spores. Four test run results had viable spores found in the stack gas. Spores were found in several isolated ash aliquots; however, definitive quantitative results could not be provided and all test run results were assigned no spores detected. For those runs in which positive Microbial Survivability values could be calculated, the numbers ranged from survivability for 3.1 x 10^{-5} percent Run 6 to >2.6 x 10^{-4} percent for Run 8. Flue gas microbial survivability and ash microbial survivability are further discussed in the following sections. All microbial survivability calculations are shown in Appendix F.

2.9.3 Microbial Survivability in Emissions

Microbial Survivability in emission tests were conducted to quantify the number of viable spores exiting the stack during the test run. The formulas used for calculating the number of viable spores existing in the stack, S_e is calculated as shown in Appendix F, and in the EPA draft method in Appendix K.

Each test run for viable spore emissions was actually made up of 2 "sub-runs" (A and B). Each sub-run sample was collected for 120 minutes through one of the 2 sample ports. An approximate 1.5 liter sample of impinger collection solution was generated for each sub-run. These sub-run samples were recovered in a disinfected mobile laboratory, sealed and sent to the analytical laboratory where they were combined into one sample for each test run.

For each run performed, 9 aliquots were prepared for analysis: three 10 ml aliquots, three 100 ml aliquots, and 3 equal aliquots of a remaining filterable amount of sample. Both a first and second count on each aliquot were performed. The first count was conducted after approximately 24 hours incubation, and the second after approximately a 48 hour incubation period. Additional research showed that the spore count did not increase after the 48-hour count incubation period. Therefore, all values presented here are from the second (typically a 48-hour) count.

TABLE 2-34. OVERALL MICROBIAL SURVIVABILITY;
CENTRAL CAROLINA HOSPITAL (1990)

RUN NO.	FEED RATE/ FREQUENCY/TYPE (lb/hr/min)	TOTAL NUMBER OF WET SPORES SPIKED TO INCINERATOR a	NUMBER INDICATOR SPORES EXITING THE STACK b	NUMBER OF INDICATOR SPORES IN ASH c	SPORE SURVIVABILITY (%) d	MICROBIAL LOG REDUCTION f
1	100/15-P	6.0E+12	<3.84E+04	<9.6E+05	<1.7E-05	>6.8
3	100/15-P	6.0E+12	~13.8E+06	<1.0E+06	~2.3E-04	~5.7
10	100/15-P	6.0E+12	<3.22E+04	<3.9E+03	<6.0E-07	>8.2
2	250/15-M	6.0E+12	<4.36E+04	<6.3E+06	<1.1E-04	>6.0
4	250/15-M	6.0E+12	<4.31E+04	<7.8E+06	<1.3E-04	>5.9
8	250/15-M	6.0E+12	>15.5E+06 e	<6.2E+06	>2.6E-04	<5.6
5	160/15-P	6.0E+12	<13.5E+06	<1.0E+04	<2.3E-04	>5.6
6	160/15-P	6.0E+12	~18.5E+05	<1.9E+06	~3.1E-05	~6.5
9	160/15-P	6.0E+12	~6.94E+06	<1.8E+04	~1.2E-04	~5.9

a Four 500 ml wet spore aliquots were spiked during each test run. This value represents the total spores spiked/test run as determined by the confirmation count (see Table 6-24).

b Values taken from repetitive analytical runs as detailed in Appendix E.3. Detection limits are presented in Table 2-35.

c Detection liits are presented in Table 2-37.

d Calculated using (number spores in flue gas + number of spores in ash/number wet spores spiked) x 100. If spores were not detected in either fraction, the non-detected values were used in calculation. Otherwise non-detects were considered zero.

e Maximum value could not be determined for this flue gas sample (see Appendix E.3).

f MLR = log(spiked spores) - log(stack spores + ash spores)

P = Pathological Waste M = Medical Waste

Table 2-35 presents the Microbial Survivability in Emissions test results. There were four test runs where viable spores were determined to be present in the flue gas (Runs 3, 8, 6, and 9).

The Microbial Survivability sampling and flue gas parameters are shown in Table 2-36.

2.9.4 Microbial Survivability in Ash

Incinerator ash was completely removed from the incinerator every day and stored in a pre-cleaned, disinfected stainless steel drum. A composite ash sample was then taken from the drum using a sample thief and deposited in a sterilized, amber glass sample bottles. The composite samples were then submitted to the laboratory for filtering culturing, and enumeration of B. stearothermophilus.

Microbial Survivability in ash for the Central Carolina MWI tests are presented in Table 2-37. Three ash aliquots of approximately one gram were prepared from each sample. Six serial dilutions were prepared on each ash aliquot and triple plated. B. stearothermophilus colonies were found in several of the cultures. However, because repetitive analyses of these aliquots did not consistently reveal B. stearothermophilus colonies, the final values were determined to be <100 spores per gram of ash. (Several samples had no spores detected at all, ND, and were assigned <0.5 spores per gram of ash). A quantitative summary of the analytical data used to compile this data is shown in Appendix E.3.

2.9.5 Microbial Survivability in Pipes

Three pipe samples were loaded into the incinerator during each test day. The pipes were recovered the following morning during ash removal. After allowing the pipes to cool, the inner containers were removed from the outer containers and sent to the laboratory for analysis. The entire contents of the pipe were rinsed, filtered, and cultured.

Microbial Survivability in pipes is presented in Table 2-38. Results ranged from not-detected to too numerous to count (TNTC). The TNTC results were assigned a value of greater than 200 spores (>200). All runs except Run 6 showed some spore survivability in the pipe samples.

TABLE 2-35. VIABLE SPORE EMISSIONS;
CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	FEED RATE/ FREQUENCY/TYPE (lb/hr/min)	NUMBER OF INDICATOR SPORES IN ALIQUOT (spores/100 ml)	NUMBER OF INDICATOR SPORES IN SAMPLE (spores)	CONCENTRATION OF INDICATOR SPORES IN FLUE GAS (spores/dscm)	NUMBER OF INDICATOR SPORES EXITING STACK DURING TEST PERIOD (spores)
1	100/15-P	ND	ND	ND	<3.84E+04
3	100/15-P	~200	~8785	~2183	~13.8E+06
10	100/15-P	ND	ND	ND	<3.22E+04
2	250/15-M	ND	ND	ND	<4.36E+04
4	250/15-M	ND	ND	ND	<4.31E+04
8	250/15-M	>200 a	>9761	>2572	>15.5E+06
5	160/15-P	<200 b	<8378	<2289	<13.5E+06
6	160/15-P	~30	~1166	~271	~18.5E+05
9	160/15-P	~100	~4567	~1120	~6.94E+06

NOTE: Values taken from averages of repetitive analytical runs as presented in the analytical quantitative summary in Appendix E.3
All calculations are shown in Appendix F.
ND = Not Detected. Detection limits were determined to be 0.5 spores/100ml (1 spore/100 ml aliquot / 2).

a Maximum value could not be determined for this flue gas sample (see Appendix E.3).

b One aliquot out of nine repitions resulted in "Too Numerous To Count" (TNTC), and, therefore, was assigned the above detection limit.

TABLE 2-36. INDICATOR SPORE EMISSIONS SAMPLING AND FLUE GAS PARAMETERS; CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER:	1A	1B	AVERAGE	3A	3B	AVERAGE	10A	10B	AVERAGE
Total Sampling Time (min.)	120	120	NA	120	120	NA	120	120	NA
Average Stack Temperature (°F)	644	796	720	688	741	714	693	745	719
Carbon Dioxide Concentration (%V)	3.08	3.26	3.17	3.25	3.1	3.175	3.51	3.28	3.395
Oxygen Concentration (%V)	15.7	15.6	15.7	15.8	16.2	16.0	15.4	16.0	15.7
Average Sampling Rate (dscfm)	0.592	0.600	0.596	0.589	0.596	0.592	0.611	0.594	0.603
Standard Metered Volume,Vm(std) (dscm)	2.011	2.039	2.025	2.000	2.025	2.012	2.077	2.019	2.048
Stack Moisture (%V)	9.39	9.39	9.39	9.57	9.57	9.57	7.88	7.88	7.88
Volumetric Flow Rate (acfm)	2180	2472	2326	2279	2349	2314	2381	2358	2370
Volumetric Flow Rate (dscmm)	26.7	26.6	26.7	26.6	26.2	26.4	27.5	26.1	26.8
Percent Isokinetic	95.2	96.9	NA	95.1	96.1	NA	95.4	96.3	NA
RUN NUMBER:	**2A**	**2B**	**AVERAGE**	**4A**	**4B**	**AVERAGE**	**8A**	**8B**	**AVERAGE**
Total Sampling Time (min.)	105	135	NA	120	120	NA	120	120	NA
Average Stack Temperature (°F)	848	757	802	707	706	706	770	708	739
Carbon Dioxide Concentration (%V)	4.40	3.41	3.91	4.22	4.01	4.12	4.17	3.59	3.88
Oxygen Concentration (%V)	14.5	16.3	15.4	14.85	15.16	15.005	15.09	15.98	15.535
Average Sampling Rate (dscfm)	0.592	0.544	0.568	0.555	0.574	0.565	0.560	0.557	0.558
Standard Metered Volume,Vm(std) (dscm)	1.760	2.081	1.921	1.885	1.952	1.919	1.904	1.891	1.897
Stack Moisture (%V)	7.98	7.98	7.98	7.35	7.35	7.35	6.78	6.78	6.78
Volumetric Flow Rate (acfm)	2604	2177	2391	2141	2238	2190	2268	2056	2162
Volumetric Flow Rate (dscmm)	27.3	24.6	26.0	25.2	26.3	25.7	25.7	24.5	25.1
Percent Isokinetic	93.1	93.6	NA	94.8	92.2	NA	93.8	95.9	NA
RUN NUMBER:	**5A**	**5B**	**AVERAGE**	**6A**	**6B**	**AVERAGE**	**9A**	**9B**	**AVERAGE**
Total Sampling Time (min.)	120	120	NA	120	120	NA	120	120	NA
Average Stack Temperature (°F)	687	761	724	672	796	734	729	764	746
Carbon Dioxide Concentration (%V)	3.48	3.44	3.46	3.34	3.5	3.42	3.79	3.58	3.685
Oxygen Concentration (%V)	15.5	15.7	15.6	15.6	15.7	15.7	15.0	15.5	15.3
Average Sampling Rate (dscfm)	0.580	0.500	0.540	0.648	0.620	0.634	0.611	0.589	0.600
Standard Metered Volume,Vm(std) (dscm)	1.965	1.695	1.830	2.202	2.107	2.154	2.076	2.001	2.038
Stack Moisture (%V)	7.96	7.96	7.96	8.29	8.29	8.29	8.93	8.93	8.93
Volumetric Flow Rate (acfm)	2186	2024	2105	2414	2507	2461	2345	2232	2289
Volumetric Flow Rate (dscmm)	26.2	22.8	24.5	29.4	27.5	28.4	26.8	24.8	25.8
Percent Isokinetic	95.0	92.6	NA	94.7	95.2	NA	97.9	100.3	NA

NA = Not applicable.

TABLE 2-37. VIABLE SPORES IN ASH; CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	CONCENTRATION OF INDICATOR SPORES IN ASH (spores/g ash)	NUMBER OF INDICATOR SPORES EXITING INCINERATOR IN ASH
1	<100	<9.6E+05
3	<100	<1.0E+06
10	ND	<3.9+03
2	<100	<6.3E+06
4	<100	<7.8E+06
8	<100	<6.2E+06
5	ND	<1.02E+04
6	<100	<1.9E+06
9	ND	<1.75E+04

Note: Values were taken from the average of replicate analyses as presented in the analytical quantitative summary in Appendix E.3.

ND = Not Detected. Detection limits for these samples were determined to be 0.5 spores / gram ash(1 spore/g ash/2). All calculations are shown in Appendix F.

Detection limits for all other samples were determined to be 1 spore/1 ml filtration or 100 spores/g ash.

TABLE 2-38. VIABLE SPORES IN PIPES;
CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	SAMPLE ID	LOADING ORDER	PIPE SIZE	APPROXIMATE TEMPERATURE RANGE (deg F)	NUMBER OF INDICATOR SPORES DETECTED (spores)
1	CCH-085	2	L	1750 - 2000	14
	CCH-086	3	L	1750 - 2000	3
	CCH-087	2	S	2000 - 2200	0
	CCH-088	3	S	2000 - 2200	1
	CCH-089	1	L	1750 - 2000	20
	CCH-090	1	S	1500 - 1750	>200
2	CCH-096	3	S	1750 - 2000	>1
	CCH-097	2	S	750 - 1000	>32
	CCH-098	1	S	750 - 1000	20
	CCH-099	3	L	750 - 1000	>20
	CCH-100	2	L	1250 - 1500	3
	CCH-101	1	L	750 - 1000	7
3	CCH-154	3	L	1750 - 2000	0
	CCH-155	3	S	1750 - 2000	>1
	CCH-156	2	L	1500 - 1750	0
	CCH-157	2	S	1750 - 2000	1
	CCH-158	1	S	1750 - 2000	4
	CCH-159	1	L	1750 - 2000	5
4	CCH-175	1	L	1500 - 1750	0
	CCH-176	3	S	1750 - 2000	2
	CCH-177	3	L	1500 - 1750	4
	CCH-178	2	S	1250 - 1500	3
	CCH-179	2	L	1000 - 1250	0
	CCH-180	1	S	750 - 1000	0
5	CCH-193	3	L	1500 - 1750	>200
	CCH-194	3	S	750 - 1000	0
	CCH-195	2	L	750 - 1000	>200
	CCH-196	1	L	750 - 1000	>166
	CCH-197	2	S	1250 - 1500	79
	CCH-198	1	S	750 - 1000	0

NA = Not available at this time

L = Large (2.25" diameter); S = Small (1.5 " diameter)

TABLE 2-38. VIABLE SPORES IN PIPES (continued);
CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	SAMPLE ID	LOADING ORDER	PIPE SIZE	APPROXIMATE TEMPERATURE RANGE (deg F)	NUMBER OF INDICATOR SPORES DETECTED (spores)
6	CCH-280	NA	L	NA	0
	CCH-281	NA	S	NA	0
	CCH-282	NA	L	NA	0
	CCH-283	NA	S	NA	0
	CCH-284	NA	L	NA	0
	CCH-285	NA	S	NA	0
8	CCH-292	NA	S	NA	1
	CCH-293	NA	L	NA	17
	CCH-294	NA	L	NA	0
	CCH-295	NA	L	NA	2
	CCH-296	NA	S	NA	0
	CCH-297	NA	S	NA	0
9	CCH-304	NA	L	NA	0
	CCH-305	NA	S	NA	1
	CCH-306	NA	L	NA	0
	CCH-307	NA	L	NA	0
	CCH-308	NA	S	NA	1
	CCH-309	NA	S	NA	0
10	CCH-378	NA	L	NA	0
	CCH-379	NA	L	NA	1
	CCH-380	NA	S	NA	0
	CCH-381	NA	L	NA	0
	CCH-382	NA	S	NA	0
	CCH-383	NA	S	NA	0

NA = Not available at this time

L = Large (2.25" diameter); S = Small (1.5 " diameter)

As part of the microbial survivability in pipes method development, a single pipe's temperature was measured and recorded during four test runs (Runs 7 through 10). A large pipe (2 in. ID) containing no spores was configured with a thermocouple placed through a hole drilled in one of the capped ends. The pipe was placed in the incinerator and internal pipe temperatures were measured and manually recorded. Temperatures varied considerably. A general range was from 500 to 1500°F. However, no data analysis has been completed (averages, standard deviation, etc.). All pipe temperature data is listed in Appendix B.4.

2.10 PARTICLE SIZE DISTRIBUTION RESULTS

Six PSD test runs were conducted during the Central Carolina Hospital MWI test program. An eight stage MK III cascade impactor sampling device was used (See Section 5.9 for PSD Method). Following a test, the impactor was inspected to determine if there was adequate particle loading on each of the filter stages. A properly loaded impactor has distinct particulate "piles" under each stage's acceleration jets (holes). An underloaded impactor is evidenced by clean, undisturbed filters while an over-loaded impactor has particulate piles which overlap and appear to have "broken-up" (re-entrainment). An assessment of the quality of particulate loading was made by the recovery technician with observations noted on the PSD field data sheets (See Appendix A.6). Of those six PSD runs, the first two did not meet recovery QC objectives and therefore are not included in these results (Raw Field Data and Analytical data are shown in Appendix A.6 and E.5). The test results for PSD Runs 3 through 6 will be reported in the following section.

The PSD Runs 3 and 4 were conducted on September 26, 1990 during test No. 7. Other results from this test No. were not reported due to an invalidated CDD/CDF run (See Section 2.2). Test No. 7 was conducted during Condition 2 (250 lbs/hr, 15 minute long cycle, 1600°F). The PSD Runs 5 and 6 were conducted on September 28, 1990 and October 2, 1990 under Conditions 3 and 1, respectively.

Tables 2-39 and 2-40 report the results from PSD Runs 3 and 4 (Condition 2), respectively. Approximately 70 percent of the particulate was less than 8.8 um.

TABLE 2-39. PSD RUN 3 RESULTS (TEST NO 7);
CENTRAL CAROLINA HOSPITAL (1990)

FLUE GAS AND SAMPLING PARAMETERS	
Total Sampling Time (min.)	2.5
Average Stack Temperature (°F)	1122.00
Average Sampling Rate (dscfm)	0.2960
Standard Metered Volume, Vm(std) (dscf)	0.7320
Standard Metered Volume, Vm(std) (dscm)	0.021
Stack Moisture (%V)	6.8100
Percent Isokinetic	111.0
Date	09/26/90

STAGE	Dp50 (microns)	NET WEIGHT (grams)	MASS FRACTION	MASS FRACTION LESS THAN	INTERVAL GEOMETRIC MIDPOINT (microns)	dM/dlog DP (gr/dscf)	CONCENTRATION (gr/dscf)
Prelim & 1	13.2	0.06236	0.1978	0.8022*	25.7	2.1019	1.2161
2	8.65	0.03040	0.0964	0.7057	10.7	3.2332	0.5928
3	5.65	0.03014	0.0956	0.6101	6.99	3.1749	0.5877
4	3.99	0.03238	0.1027	0.5074	4.75	4.1935	0.6314
5	2.37	0.03334	0.1058	0.4016	3.08	2.8803	0.6501
6	1.37	0.02838	0.0900	0.3116	1.80	2.3096	0.5533
7	0.866	0.03056	0.0970	0.2146	1.09	3.0046	0.5959
8	0.588	0.03127	0.0992	0.1154	0.714	3.6283	0.6097
Back-up		0.03639	0.1154	0.0000*	0.054	0.3426	0.7095
Total		0.31521	1.0000				

* These values assume top end and bottom end dp50s of 50 and .005 um.

TABLE 2-40. PSD RUN 4 RESULTS (TEST NO 7);
CENTRAL CAROLINA HOSPITAL (1990)

FLUE GAS AND SAMPLING PARAMETERS	
Total Sampling Time (min.)	15
Average Stack Temperature (°F)	773
Average Sampling Rate (dscfm)	0.305
Standard Metered Volume, Vm(std) (dscf)	4.57
Standard Metered Volume, Vm(std) (dscm)	0.129
Stack Moisture (%V)	6.81
Percent Isokinetic	111
Date	9/26/90

STAGE	Dp50 (microns)	NET WEIGHT (grams)	MASS FRACTION	MASS FRACTION LESS THAN	INTERVAL GEOMETRIC MIDPOINT (microns)	dM/dlog Dp (gr/dscf)	CONCENTRATION gr/dscf
Prelim & 1	13.7	0.07749	0.2050	0.795*	26.2	0.4654	0.2618
2	8.97	0.03221	0.0852	0.710	11.1	0.5932	0.1088
3	5.86	0.03592	0.0950	0.615	7.25	0.6547	0.1213
4	4.14	0.03533	0.0935	0.521	4.92	0.7908	0.1194
5	2.45	0.03725	0.0985	0.423	3.19	0.5540	0.1258
6	1.40	0.03849	0.1018	0.321	1.85	0.5329	0.1300
7	0.865	0.03986	0.1055	0.215	1.10	0.6458	0.1347
8	0.559	0.03836	0.1015	0.114	0.696	0.6841	0.1296
Back-up		0.04310	0.1140	0.000*	0.053	0.0711	0.1456
Total		0.37799	1.0000				

* These values assume top end and bottom end dp50s of 50 and .005 um.

Table 2-41 reports the results for PSD Run 5 (Condition 3). Again, approximately 70 percent of the particulate was less than 9 um. Grainloading (concentration-grains/dry standard cubic foot) was much lower during this condition than it was during Condition 2 (0.04 gr/dscf total PM for Condition 3 versus 0.7 and 0.1 gr/dscf for total PM for Condition 2).

Table 2-42 reports the results from PSD Run 6 (Condition 1). Again, approximately 70 percent of the particulate is less than 9 um. Grainloading is comparable to that observed during Condition 3.

Figures 2-1 through 2-4 show the log-normal plots of PSD Runs 3 through 6, respectively. The log of Particle cut size (Dp50) at each impactor stage is plotted against mass fraction of particulate less than that Dp50, on a probability (normal) scale. Linear regressions analyses were conducted and the correlation coefficients (R^2) are shown on each figure.

2.11 CDD/CDF EMISSION VALUES INCORPORATING THE TOLUIENE RECOVERY RESULTS

In accordance with EPA Method 23, a final toluene rinse was completed on the CDD/CDF sampling train after the methylene chloride ($MeCl_2$) rinse procedure. This was done to determine how well the $MeCl_2$ was collecting all of the CDD/CDF material. As prescribed in the method, these values were to be used only as a QA indicator and are not to be incorporated into the emission values. Therefore, a full presentation of the data is given in Section 6. However, to gain perspective into how these values effect the gas phase CDD/CDF concentrations, stack gas CDD/CDF concentrations incorporating the toluene recovery amounts are given in Tables 2-43 through 2-45. Concentrations are given corrected to 7 percent O_2 as well as in 2378 TCDD Toxic Equivalents. Results for each test run as well as the overall condition averages are given. These values can be directly compared to the non-toluene CDD/CDF gas concentrations shown in Tables 2-9, 2-10, and 2-11.

TABLE 2-41. PSD RUN 5 RESULTS (TEST NO 9);
CENTRAL CAROLINA HOSPITAL (1990)

FLUE GAS AND SAMPLING PARAMETERS	
Total Sampling Time (min.)	45
Average Stack Temperature (°F)	789
Average Sampling Rate (dscfm)	0.299
Standard Metered Volume, Vm(std) (dscf)	13.5
Standard Metered Volume, Vm(std) (dscm)	0.382
Stack Moisture (%V)	6.78
Percent Isokinetic	85.6
Date	9/28/90

STAGE	Dp50 (microns)	NET WEIGHT (grams)	MASS FRACTION	MASS FRACTION LESS THAN	INTERVAL GEOMETRIC MIDPOINT (microns)	dM/dlog DP (gr/dscf)	CONCENTRATION (gr/dscf)
Prelim & 1	13.8	0.05878	0.1821	0.8179*	26.3	0.1207	0.0673
2	9.07	0.03241	0.1004	0.7175	11.2	0.2024	0.0371
3	5.92	0.03293	0.1020	0.6155	7.33	0.2035	0.0377
4	4.18	0.03372	0.1045	0.5111	4.98	0.2559	0.0386
5	2.48	0.03763	0.1165	0.3945	3.22	0.1898	0.0431
6	1.41	0.01637	0.0507	0.3438	1.87	0.0769	0.0188
7	0.875	0.03404	0.1054	0.2384	1.11	0.1871	0.0390
8	0.566	0.03203	0.0992	0.1392	0.704	0.1939	0.0367
Back-up		0.04493	0.1392	0.0000*	0.053	0.0251	0.0515
Total		0.32283	1.0000				

* These values assume top end and bottom end dp50s of 50 and .005 um.

TABLE 2-42. PSD RUN 6 RESULTS (TEST NO 10);
CENTRAL CAROLINA HOSPITAL (1990)

FLUE GAS AND SAMPLING PARAMETERS	
Total Sampling Time (min.)	60
Average Stack Temperature (°F)	723
Average Sampling Rate (dscfm)	0.293
Standard Metered Volume, Vm(std) (dscf)	17.6
Standard Metered Volume, Vm(std) (dscm)	0.498
Stack Moisture (%V)	7.88
Percent Isokinetic	88.8
Date	10/02/90

STAGE	Dp50 (microns)	Net Weight (grams)	MASS FRACTION	MASS FRACTION LESS THAN	INTERVAL GEOMETRIC MIDPOINT (microns)	dM/dlog DP (gr/dscf)	CONCENTRATION (gr/dscf)
Prelim & 1	13.7870	0.05572	0.1796	0.8204	26.2555	8.406E-02	0.047031
2	9.0369	0.02918	0.0941	0.7263	11.1620	1.343E-01	0.024632
3	5.8974	0.02817	0.0908	0.6356	7.3002	1.283E-01	0.023775
4	4.1655	0.03175	0.1023	0.5332	4.9564	1.775E-01	0.026797
5	2.4684	0.02752	0.0887	0.4445	3.2066	1.022E-01	0.023226
6	1.4060	0.03336	0.1075	0.3370	1.8629	1.152E-01	0.028160
7	0.8677	0.02659	0.0857	0.2513	1.1045	1.071E-01	0.022445
8	0.5579	0.02842	0.0916	0.1597	0.6958	1.250E-01	0.023986
Back-up		0.04955	0.1597	0.0000	0.0528	2.043E-02	0.041822
Total		0.31023	1.0000				

* These values assume top end and bottom end dp50s of 50 and .005 um.

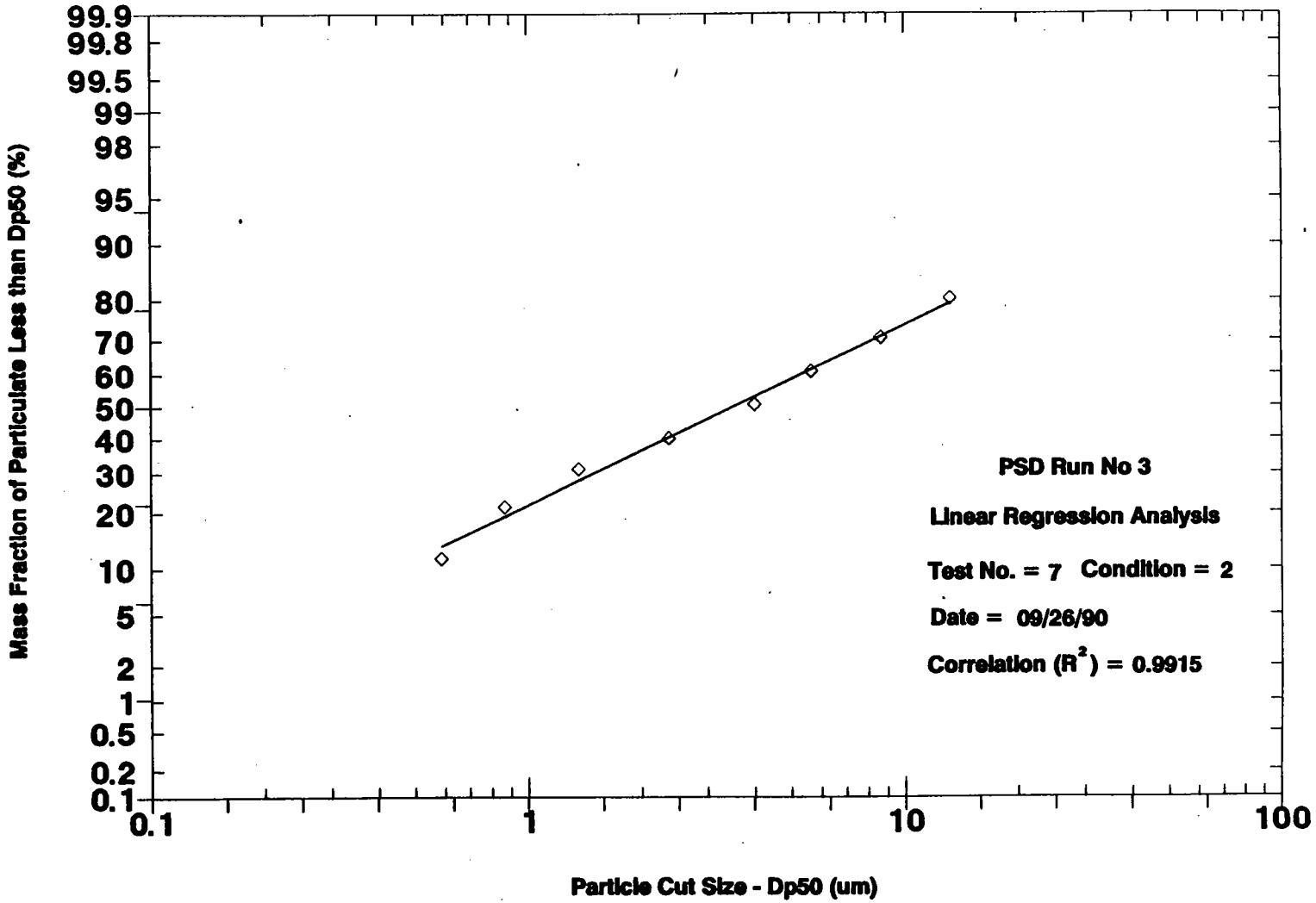


FIGURE 2-1. Run 3 (Test No 7) PSD Results - Log Particle Size vs Mass Fraction Less Than Particle Size. Central Carolina Hospital (1990)

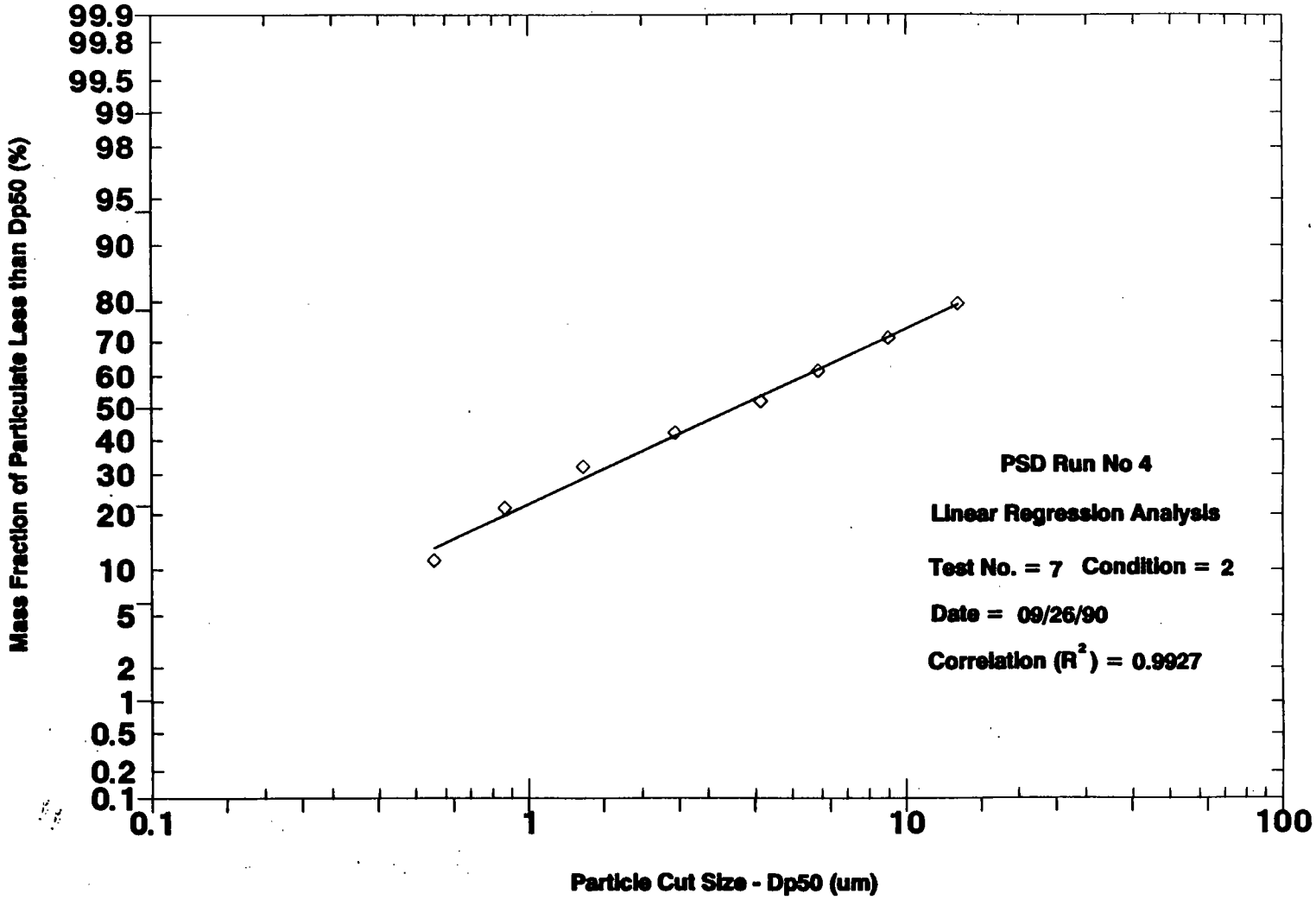


FIGURE 2-2. Run 4 (Test No 7) PSD Results - Log Particle Size vs Mass Fraction Less Than Particle Size. Central Carolina Hospital (1990)

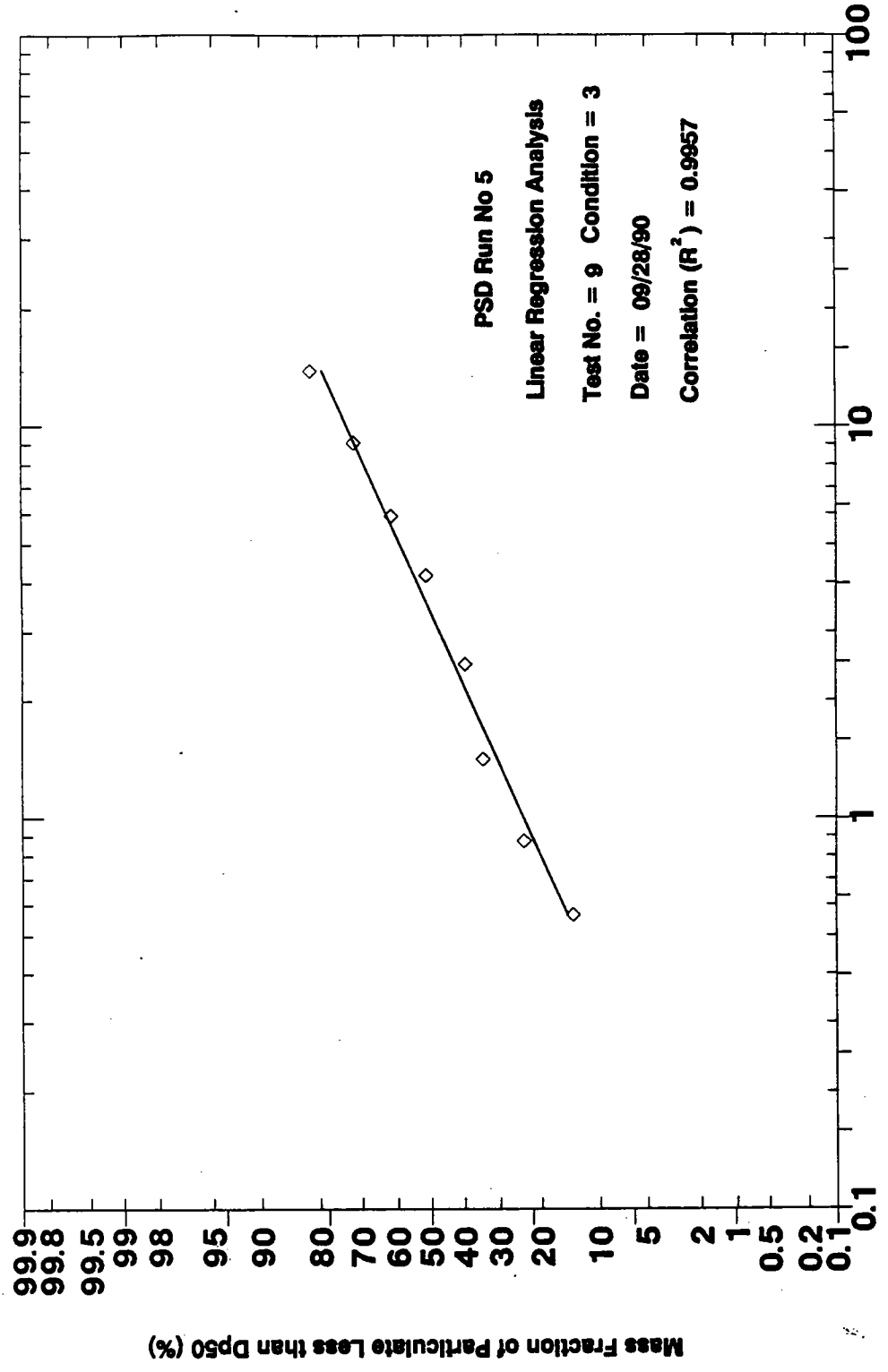


FIGURE 2-3. Run 5 (Test No 9) PSD Results - Log Particle Size vs Mass Fraction Less Than Particle Size. Central Carolina Hospital (1990)

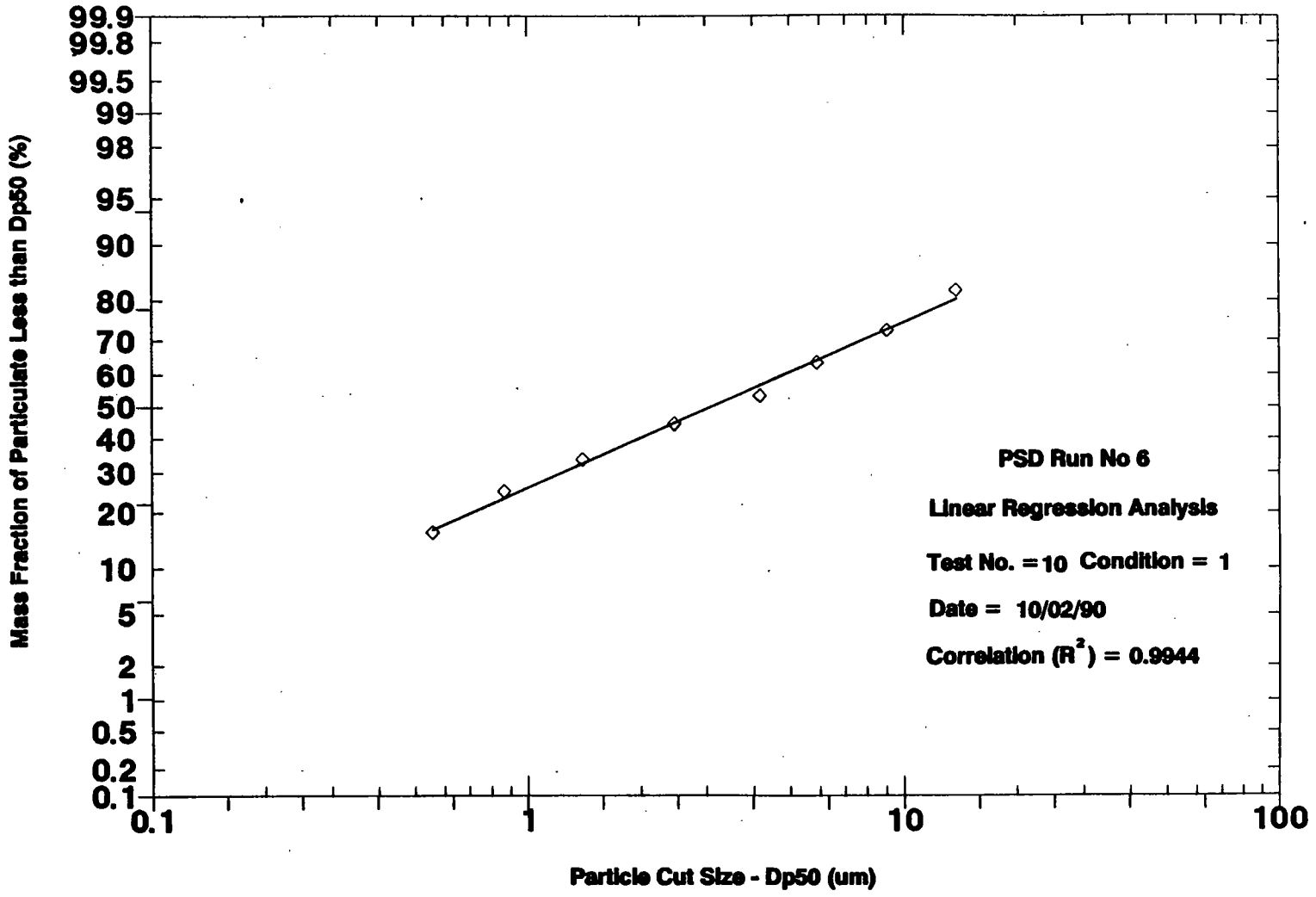


FIGURE 2-4. Run 6 (Test No 10) PSD Results - Log Particle Size vs Mass Fraction Less Than Particle Size. Central Carolina Hospital (1990)

TABLE 2-43. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 1 INCORPORATING THE TOLUENE RECOVERY RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 1	RUN 3	RUN 10	AVERAGE		RUN 1	RUN 3	RUN 10	AVERAGE
DIOXINS									
2378 TCDD	0.59	(1.221)	(0.349)	0.72	1.00000	0.588	(1.221)	(0.349)	0.719
Other TCDD	16.68	159.08	18.25	64.67	0.00000	0.000	0.000	0.000	0.000
12378 PCDD	1.40	4.69	1.14	2.41	0.50000	0.700	2.347	0.568	1.205
Other PCDD	14.76	130.98	18.47	54.73	0.00000	0.000	0.000	0.000	0.000
123478 HxCDD	0.91	4.59	1.37	2.29	0.10000	0.091	0.459	0.137	0.229
123678 HxCDD	1.41	7.45	2.72	3.86	0.10000	0.141	0.745	0.272	0.386
123789 HxCDD	2.99	14.28	4.05	7.11	0.10000	0.299	1.428	0.405	0.711
Other HxCDD	13.83	103.21	25.43	47.49	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDD	8.02	42.62	20.06	23.56	0.01000	0.080	0.426	0.201	0.236
Other HpCDD	9.60	52.43	22.47	28.17	0.00000	0.000	0.000	0.000	0.000
Octa-CDD	9.62	54.75	25.57	29.98	0.00100	0.010	0.055	0.026	0.030
Total CDD	79.8	575	140	265		1.909	6.681	1.957	3.516
FURANS									
2378 TCDF	1.97	8.21	2.47	4.22	0.10000	0.197	0.821	0.247	0.422
Other TCDF	66.75	482.41	83.37	210.84	0.00000	0.000	0.000	0.000	0.000
12378 PCDF	2.99	11.53	3.74	6.09	0.05000	0.149	0.577	0.187	0.304
23478 PCDF	5.70	30.31	9.02	15.01	0.50000	2.852	15.156	4.511	7.506
Other PCDF	63.59	365.18	74.40	167.73	0.00000	0.000	0.000	0.000	0.000
123478 HxCDF	7.01	53.07	12.46	24.18	0.10000	0.701	5.307	1.246	2.418
123678 HxCDF	3.64	22.05	6.36	10.68	0.10000	0.364	2.205	0.636	1.068
234678 HxCDF	4.48	45.72	12.82	21.01	0.10000	0.448	4.572	1.282	2.101
123789 HxCDF	0.17	1.35	0.60	0.71	0.10000	0.017	0.135	0.060	0.071
Other HxCDF	21.60	150.10	41.92	71.21	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDF	8.99	83.02	23.44	38.48	0.01000	0.090	0.830	0.234	0.385
1234789-HpCDF	1.12	12.85	5.17	6.38	0.01000	0.011	0.129	0.052	0.064
Other HpCDF	6.46	72.60	23.32	34.13	0.00000	0.000	0.000	0.000	0.000
Octa-CDF	5.41	84.72	36.81	42.31	0.00100	0.005	0.085	0.037	0.042
Total CDF	200	1,420	336	653		4.84	29.8	8.49	14.4
Total CDD+CDF	280	2,000	476	918		6.74	36.5	10.4	17.9

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

TABLE 2-44. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 2 INCORPORATING THE TOLUENE RECOVERY RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV. FACTOR	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 2	RUN 4	RUN 8	AVERAGE		RUN 2	RUN 4	RUN 8	AVERAGE
DIOXINS									
2378 TCDD	19.38	46.44	22.24	29.35	1.00000	19.385	46.442	22.237	29.355
Other TCDD	455.05	824.60	560.19	613.28	0.00000	0.000	0.000	0.000	0.000
12378 PCDD	60.21	181.92	112.93	118.35	0.50000	30.106	90.962	56.463	59.177
Other PCDD	398.94	1217.39	728.62	781.65	0.00000	0.000	0.000	0.000	0.000
123478 HxCDD	57.25	156.57	131.43	115.08	0.10000	5.725	15.657	13.143	11.508
123678 HxCDD	67.67	199.42	136.73	134.61	0.10000	6.767	19.942	13.673	13.461
123789 HxCDD	120.43	378.72	245.24	248.13	0.10000	12.043	37.872	24.524	24.813
Other HxCDD	557.79	1486.85	1056.77	1033.80	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDD	321.62	811.76	760.44	631.27	0.01000	3.216	8.118	7.604	6.313
Other HpCDD	336.68	885.18	827.45	683.10	0.00000	0.000	0.000	0.000	0.000
Octa-CDD	417.74	614.12	952.82	661.56	0.00100	0.418	0.614	0.953	0.662
Total CDD	2,810	6,800	5,530	5,050		77.7	220	139	145
FURANS									
2378 TCDF	59.03	171.50	10.49	80.34	0.10000	5.903	17.150	1.049	8.034
Other TCDF	1757.26	4822.55	394.11	2324.64	0.00000	0.000	0.000	0.000	0.000
12378 PCDF	169.40	697.96	251.50	372.95	0.05000	8.470	34.898	12.575	18.648
23478 PCDF	235.72	826.53	321.24	461.16	0.50000	117.862	413.265	160.620	230.582
Other PCDF	2706.91	11130.98	3882.92	5906.94	0.00000	0.000	0.000	0.000	0.000
123478 HxCDF	505.16	2011.66	1049.81	1188.88	0.10000	50.516	201.166	104.981	118.888
123678 HxCDF	303.09	1268.23	636.07	735.80	0.10000	30.309	126.823	63.607	73.580
234678 HxCDF	296.98	900.89	558.40	585.42	0.10000	29.698	90.089	55.840	58.542
123789 HxCDF	21.02	78.82	38.56	46.13	0.10000	2.102	7.882	3.856	4.613
Other HxCDF	1730.97	6804.35	3601.04	4045.45	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDF	803.30	2562.79	1782.03	1716.04	0.01000	8.033	25.628	17.820	17.160
1234789-HpCDF	121.46	309.63	227.63	219.57	0.01000	1.215	3.096	2.276	2.196
Other HpCDF	647.03	1798.33	1342.50	1262.62	0.00000	0.000	0.000	0.000	0.000
Octa-CDF	560.44	785.47	838.12	728.01	0.00100	0.560	0.785	0.838	0.728
Total CDF	9,920	34,200	14,900	19,700		255	921	423	533
Total CDD+CDF	12,700	41,000	20,500	24,700		332	1,140	562	678

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

TABLE 2-45. CDD/CDF STACK GAS CONCENTRATIONS AND 2378 TOXIC EQUIVALENT STACK GAS CONCENTRATIONS ADJUSTED TO 7 PERCENT O2 FOR CONDITION 3 INCORPORATING THE TOLUENE RECOVERY RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CONCENTRATION a (ng/dscm, adjusted to 7 percent O2)				2378-TCDD b TOXIC EQUIV.	2378 TOXIC EQUIVALENCIES (ng/dscm, adjusted to 7 percent O2)			
	RUN 5	RUN 6	RUN 9	AVERAGE	FACTOR	RUN 5	RUN 6	RUN 9	AVERAGE
DIOXINS									
2378 TCDD	0.66	(0.198)	2.05	0.97	1.00000	0.657	(0.198)	2.048	0.968
Other TCDD	51.72	10.08	119.00	60.27	0.00000	0.000	0.000	0.000	0.000
12378 PCDD	1.73	0.62	4.75	2.37	0.50000	0.867	0.310	2.375	1.184
Other PCDD	32.51	10.38	95.08	45.99	0.00000	0.000	0.000	0.000	0.000
123478 HxCDD	1.10	0.51	2.79	1.47	0.10000	0.110	0.051	0.279	0.147
123678 HxCDD	1.64	0.86	4.26	2.26	0.10000	0.164	0.086	0.426	0.226
123789 HxCDD	3.38	1.62	7.05	4.02	0.10000	0.338	0.162	0.705	0.402
Other HxCDD	21.63	10.50	50.28	27.47	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDD	11.32	5.69	19.30	12.10	0.01000	0.113	0.057	0.193	0.121
Other HpCDD	12.23	6.66	23.28	14.06	0.00000	0.000	0.000	0.000	0.000
Octa-CDD	15.70	7.15	25.06	15.97	0.00100	0.016	0.007	0.025	0.016
Total CDD	**154**	**54.3**	**353**	**187**		**2.264**	**0.872**	**6.051**	**3.062**
FURANS									
2378 TCDF	3.12	0.78	9.41	4.44	0.10000	0.312	0.078	0.941	0.444
Other TCDF	117.35	26.13	363.91	169.13	0.00000	0.000	0.000	0.000	0.000
12378 PCDF	3.74	1.44	10.25	5.14	0.05000	0.187	0.072	0.513	0.257
23478 PCDF	6.39	2.52	15.99	8.30	0.50000	3.194	1.260	7.995	4.150
Other PCDF	57.97	22.23	208.09	96.10	0.00000	0.000	0.000	0.000	0.000
123478 HxCDF	8.30	4.32	19.85	10.83	0.10000	0.830	0.432	1.985	1.083
123678 HxCDF	4.29	2.16	10.42	5.62	0.10000	0.429	0.216	1.042	0.562
234678 HxCDF	5.93	3.42	13.78	7.71	0.10000	0.593	0.342	1.378	0.771
123789 HxCDF	0.30	0.16	0.67	0.38	0.10000	0.030	0.016	0.067	0.038
Other HxCDF	24.36	12.35	65.93	34.21	0.00000	0.000	0.000	0.000	0.000
1234678-HpCDF	16.27	7.66	27.48	17.14	0.01000	0.163	0.077	0.275	0.171
1234789-HpCDF	2.10	1.53	3.61	2.41	0.01000	0.021	0.015	0.036	0.024
Other HpCDF	12.14	6.21	21.08	13.14	0.00000	0.000	0.000	0.000	0.000
Octa-CDF	10.95	12.09	21.74	14.93	0.00100	0.011	0.012	0.022	0.015
Total CDF	**273**	**103**	**792**	**389**		**5.77**	**2.52**	**14.3**	**7.51**
Total CDD+CDF	**427**	**157**	**1,150**	**576**		**8.03**	**3.39**	**20.3**	**10.6**

a ng/dscm = nanogram per dry standard cubic meter. Standard conditions are defined as 1 atm and 68° F.

b North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

[ ] = minimum detection limit. ( ) = estimated maximum possible concentration.

3.0 PROCESS DESCRIPTION AND OPERATION

3.1 FACILITY DESCRIPTION

Central Carolina Hospital is a 137-bed hospital located in Sanford, North Carolina. The medical waste incinerator (MWI) at this facility is a Consumat C-75-P with a design capacity of 176 pounds per hour (lb/hr) of Type IV (pathological) waste. The unit is also designed to burn general medical (nonpathological) waste at a rate of about 250 lb/hr. Two natural-gas-fired auxiliary burners in the primary chamber are used to maintain a pre-set minimum combustion temperature. Primary chamber temperatures normally range between 1200 and 1600°F. The hospital burns red bag waste, sharps containers, and a small amount of waste from nearby doctors' offices. Cafeteria waste, cardboard boxes, and general waste is compacted and landfilled.

The MWI is charged manually by opening a large refractory-lined charging door that opens at the front of the primary chamber. As a safety feature, the primary burners and blowers switch off automatically when the charging door is opened. The MWI is designed for 8 to 12 hours of operation each day, with ashes removed manually after cooldown.

The secondary chamber on this unit is sized for a design gas retention time of about 0.3 to 0.4 second. A gas-fired auxiliary burner in the secondary chamber is activated automatically when the temperature falls below a preset level, normally about 1600°F. Setpoint and actual temperatures in each chamber are displayed on a dial in the control panel.

Combustion air is supplied to the unit by two combustion air blowers, one for the primary chamber and one for the secondary chamber. The primary chamber blower supplies air to a plenum to which three separate air ducts are attached. One of these ducts supplies air to the combustion air ports inside the primary chamber. The 20 primary chamber air ports are equally spaced around the wall of the chamber, about 8 inches off the floor. The other two ducts supply air to the primary chamber burners. All three of these air ducts have manually adjustable dampers that are set at about

45 degrees (half way between totally open and totally closed) and were not moved during the test program.

The secondary chamber combustion air blower supplies air to the secondary burner and to the secondary chamber flameport area. The distribution of the airflow is controlled by a manual damper that was set at about 45 degrees and not adjusted during testing. The secondary chamber blower is on during operation of the MWI; there is no modulation of the airflow.

The Consumat "P"-designated MWI's are dual-mode units that are designed to burn either wet (pathological) or dry (general medical) waste. This is accomplished through the use of a "wet waste"-"dry waste" switch on the control panel door. The switch controls the operation of the primary chamber burners and the combustion air blowers. Teting was conducted with the unit operating in the "wet waste" mode for both types of waste. Burndown was set at 4 hours. The unit operates in the following manner while on the "dry waste" setting. During the initial warmup period, the primary chamber burners and blower are controlled by a timer that was set at 1.5 hours (adjustable up to 3 hours) and the temperature setpoint. If the temperature setpoint is reached before the timer has cut off, burners and blower shut off until the temperature falls to about 50°F below the setpoint, where both cut on again. Once the preset warmup time has elapsed, the burners shut off, but the blower operation is controlled by the temperature setpoint. If after 4 hours of operation, for example, the temperature falls 50°F below the setpoint, the blower (but not the burners) comes on until the setpoint is reached. The unit operates in this manner until burndown is completed. The secondary chamber blower runs continuously while the unit is in operation, and the burner cycles off and on based on the secondary chamber temperature setpoint.

The warmup timer is not operative in the "wet waste" mode. In this mode the primary chamber burners and blower always operate simultaneously. When started cold, the burners and blower run until the temperature setpoint is reached, then both cutoff. When the primary chamber temperature falls to 50°F below the setpoint, the burners and blower come back on. The unit operates in this manner until burndown is completed. The time for burndown is set by the burndown timer and is the same for both wet and

dry settings. The secondary chamber blower is always on and the burner cycles off and on based on the secondary chamber temperature setpoint.

There is no add-on air pollution control device on this MWI. Because of the inadequate length of the original stack, a stack extension with sampling ports was added for the test.

The general medical waste burned during the test program was red bag waste generated by the hospital. Because the hospital does not generate sufficient pathological waste to charge at the target test condition, pathological waste was obtained from two research labs located in Research Triangle Park, North Carolina. This pathological waste, comprised of animal carcasses, was transported to the site in double plastic bags inside cardboard boxes.

3.2 PRETEST ACTIVITIES

The proposed test program at this MWI included operating the unit under three different operating conditions. Condition I was a reduced rate of pathological waste (about 100 lb/hr, 15 minute charges, 1900°F secondary chamber setpoint). Condition II was the design rate for general medical waste (about 250 lb/hr, 15 minute charges, 1600°F secondary chamber setpoint). Condition III was the design rate for pathological waste (about 160 to 170 lb/hr, 15 minute charges, 1600°F secondary chamber setpoint). A pretest trial burn was conducted for the two design conditions (Conditions II and III) to determine the operational readiness of the incinerator and the ability of the incinerator to operate successfully at the desired operating conditions. Because Condition I was defined as a "reduced" rate, it was decided that a pretest at this condition was not necessary if Condition III could be achieved.

3.2.1 Pretests--General Medical Waste

September 11, 1990

The purpose of this pretest was to investigate the operating procedures of the MWI and to verify that it could be successfully operated for a period of at least 4 to 5 hours at the waste charging rate specified for the test period. During this pretest, general medical waste was to be charged at a rate of about 240 to 250 lb/hr (60 lb/charge, 15 minute charging frequency). The secondary burner setpoint was 1600°F.

When Radian and MRI personnel arrived at the hospital at 9:00 am, the MWI was not operating and, when opened, it was obvious that the unit was cold and had not been operated for several days. Most of the loose ashes had been removed, exposing a 6- to 10-inch thick layer of solid, clinker-like material (slag) that had accumulated on the hearth.

Hospital personnel explained that, although Consumat representatives indicated that combustion capability of the unit would be improved if the air ports were routinely cleaned, the hospital employees were not familiar with the proper cleaning procedures. Loose ash was routinely cleaned out after each burn but the air ports were not cleaned.

At the request of EPA, removal of the slag was undertaken. By around 2 p.m. the slag had been removed from the hearth and 19 of the 20 air ports had been located and drilled out with a masonry drill bit. This was considered sufficient to allow the pretest activities to continue.

Soon after completing the cleaning activities, an attempt was made to fire up the unit to begin the preheat period. When the unit was switched on, the secondary burner and primary chamber blower came on, but the primary burners did not ignite. After some investigation, an engineering services employee from the hospital manually adjusted the reset timer, and one of the primary burners came on. Hospital personnel indicated earlier in the day that the second burner had not been functioning recently. This burner would not ignite despite repeated attempts. Further efforts to identify the problem with the second burner indicated that the relay that opens the main gas valve might be malfunctioning.

At about 3:30, the decision was made to proceed with the burning of some waste with only one burner on because the primary burners are not generally needed after the initial few charges have brought the temperature up in the primary. Sixty-pound charges were fed to the MWI every 15 minutes for the next 1.5 hours. At about 4:25, the incinerator operator had to leave, and a decision was made to load only 1 or 2 more charges and stop rather than locate another operator. The last charge was loaded at 4:52, and the last temperature was recorded at 5:07.

While a complete pretest was not performed during this visit, several important observations were made. It was agreed that a service technician (from Consumat, if possible) needed to be brought in to correct the problems with the inoperative primary burner and the reset timer and to calibrate the thermocouples. The accuracy of the thermocouples was questioned because the highest recorded secondary temperature was only about 1400°F. This is essentially the lowest that the gauge will read when the setpoint is 1600°F. The temperature gauge was, therefore, pegged at the bottom of the scale during the burn period. The primary chamber temperature went up to about 1500°F once during the burn. Based on previous experience and the fact that the MWI was burning exclusively high-plastic, red bag waste, this indicated that the recorded secondary chamber temperature seemed too low.

The unit operated reasonably well during the 1.5-hour burn. On the second charge, dense black smoke was emitted from the door seals, burner port assemblies, thermocouple wire conduits, and stack for a period of about 90 seconds. The smoke then gradually ceased. Subsequent charges did not cause a repeat of this heavy smoke, although while the charging door was open, there was a significant amount of smoke emitted from the door. When the door was closed, the unit operated without visible emissions.

The following actions were planned as a result of this pretest: (1) the hospital would attempt to arrange for a service technician to visit the site as soon as possible, (2) a tentative schedule of test-related activities for the next 2 weeks would be prepared for the hospital so that they could schedule the operators and the storage and burning of their waste, and (3) if possible, a complete pretest on medical waste would be conducted on Friday, September 14.

September 14, 1990

On Friday, September 14, 1990, a followup pretest was conducted at the hospital. The purpose of this pretest was to observe the repairs made to the MWI as a result of the problems that arose during the September 11, 1990, pretest visit. Southern Electronic Controls, Inc., had been contracted by Consumat to service and repair the unit.

The inspection and servicing of the MWI began by removing and checking the secondary chamber burner assembly. This unit was basically in good condition. A minor adjustment was made to the burner igniter so that a better spark would be produced. The burner assembly was then returned to the secondary chamber burner housing.

Each of the primary burners was then removed, inspected, and returned, with only minor adjustments to the igniters being required. The "flame rods," which detect the presence of a flame from the burner and keep the gas valve open, were also removed and cleaned.

The unit was then switched on and, as occurred on September 11, 1990, the secondary burner ignited, but the primary burners did not. A check of the switches and relays that control the operation of the burners followed. It was discovered that two of the lead wires in the control box were cross-wired. This error prevented the correct operation of the primary chamber burner timer. After the wiring problem was corrected, one primary burner ignited, but the other did not. The relay boxes for each burner were then inspected and a faulty relay was found that prevented the gas valve from opening on the inoperative burner. The relay was removed and cleaned, the contact points were realigned, and the unit was replaced. Upon restarting the unit, all burners ignited.

Although the equipment necessary to check the accuracy of the thermocouples was not available, the upper and lower thermocouple assemblies were removed and inspected. It was found that the upper unit was wired backwards and that some of the insulation had chipped off. The result of these problems was that the secondary chamber thermocouple did not work at all. After the unit was rewired, the indicated temperature fluctuated drastically because of the damage to the insulation. Therefore, a new thermocouple was installed. The lower unit appeared to operate properly.

After these repairs had been completed, the unit was restarted and appeared to operate as designed. Red bag waste was charged to the MWI at a rate of 200 to 240 lb/hr (50 to 60 lb/charge, with a 15-minute charging frequency) for about 4 hours. All of the MWI systems (burners, thermocouples, timers, and temperature displays) seemed to be operating properly; however, an accumlation of material in the primary chamber indicated that the charging rate might be too high.

The extent of the repairs that were required for this MWI were unexpected. The problems at this unit appear to have been compounded by a lack of routine maintenance, recent changes in hospital personnel, and the fact that the operation of the unit and the maintenance of the unit are under two different departments in the hospital administration. It became apparent during the September 11, 1990, pretest that certain basic repairs to the unit would be necessary prior to operating the unit in a manner that would be considered "typical" of 6- to 10-year-old units.

The current Director of Engineering at the facility was aware that the MWI was not in good working condition and was anxious for the unit to be repaired. Other hospital personnel appeared to be interested in learning about the proper operation and maintenance of the unit. It appears that the operating condition of this unit was poor, but that most of the problems were easily corrected and that proper attention by hospital staff is needed.

September 18, 1990

The target charge rate was revised based on observations made during the September 14, 1990, pretest. The purpose of this pretest was to confirm that the MWI could be operated at this revised target test condition (200 lb/hr; 50 lb every 15 minutes; secondary chamber setpoint of 1600°F) for at least 5 hours. Red bag medical waste generated at the hospital was charged to the unit during this pretest.

The MWI was cleaned out and allowed to preheat for about 15 minutes prior to loading the first charge. At 11:15 am, the first charge of the day was placed in the incinerator. Temperature readings were taken immediately after the loading door was closed and at 5-minute intervals thereafter. Between 11:15 am and 4:15 pm, 19 charges ranging from 45.3 to 56.7 lb were loaded into the MWI at 15-minute intervals.

The following observations were made during the pretest burn:

1. The temperature in the primary chamber climbed to about 1300°F (the setpoint) in about 30 minutes, and after about 1 hour it had reached 1500°F. The temperature stayed between 1400° and 1500°F for the remainder of the burn period.

2. The secondary chamber temperature was very erratic and was influenced greatly by the charging cycle and the condition of the primary burners/blowers. When the

primary burners are on, the secondary chamber temperature peaks are much higher than if the primary burners are off. The secondary chamber temperature peaks about 5 minutes after each charge, and the peaks tended to get higher after the unit had been operating for several hours. Very high peaks also occurred during the first hour while the primary burners were operating.

3. Near the end of the burn period, the ash bed in the unit had become so high that it was causing some difficulty in loading additional waste. Flames and dense black smoke came out when the charging door was opened, and large bags were difficult to load because the ash bed restricted access to the interior of the unit.

4. The unit appeared to operate well during the pretest; there was very little smoke from the stack, the temperatures were fairly stable within the expected range, and the burners/blowers cycled off and on as expected. The most obvious problem observed during the pretest was the continuing accumulation of material in the primary chamber. It was apparent that the unit was not capable of burning the waste completely at the charge rate being used. By the end of the burn period, the primary chamber was so full that it was difficult to charge.

When the incinerator was opened the following morning a large accumulation of hot, smoldering material was found in the primary chamber. Burnout was poor in terms of quality and quantity. The material flamed up immediately when efforts to remove it began. As was the case with other MWI's tested, this unit appears to be significantly overrated in terms of the quantity of red bag waste that can be burned per hour. Therefore, the charge rate for actual testing was further reduced to 160 lb/hr.

3.2.2 Pretests--Pathological Waste

September 19, 1990

The purpose of this pretest was to determine if the MWI could be operated at the target test condition (160 lb/hr; 40 lb every 15 minutes; 1600°F secondary chamber setpoint) for at least 4 hours. Pathological waste was charged to the unit during this pretest.

After the ash had been removed, the unit was allowed to preheat for about 40 minutes before charging began. The first charge was loaded into the unit at 1:20 pm.

The first few boxes ranged from 43 to 57 lb in weight. It was decided that 20-minute charging cycles would be used because the boxes were somewhat heavier than expected and no one believed that the boxes should be opened. The target feed rate was changed to about 55 lb every 20 minutes.

Because of the size of the large boxes, it was very difficult to load two in the same charge. The first box ignited and flamed out the door before the second could be pushed through the charging door. (The boxes are 16 in. x 16 in. x 30 in., generally weigh 25 to 50 lb, and must be placed through a waist-high opening about 24 in. x 24 in.) After the first charge, the loads consisted of one large box and two to six smaller boxes to total near the target weight. The smaller boxes could be tossed far enough into the unit to allow charging of the one large box.

After about an hour, the temperatures leveled out around the setpoints. Deviations occurred with each charge but were generally small and brief. After about 3 hours, the primary burners cycled off and on occasionally but the temperature stayed between 1475° and 1525°F. Each time the primary burners cut off, the secondary temperature fell sharply to the 1400° to 1450°F range. Within a few minutes, the primary burners came back on, and the increased airflow caused the secondary chamber temperature to return to the 1600° to 1625°F range.

The unit operated in this pattern until charging was completed at 5:20 (out of waste). There do not appear to be any temperature limitations that would affect the duration of the burn period. The waste bed inside the unit appeared to have good burnout; only a moderate amount of buildup from the 608 lb of waste charged remained. The other possible limitation is the size/weight of the boxes. The amount of variation in the weight of the boxes may cause the individual charges to vary, but attempts were made to maintain the target rate on a per hour basis.

During the period from 1:20 to 5:20 pm, 608 lb of waste were burned (three charges per hour for 4 hours) at an average rate of about 152 lb/hr. During the actual test period, the maximum target rate will be slightly higher. The "reduced rate" test will be conducted with a target rate of about 100 lb/hr. Neither of the pathological waste conditions are believed to present an operational problem.

3.3 PROCESS CONDITIONS DURING TESTING

The primary purpose of this source test was to characterize the uncontrolled emissions from a pathological MWI when both pathological waste and general medical waste are burned. Therefore, all testing was conducted with the unit operating in the "wet-waste" (pathological) mode. Also, this facility is typical of the size and design of many existing units in which pathological wastes are burned.

The incinerator appeared to operate properly throughout all the test runs for all three test conditions. The burnout, however, was visibly good only for the 100 lb/hr pathological waste condition and was very poor for the 160 lb/hr pathological waste condition and the 160 lb/hr medical waste condition.

The incinerator operating parameters monitored during each test run were the charge weight, charge frequency, type of waste, primary and secondary chamber temperatures, actual times the burners and blowers were on, and ash weights. A data logger was used to record all the above parameters except for the charge weight, type of waste, and ash weight, which were manually recorded. Averages for the recorded operating parameters are presented in Table 3-1, and the data sheets documenting the recorded parameters are presented in Appendix B. Figures 3-1 through 3-10 show the temperature profiles for each run. A summary of each test run is given below.

3.3.1 Condition I, Run 1 (Test Run 1)

For this condition, the target operating parameters were a charge of 100 lb/hr of pathological waste in 25-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1900°F. The controller setpoints for the three runs at this condition were: primary chamber burner on/off temperature, 1500°F; primary chamber blower on/off temperature, 1500°F; secondary chamber burner on/off temperature, 1900°F; burndown time, 3 hours.

Thursday, September 20, 1990: The hearth was cleaned and the air ports cleared in preparation for the test. Preheat began at 1:40 p.m., and testing began when the first charge was introduced at 2:00, in keeping with the typical warmup time of this facility. This was also the recommended minimum warmup time by Consumat.

TABLE 3-1. PROCESS DATA SUMMARY FOR EMISSIONS TESTING AT AMI CENTRAL CAROLINA HOSPITAL

Test Run No.	Test Date	Target Test Conditions				Daily Operation (a)						Actual Test Conditions (b)							
		Charge Rate		Charge Type (c)	Charge Freq (min)	Secondary Chamber Setpoint Temp (F)	Preheat time (min)	Charge Time before test (min)	Hours of Charging (hr/d)	Total Waste Charged (lb/d)	Ash (% of Waste Charged)	Charge Rate		Charge Freq (min)	Avg Primary Chamber Temp (F)	Avg Sec. Chamber Temp (F)	Stack Gas Conditions		Avg gas Res. time in Sec Chamb (d) (sec)
		(lb/hr)	(lb/chrg)									(lb/hr)	(lb/chrg)				Flow Rate (acfm)	Avg Temp (F)	
1	9/20/90	100	25	P	15	1900	20	0	4.3	503	4.2	106	36	20	1418	1485	2425	752	0.12
2	9/21/90	160	40	H	15	1600	20	0	6	1016	13.7 (e)	163	41	15	1397	1734	2270	809	0.11
3	9/22/90	100	25	P	15	1900	20	0	4.5	588	3.8	118	45	23	1499	1499	2201	759	0.13
4	9/23/90	160	40	H	15	1600	20	0	6.1	905	19.1 (e)	153	39	15	1555	1576	2383	779	0.11
5	9/24/90	160	40	P	15	1600	20	0	4.1	675	6.7 (e)	169	48	17	1444	1481	2423	746	0.12
6	9/25/90	160	40	P	15	1600	20	0	4.1	697	5.9	144	46	19	1421	1462	2233	725	0.12
7	9/26/90	160	40	H	15	1600	20	0	4.5	769	19.1 (e)	163	41	15	1297	1669	(f)	(f)	(f)
8	9/27/90	160	40	H	15	1600	20	0	4.3	727	18.9 (e)	161	40	15	1458	1691	2383	766	0.11
9	9/28/90	160	40	P	15	1600	20	0	4.8	867	8.9	168	42	15	1445	1523	2556	771	0.11
10	10/2/90	100	25	P	15	1900	20	0	4.3	454	3.8	100	28	17	1445	1474	2272	749	0.12

(a) From start-up until burndown is initiated.

(b) Includes port changes and times for all trains; not just the method 5 trains.

(c) P = Pathological waste and H = Hospital waste.

(d) Residence time is based on the secondary chamber volume of 0.21 m3 (7.5 ft3) and is calculated as follows for Run 1:

$$\text{Res. time, sec} = \frac{(7.5\ \text{ft3})(60\text{s/min})(752+460\text{R})}{(2425\ \text{acfm})(1485+460\text{R})}$$

(e) Ash was wet due to quenching.

(f) Not reported because Run 7 was invalidated.

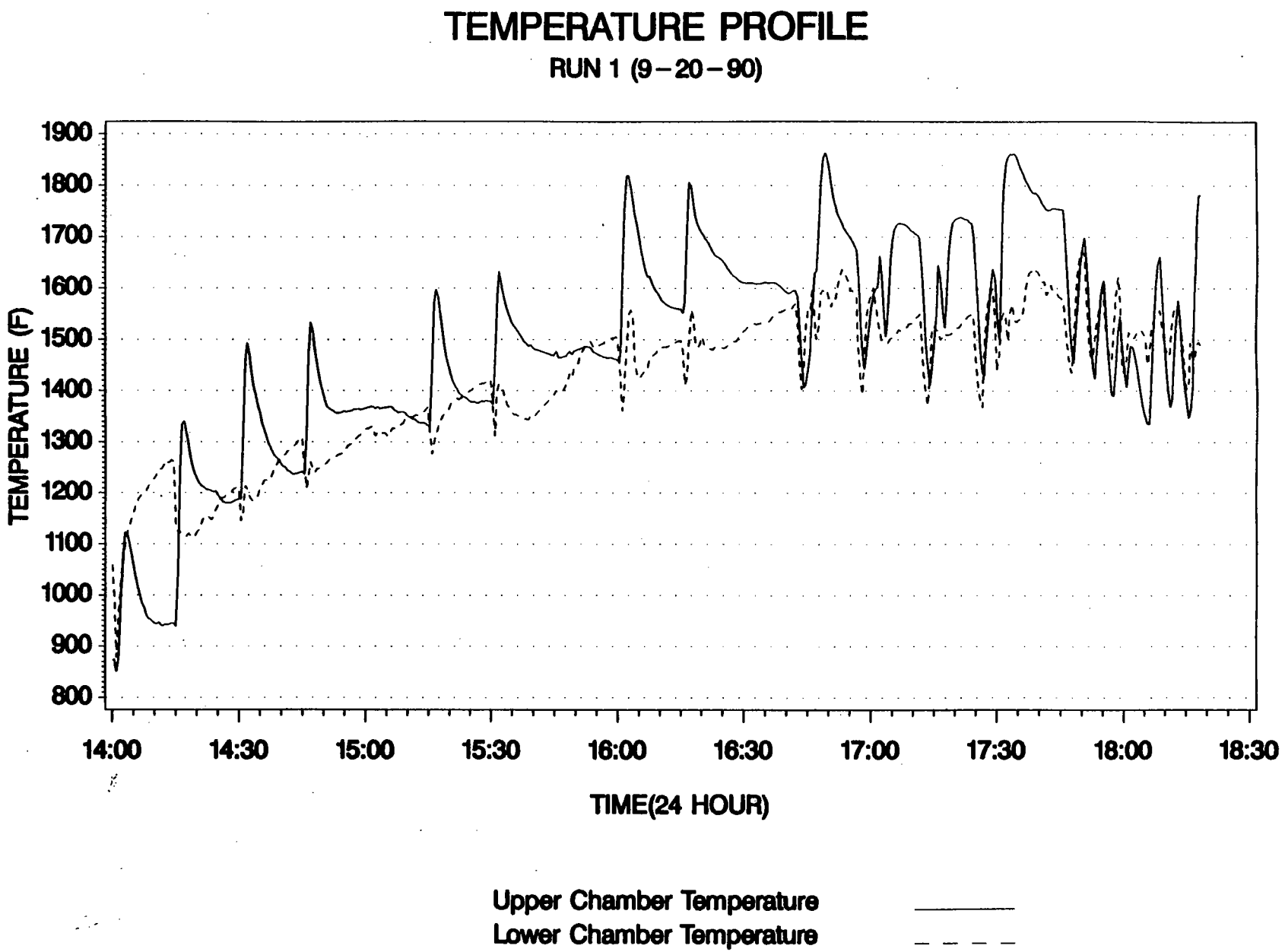


Figure 3-1. Temperature Profile for Run 1

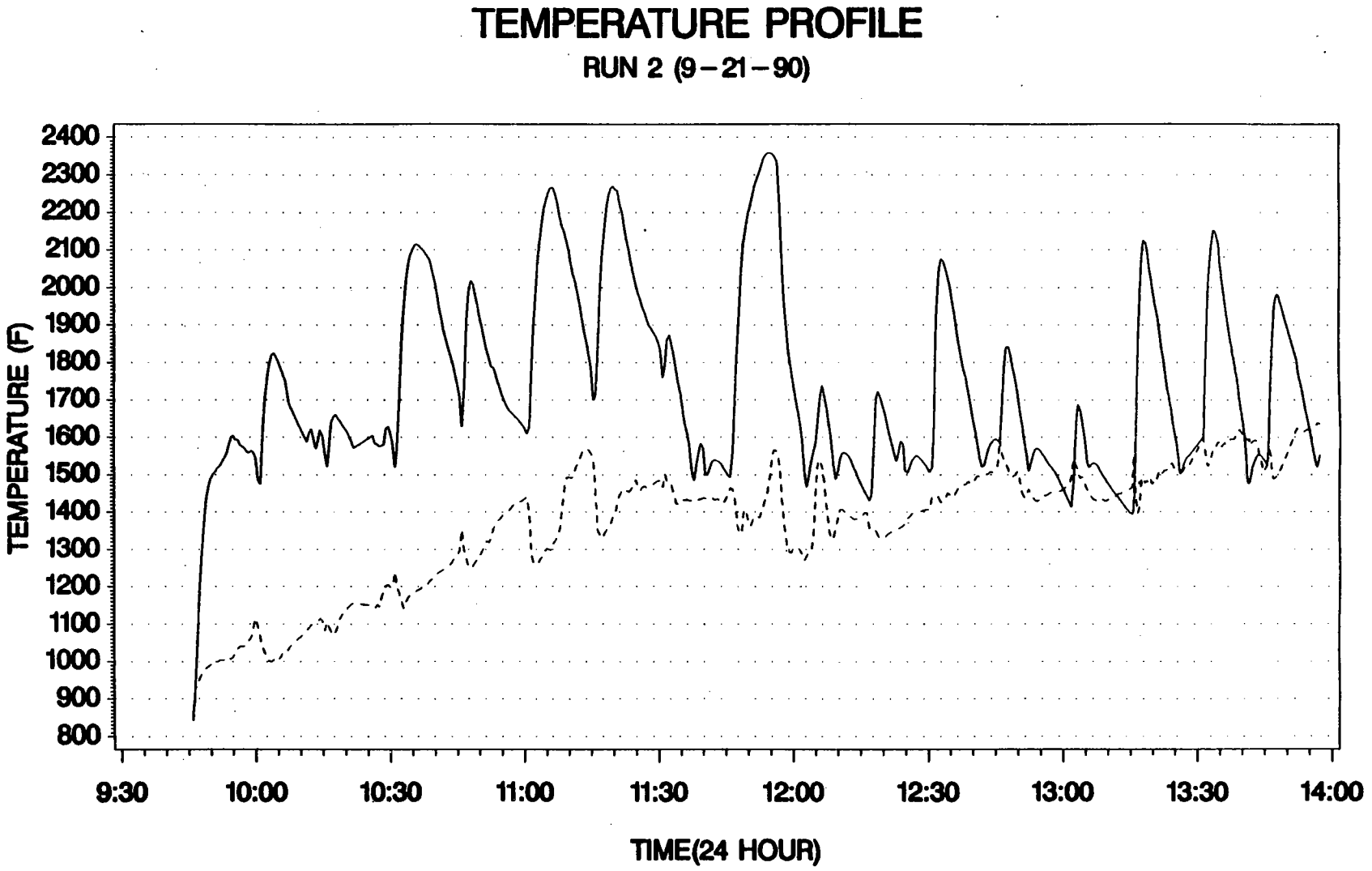


Figure 3-2. Temperature Profile for Run 2

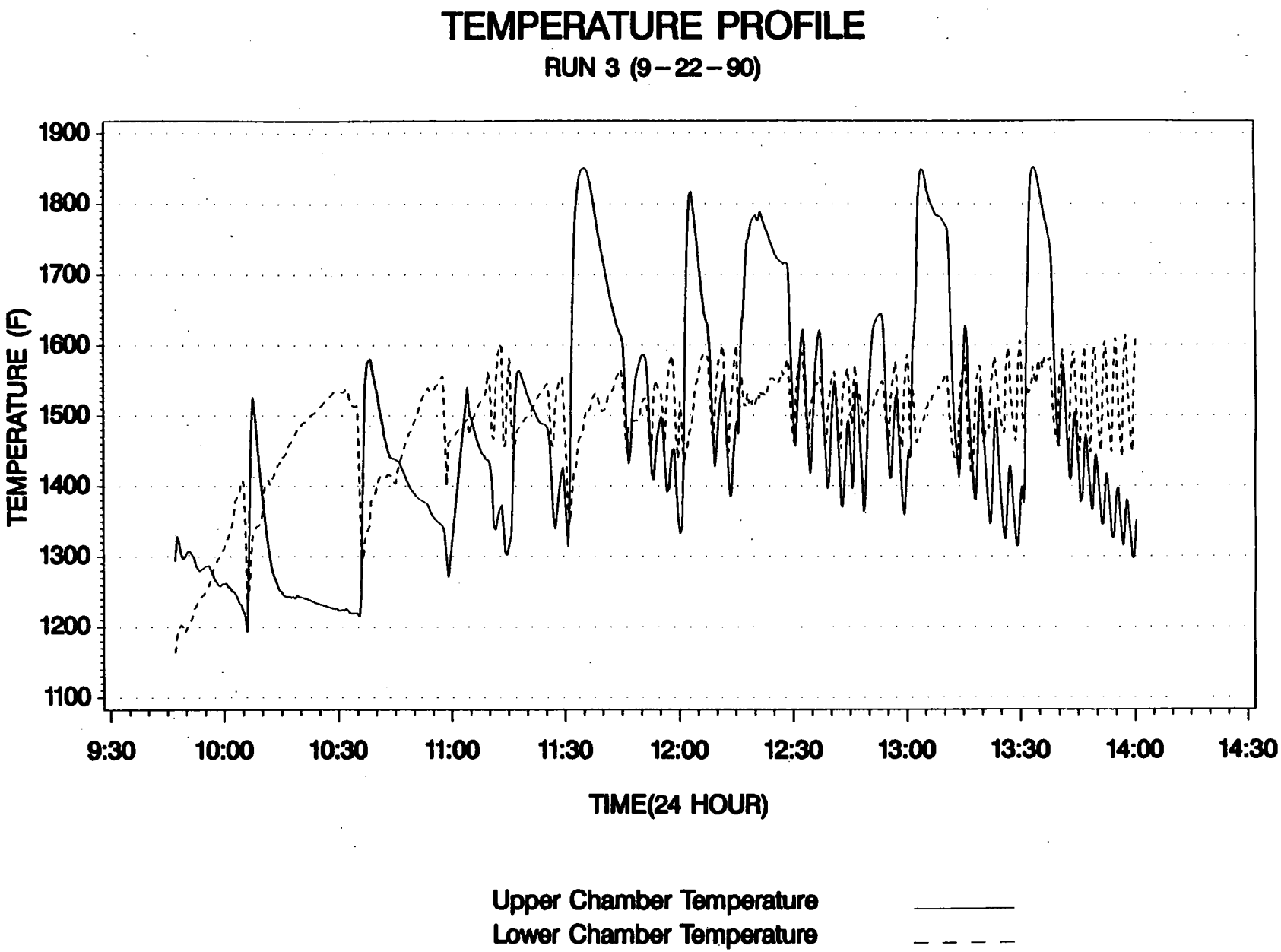


Figure 3-3. Temperature Profile for Run 3

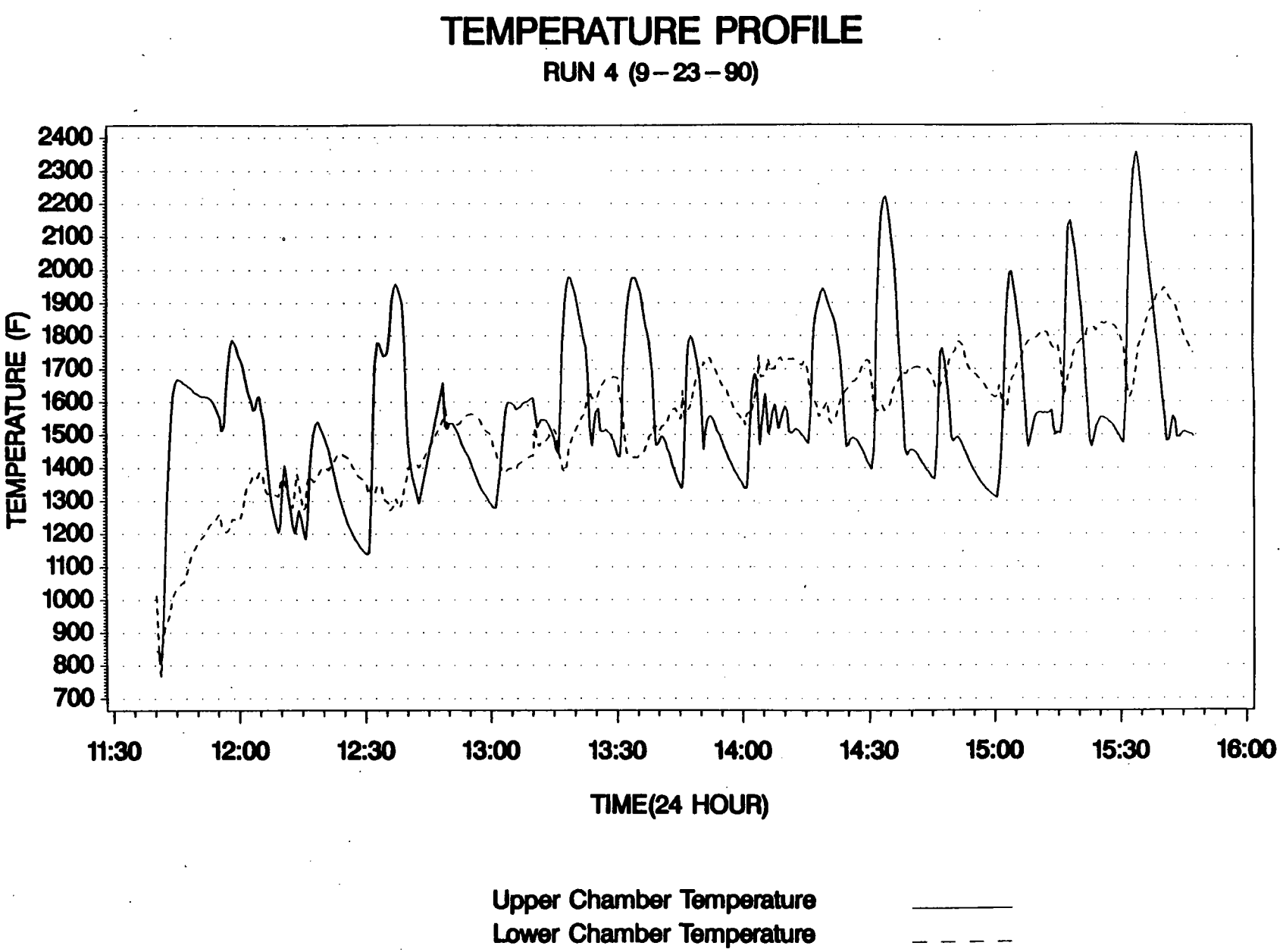


Figure 3-4. Temperature Profile for Run 4

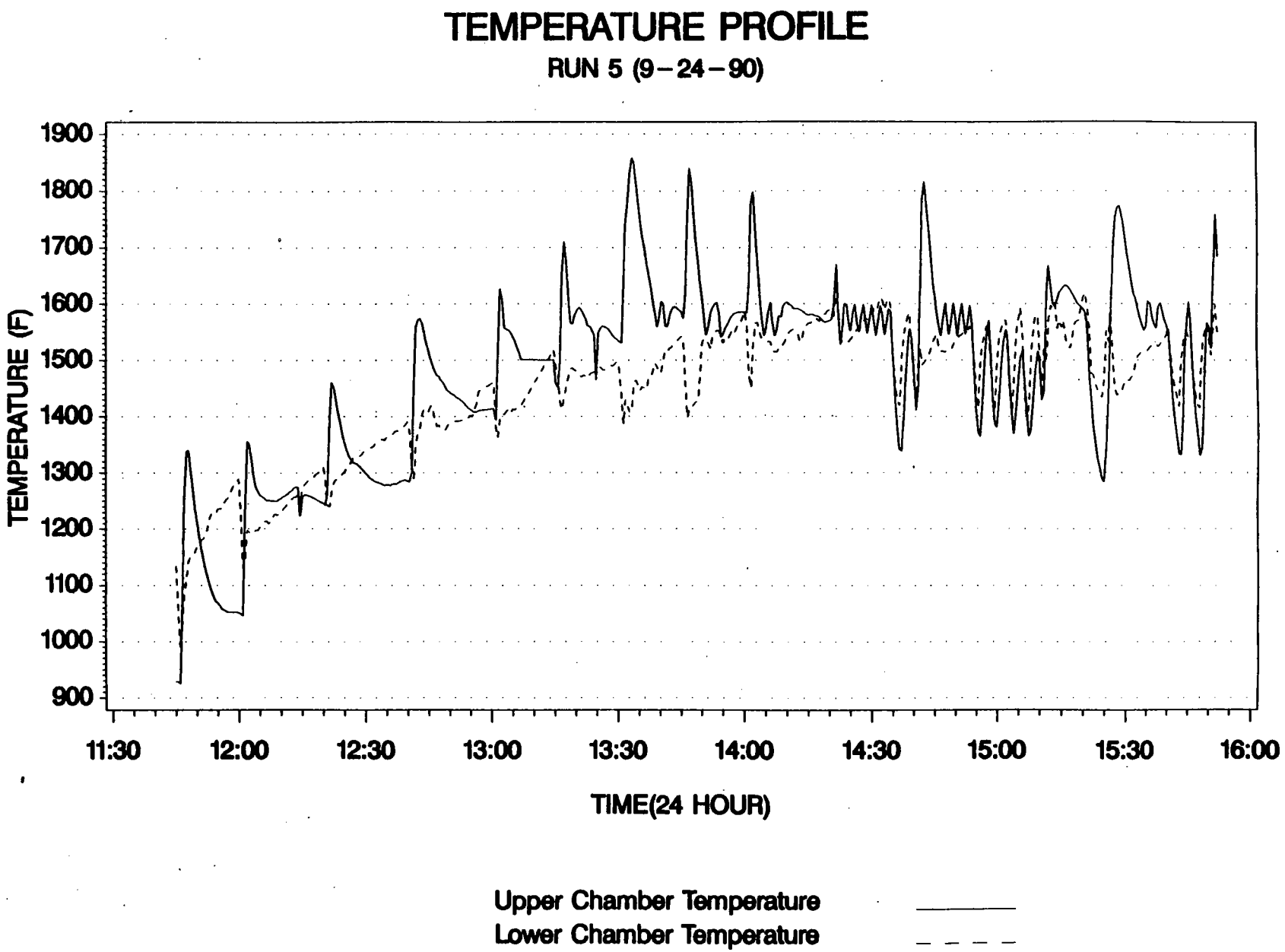


Figure 3-5. Temperature Profile for Run 5

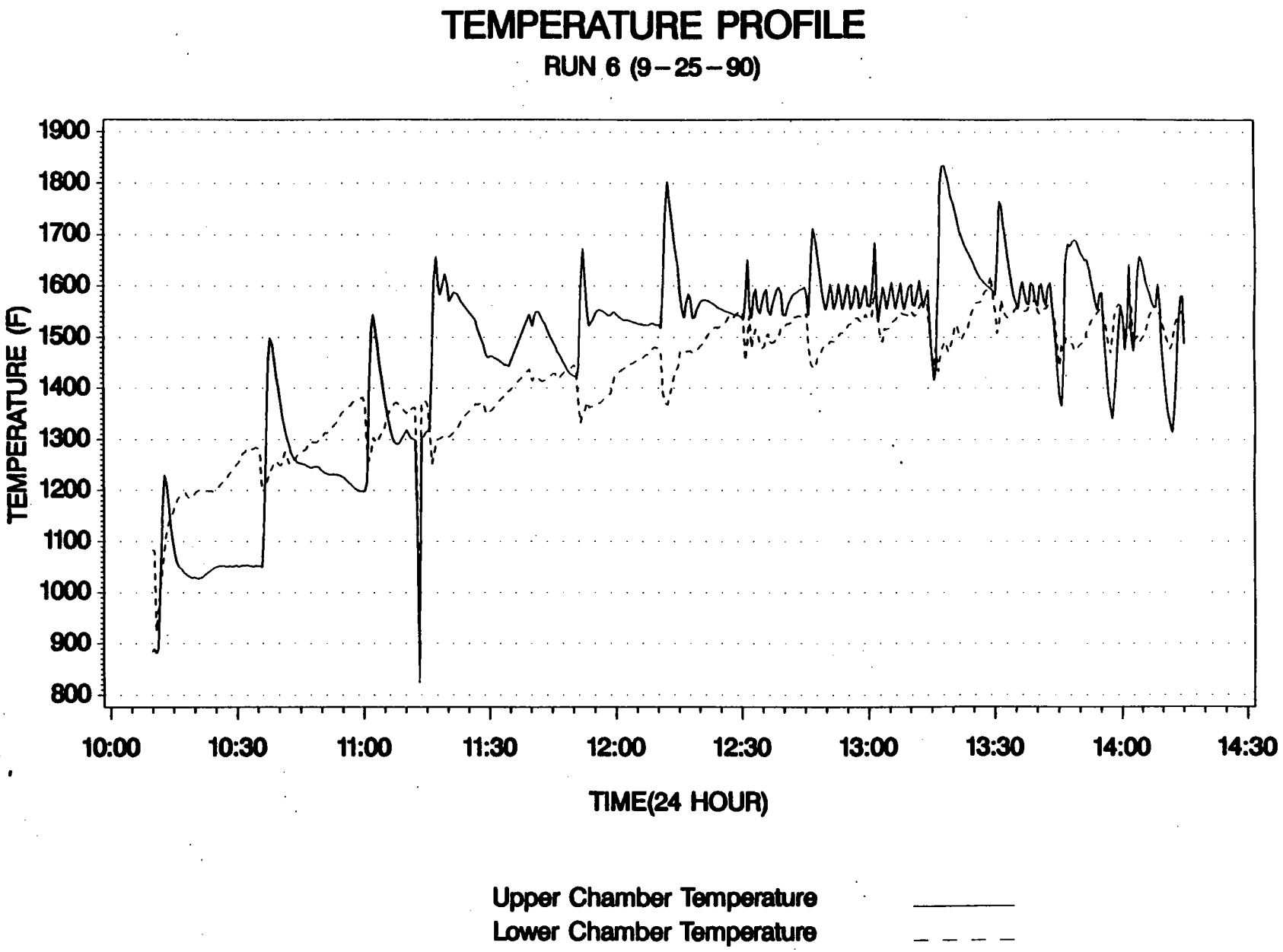


Figure 3-6. Temperature Profile for Run 6

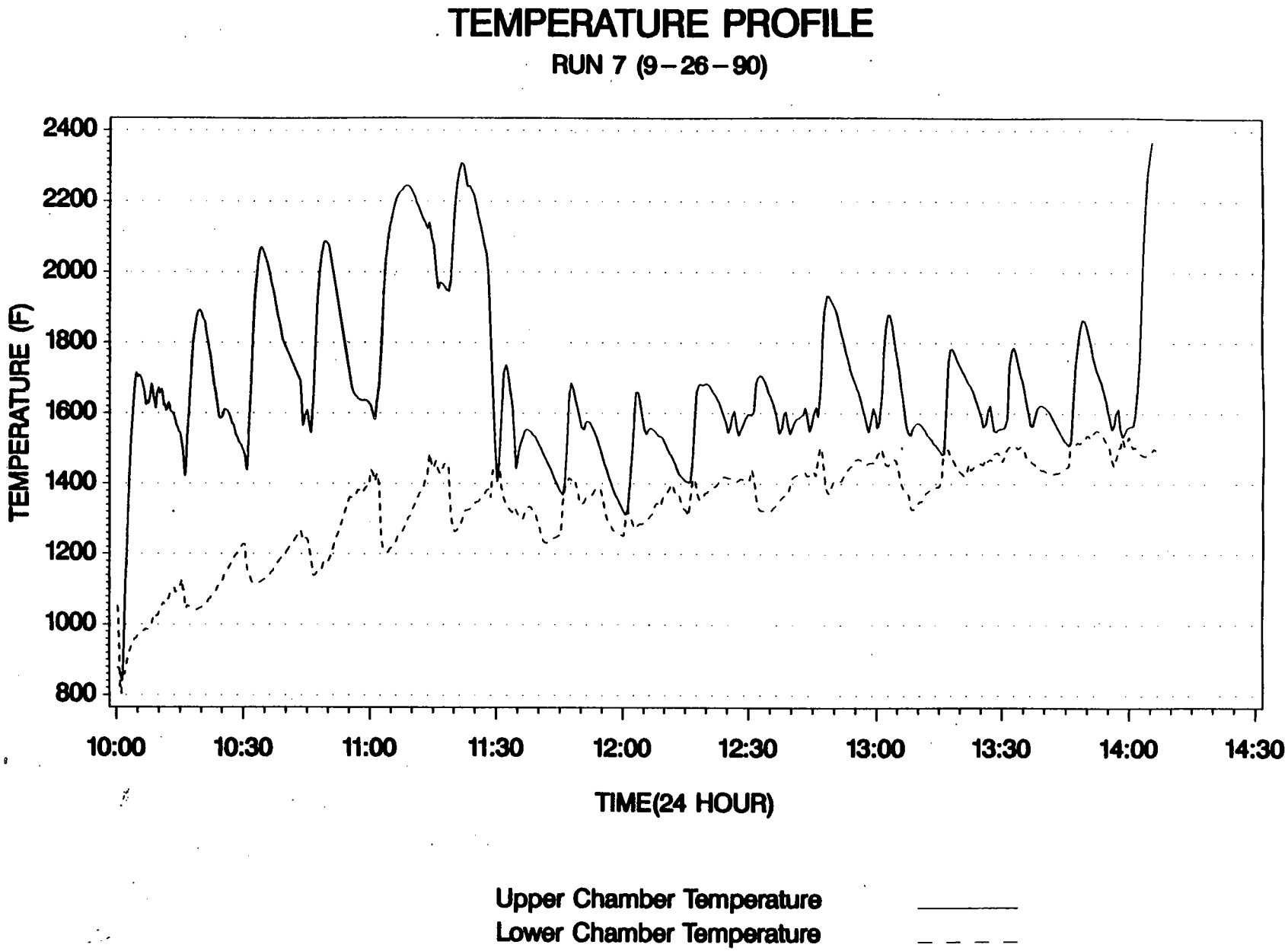


Figure 3-7. Temperature Profile for Run 7

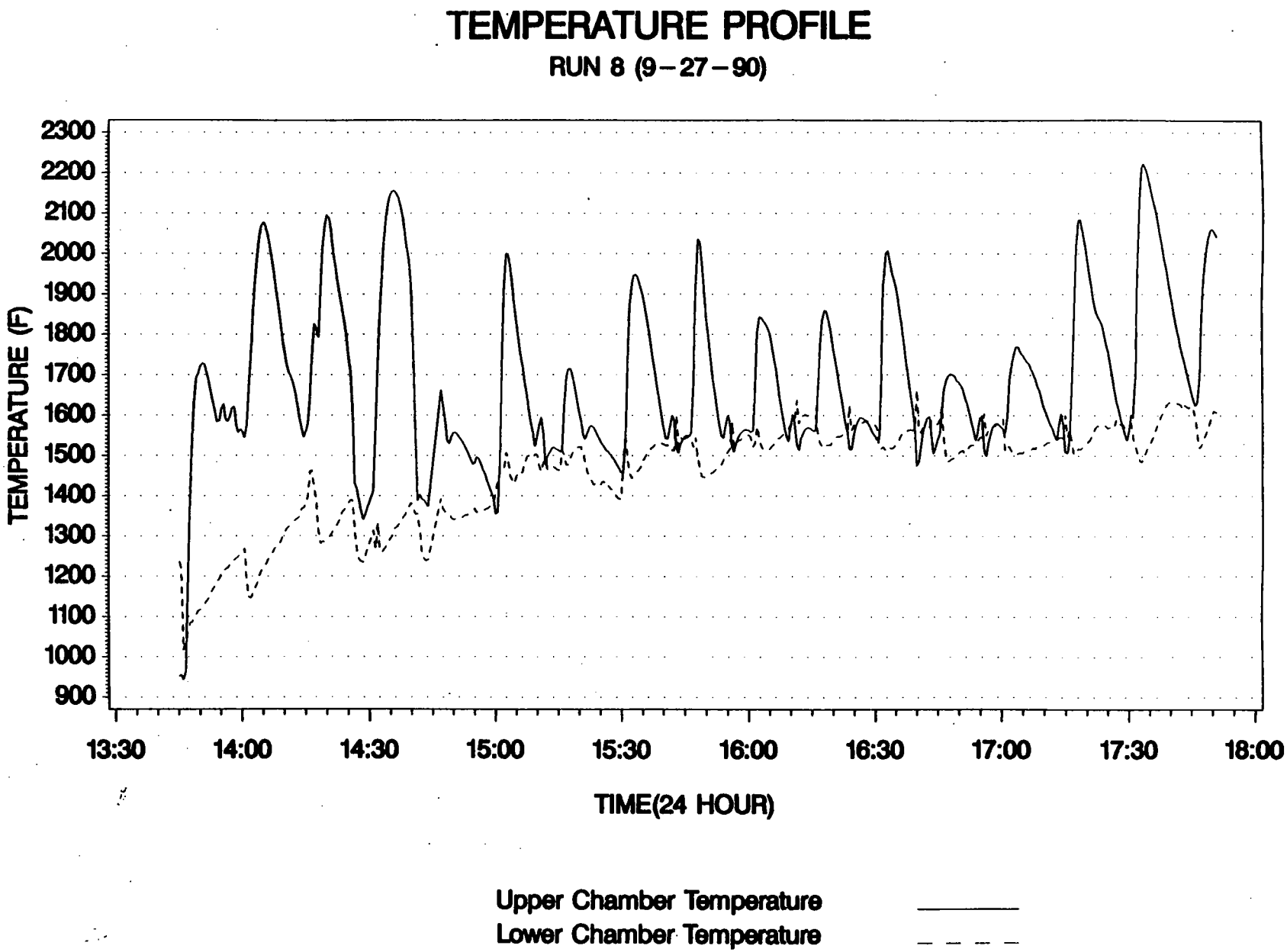


Figure 3-8. Temperature Profile for Run 8

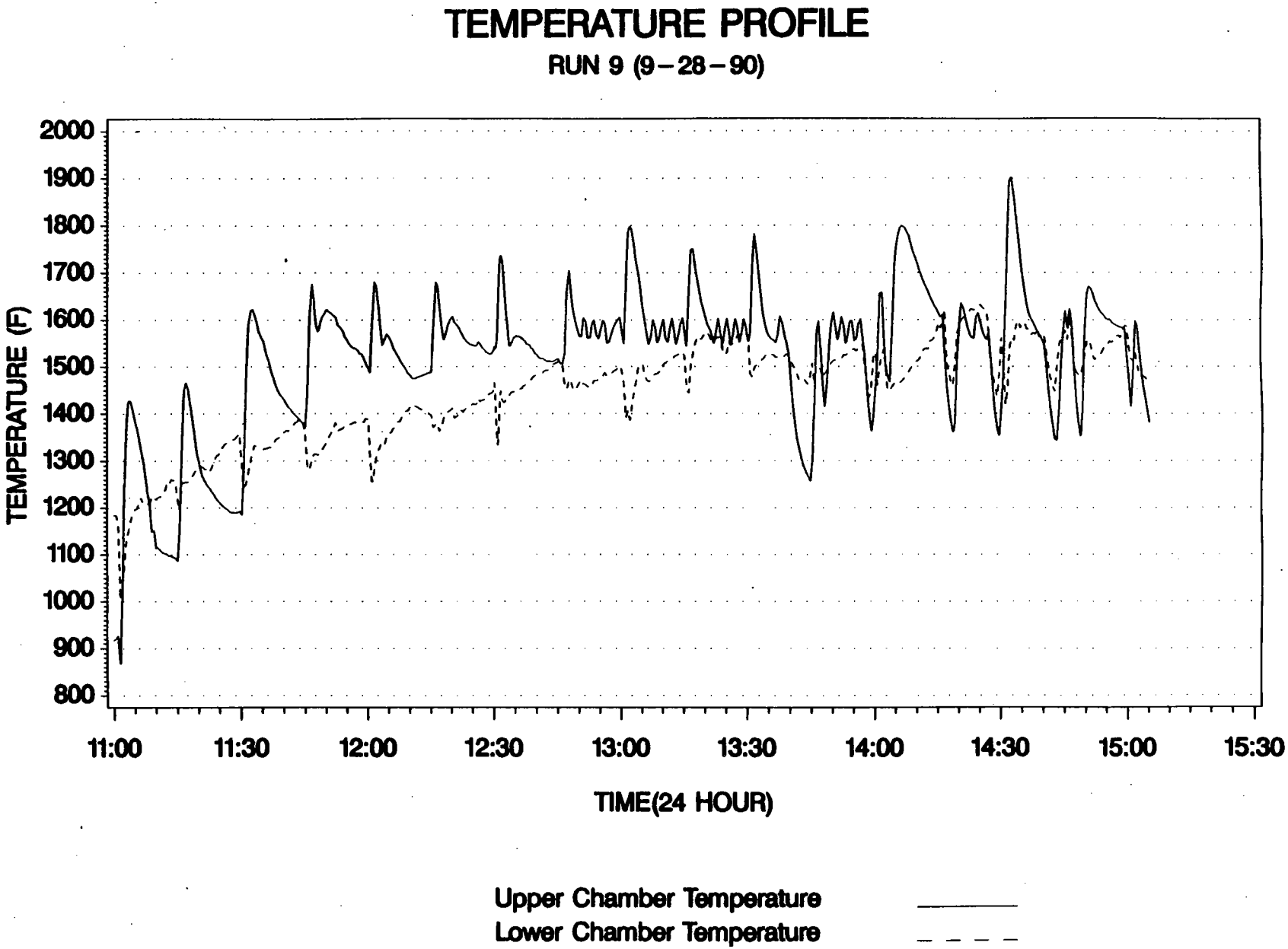


Figure 3-9. Temperature Profile for Run 9

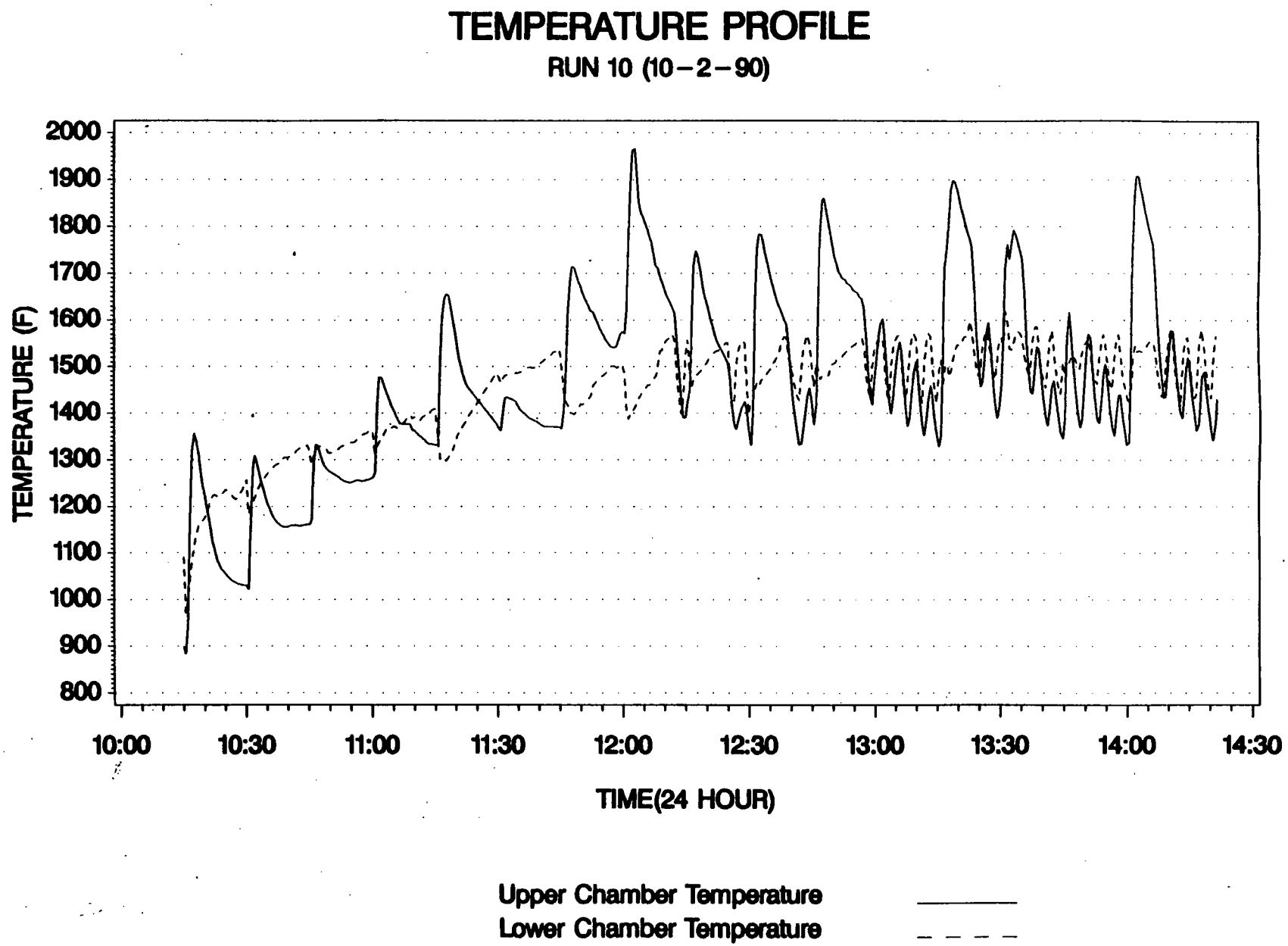


Figure 3-10. Temperature Profile for Run 10

The incinerator ran smoothly with no problems. Because of the weight of the large boxes of pathological waste, the charging frequency had to be varied in order to maintain a charge rate of approximately 100 lb/hr. The primary chamber temperature leveled out at approximately 1500°F at 4:15. After approximately 1 hour of operation, the secondary chamber had reached a temperature of 1500°F and then cycled between a temperature of 1500°F and 1800°F for the remainder of the test. The incinerator secondary chamber temperature approached the setpoint temperature of 1900°F only once, at 5:33, when the temperature reached 1898°F.

The secondary chamber burner appears to be too small to consistently maintain a temperature greater than the primary chamber temperature while burning a low-Btu, high-moisture waste.

The last charge was introduced at 6:15, and testing was completed at 6:20.

The incinerator was opened the following morning (September 21, 1990) at 7:15, with ash cleanout beginning at 8:08 and being completed at 9:05. There was fairly good burnout of the waste, with only a few clumps of smoldering, unburned material. All of the ash was removed.

The total waste charged was 503.4 lb, and the total ash weight was 21.2 lb. The actual feed rate was 106 lb/hr, and the percent burndown was 95.8.

3.3.2 Condition II, Run 1 (Test Run 2)

For this condition, the target operating parameters were a charge of 160 lb/hr of general medical waste (red bag) in 40-lb charges every 15 minutes, with a secondary chamber temperature setpoint of 1600°F. The controller setpoints for these three runs at this condition were: primary chamber burner on/off temperature, 1500°F; primary chamber blower on/off temperature, 1500°F; secondary chamber burner on/off temperature, 1600°F; burndown time, 3 hours.

Friday, September 21, 1990: The hearth was cleaned and the air ports cleared before testing began. Preheat began at 9:25, and testing began with the first charge at 9:45. The incinerator ran smoothly with no major problems. At 11:25, the primary chamber temperature setpoint was changed from 1500°F to 1400°F in order to limit the temperature increase in the secondary chamber just after the charging cycle. With the

primary chamber burners and blower still on just after the charging cycle, the secondary chamber temperature was climbing above 2300°F. At 11:56, the primary chamber temperature setpoint was changed again to 1300°F. After this change, the primary chamber burner remained off for the remainder of the test, and the secondary chamber temperature remained between 1300°F and 2100°F.

Testing was completed at 2:37 pm, and the last charge was introduced at 3:45.

The incinerator was opened the following morning (September 22, 1990) at 6:45, with ash being removed starting at 7:33. There was a large amount of unburned, smoldering material remaining in the incinerator; this material burst into flame upon agitation. The ash bed had to be quenched with water in order to complete the ash removal. Ash removal was completed at 9:12.

The total waste charged was 1,015.8 lb, and the total wet ash weight was 139 lb. The actual feedrate was 162.5 lb/hr.

3.3.3 Condition I, Run 2 (Test Run 3)

The target operating parameters were a charge rate of 100 lb/hr pathological waste in 25-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1900°F.

Saturday, September 22, 1990: The hearth was cleaned and the air ports cleared before testing began. The incinerator was started at 9:25 am and charging as well as testing began at 9:45. The charging periods varied from 15 to 30 minutes because of the weight of the large boxes of pathological waste.

The incinerator ran smoothly with no problems. The primary chamber temperature leveled out at 1500°F, and the secondary chamber temperature remained fairly low, only climbing above 1900°F twice at 2:05 and 2:35 pm. The last charge was introduced at 2:30 and testing was completed at 2:40.

The incinerator was opened the following morning (Sunday, September 23, 1990) at 9:20, and there was a small amount of unburned material in the ash bed. Ash removal started at 10:01 and was completed at 11:07. All of the ash was removed.

The total waste charged was 588.3 lb, and the total ash weight was 22.4 lb. The actual feed rate was 112.1 lb/hr, with a 96.2 percent burndown.

3.3.4 Condition II, Run 2 (Test Run 4)

The target operating parameters were a charge rate of 160 lb/hr of general medical waste (red bag) in 40-lb charges every 15 minutes, with a secondary chamber temperature setpoint of 1600°F.

Sunday, September 23, 1990: The ash removal door handle was broken during the ash removal. It had broken during ash removal several times in the past, according to the operator, and another handle latch pin had been welded on. The maintenance crew was not working that day, so the ash door was closed and a wedge was driven into the latching mechanism to hold the door closed tightly. The incinerator was started at 11:20 am, and charging as well as testing began at 11:40. The incinerator appeared to operate smoothly throughout the test, with the exception of the smoking from the stack. There was a constant stream of brown smoke, occasionally changing to dense, black smoke, coming from the stack throughout the test. Because there appeared to be much more smoke than in the previous medical waste test, the incinerator was inspected to determine if everything was operating properly. Everything appeared normal, and the wedge on the ash door was driven in tighter, but the smoking continued. The temperature in the primary chamber during this test run climbed to over 1900°F before the test was completed. During the other medical waste test runs, the primary chamber only reached a temperature of between 1500°F and 1600°F. The testing was completed at 3:54 pm, and the last charge was introduced at 5:45. It was decided to continue burning red bag waste after the testing had been completed in order to dispose of some of the red bag waste in the storage room. The process conditions were maintained during this time.

The incinerator was opened the following morning (September 24, 1990) at 8:28, and there were flaming and smoldering patches of unburned waste in the ash bed. Ash removal started at 8:58 and was completed at 9:31. The waste bed had to be quenched with water in order to complete the ash cleanout.

The total waste charged was 905.3 lb, and the total wet ash weight was 172.7 lb. The actual charge rate was 142.9 lb/hr.

3.3.5 Condition III, Run 1 (Test Run 5)

The target operating parameters were a charge feed rate of 160 lb/hr of pathological waste in 40-lb charges every 15 minutes, with a secondary chamber temperature setpoint of 1600°F. The controller setpoints for the three runs at this condition were: primary chamber burner on/off temperature, 1500°F; primary chamber burner on/off temperature, 1500°F; secondary chamber burner on/off temperature, 1600°F; burndown time, 3 hours.

Monday, September 24, 1990: After the hearth was cleaned and the air ports cleared, the maintenance personnel attempted to fix the ash door handle. They were not able to fix the door handle until a latch pin could be obtained, so a large C-clamp was used to clamp the door closed tightly. This method, which was more effective at sealing the ash door than the original handle, was used for the remainder of the tests.

The incinerator was started at 11:25, and charging as well as testing was started at 11:45. The incinerator ran smoothly with no problems throughout the test. The primary chamber temperature leveled out at around 1500°F, and the secondary chamber temperature alternated between 1400°F and 1700°F. The secondary chamber reached a temperature greater than 1800°F only twice during the test, at 1:47 and at 2:02. Testing was completed at 3:45, and the last charge was introduced at 3:50.

The incinerator was opened the following morning (September 25, 1990) at 8:38, and a large mound of smoldering, unburned waste remained. Cleanout was started at 8:18 and completed at 9:41. There were recognizable remnants of the pathological waste in the center of the waste bed. Burnout, which was fairly good on the 100 lb/hr pathological waste condition, appeared to be very poor on the 160 lb/hr pathological waste condition. Upon agitation, some of the waste burst into flame and had to be quenched with water.

The total waste charged was 674.6 lb, and the total wet ash weight was 45.1 lb. The actual charge rate was 150 lb/hr.

3.3.6 Condition III, Run 2 (Test Run 6)

The target operating parameters were a charge rate of 160 lb/hr of pathological waste in 40-lb charges every 15 minutes, with a secondary chamber temperature setpoint of 1600°F.

Tuesday, September 25, 1990: After the hearth was cleaned and the air ports cleared, the incinerator was started at 9:50 am. Charging as well as testing began at 10:10. The incinerator operated properly with no problems throughout the test. Testing was completed at 2:15, and the last charge was introduced at that time.

The incinerator was opened the following morning (September 26, 1990) and a large amount of smoldering, unburned waste remained. Cleanout was started at 8:54 and completed at 9:27. There were, again, recognizable remnants of the pathological waste in the center of the waste bed. Burnout was very poor.

The total waste charged was 697.2 lb, and the total ash weight was 41.4 lb. The actual charge rate was 156.7 lb/hr, with a 94.1 percent burndown.

3.3.7 Condition II, Run 3 (Test Run 7)

The target operating parameters were a charge rate of 160 lb/hr of hospital waste in 40-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1600°F.

Wednesday, September 26, 1990: The hearth was cleaned and the air ports cleared before testing began. The incinerator was started at 9:40 am, and charging as well as testing began at 10:00. The incinerator operated smoothly throughout the test with no apparent problems. There was occasionally some smoke from the stack, while Run 2 at this condition smoked almost constantly. There was, however, during this run a 7-minute period when heavy smoke emerged from the stack after a large bag of plastic sharps containers had been charged.

A thermocouple sealed inside a pipe was placed in the suspected cold spot of the incinerator to give a continuous readout of the temperature inside the waste bed. The temperature within the pipe climbed from 119°F to 1245°F in approximately 1.5 hours and then started to decline. Within 1 hour, the temperature had dropped to 424°F and within another hour stabilized around 220°F. The temperature in the primary chamber at this time was approximately 1400°F.

Testing was completed at 2:06, and the last charge was introduced at 2:30. At the end of the test, it was discovered that the dioxin sampling probe had broken.

The incinerator was opened the following morning (September 27, 1990) and a large amount of burning waste remained. Ash cleanout started at 9:56 and was completed at 11:45. The waste bed had to be quenched with water in order to complete the cleanout.

The total waste charged was 769.4 lb, and the total wet ash weight was 146.7 lb. The actual charge rate was 162 lb/hr.

3.3.8 Condition II, Run 4 (Test Run 8)

The target operating parameters were a charge rate of 160 lb/hr of hospital waste in 40-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1600°F.

Thursday, September 27, 1990: The hearth was cleaned and the air ports cleared before testing began. The incinerator was started at 11:20, but the secondary chamber burner was flaming out every few seconds. The igniter and the pilot were taken out and cleaned, and the unit was started again at 1:25. Everything appeared to be working properly, so charging as well as testing began at 1:45. The pipe with the thermocouple was placed in the center of the hearth in the line of fire of the primary burners. The pipe heated to 1500°F very quickly and then started to cool as the height of the waste bed was slowly increasing. At the end of the test, the pipe temperature was approximately 440°F, and the primary chamber temperature was approximately 1500°F. The incinerator ran properly throughout the test with no problems. Testing was completed at 5:56, and the last charge was introduced at 6:00.

The incinerator was opened the following morning (September 28, 1990) at 9:03, and a large smoldering and burning mound of ashes and unburned waste remained. Ash removal started at 9:30 and was completed at 10:30. The waste bed had to be quenched with water in order to complete the cleanout.

The total waste charged was 727.3 lb, and the total wet ash weight was 137.3 lb. The actual charge rate was 161.6 lb/hr.

3.3.9 Condition III, Run 3 (Test Run 9)

The target operating parameters were a charge rate of 160 lb/hr of pathological waste in 40-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1600°F.

Friday, September 28, 1990: The hearth was cleaned and the air ports cleared before testing began. The incinerator was started at 10:40, and charging as well as testing began at 11:00. The incinerator operated smoothly with no apparent problems throughout the test. The pipe thermocouple temperature climbed rapidly to 1400°F and then dropped slowly throughout the test as the waste bed depth increased. At the end of the test, the pipe temperature was 685°F, while the primary chamber temperature was 1500°F. Testing was completed at 3:05, and the last charge was introduced at 3:55.

The incinerator was opened the following morning (September 29, 1990) at 9:20, and there was a large mound of black, smoldering, unburned waste. Cleanout began at 9:45 and was completed at 10:56. Once again, many recognizable unburned items were found.

The total waste charged was 867 lb, and the total ash weight was 77 lb. The actual charge rate was 165.1 lb/hr, with a 91.1 percent burndown.

3.3.10 Condition I, Run 3 (Test Run 10)

The target operating parameters were a charge rate of 100 lb/hr of pathological waste in 25-lb charges every 15 minutes and a secondary chamber temperature setpoint of 1900°F.

Tuesday, October 2, 1990: The hearth was cleaned and the air ports cleared before testing began. The incinerator was started at 9:55, and then it was discovered that the temperature indicator pipe had not been placed in the incinerator. The incinerator was shut down at 10:01, the pipe was placed on the hearth, and the incinerator was restarted at 10:03. The first charge was introduced at 10:15, and testing began. The indicator pipe temperature climbed rapidly to 1600°F and then fell slowly to approximately 800°F at the end of the test. The primary chamber temperature was approximately 1500°F at the end of the test. The incinerator ran smoothly with no apparent problems throughout the test. Testing was completed at 2:21, and the last charge was introduced at 2:30.

The incinerator was opened the following morning (October 3, 1990) at 9:25, and there was one small smoldering mass of unburned material in the ash bed. Burnout appeared to be very good.

The total waste charged was 453.3 lb, and the total ash weight was 17.2 lb. The actual charge rate was 100.8 lb/hr, with a 96.2 percent burndown.

4. SAMPLE LOCATIONS

The sampling locations used during the emission testing program at the AMI Central Carolina Hospital MWI are described in this section. Flue gas samples are collected at the exhaust stack using three sets of ports.

The exhaust stack at this facility has a 22-inch steel shell with refractory lining. The inside diameter of the refractory lining is about 18 inches. The existing stack is approximately 8 feet in height above the secondary chamber.

An unlined steel stack extension was fabricated for temporary installation at the top of the existing stack. The extension was 18 inches in diameter and 16 feet high. Three sets of test ports were provided as shown in Figure 4-1. The lower set of ports were used for the CEM, HCl/CEM, and manual HCl tests. The center set of ports were used for CDD/CDF and PM/Metals testing. The upper ports were used for microorganism sampling. The two upper sets of ports were aligned with each other in the vertical plane, while the lowest set was offset by 45° to prevent flow disturbances. The test ports were located in an ideal location according to EPA Method 1. There are at least two stack diameters of undisturbed flow downstream of the ports, and greater than eight diameters of undisturbed flow upstream of the ports. (NOTE: CDD/CDF and metals sampling probes are not treated as upstream disturbances for the upper set of ports.)

The number of traverse points required for CDD/CDF, PM/metals, and Microbial sampling is eight. Four points on each of two diameters were used as shown in Figure 4-2.

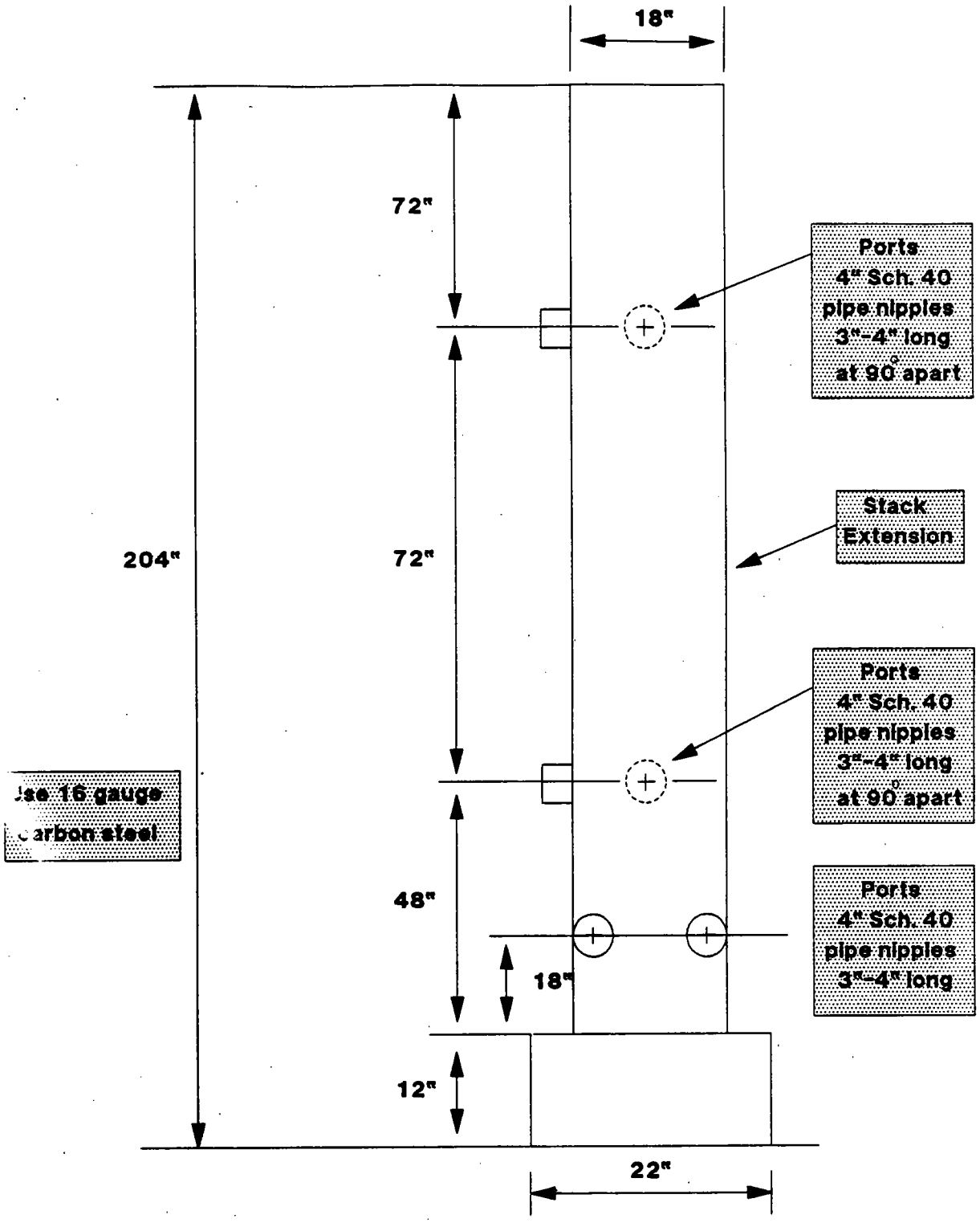
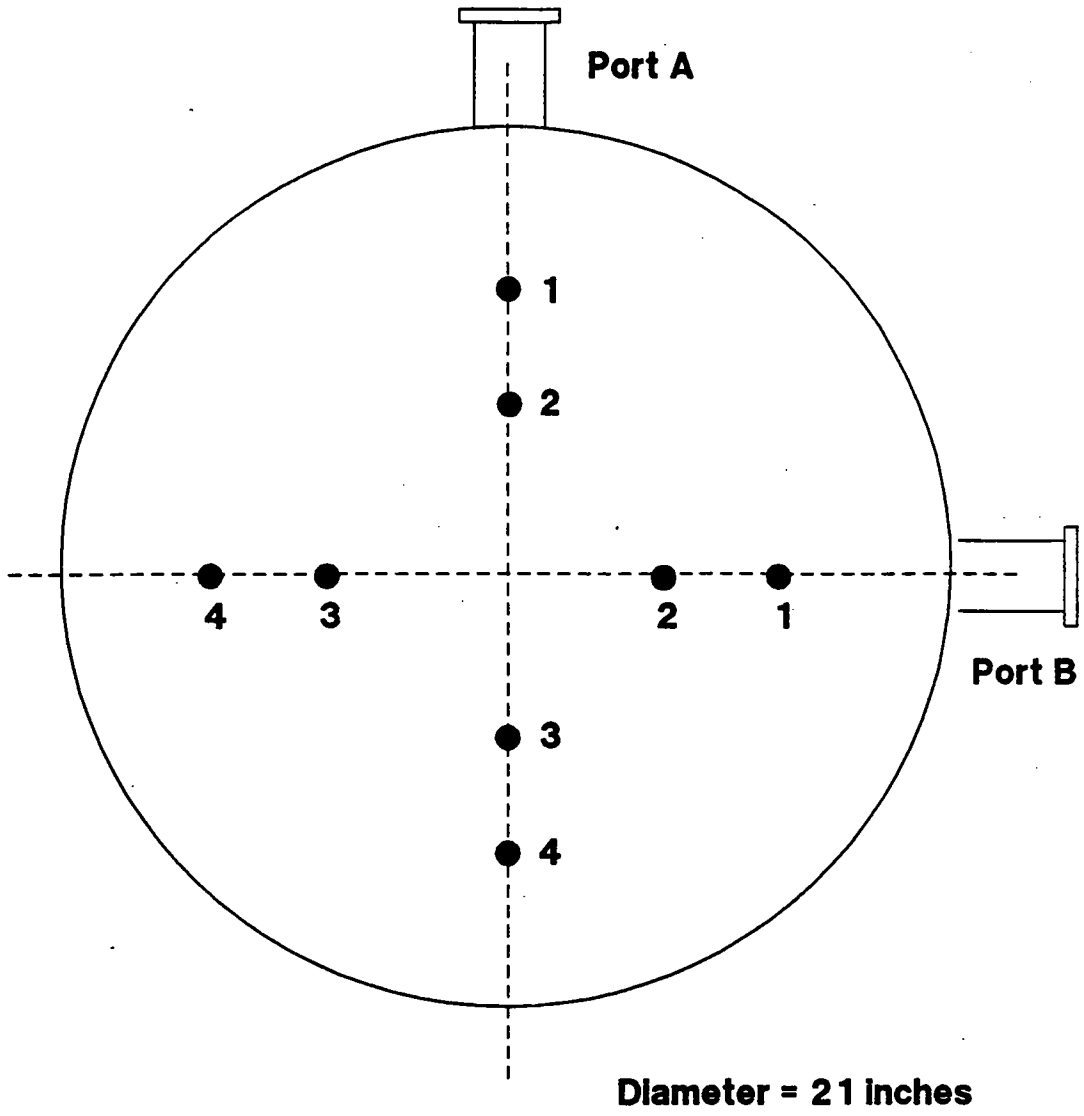


Figure 4-1. AMI Central Carolina Hospital Stack Extension Specifications



Point	Percent of Diameter	Inches from Inside Wall
1	6.7	1.2
2	25.0	4.5
3	75.0	13.5
4	93.3	16.8

Figure 4-2. Traverse Point Layout at the Exhaust Stack

5. SAMPLING AND ANALYTICAL PROCEDURES BY ANALYTE

The sampling and analytical procedures used for the Central Carolina Hospital MWI test program are the most recent revisions of the published EPA methods. Where published methods are not available, state-of-the-art sampling and analytical methods are used. In this section, descriptions of each sampling and analytical method by analyte are provided.

A summary of the sampling methods that are used is included in Table 5-1. Sampling times, minimum sampling volumes, and detection limits are summarized for the manual sampling methods in Table 5-2.

5.1 CDD/CDF EMISSIONS TESTING METHOD

The sampling and analytical method for determining flue gas emissions of CDD/CDF is EPA Proposed Method 23. This methodology is a combination of the American Society of Mechanical Engineers (ASME) 1984 draft protocol and the EPA Method 8290. The analytical method is designated as Method 8290X by Triangle Laboratories, Inc., Research Triangle Park, North Carolina, who performed the analyses. (Because of proprietary reasons, Triangle Laboratories has requested that a copy of their standard operating procedures not be included in this test plan.)

5.1.1 CDD/CDF Sampling Equipment

The CDD/CDF sampling method uses the sampling train shown in Figure 5-1. Basically, the sampling system is similar to a Method 5 train with the exception of the following:

- Uses all components (quartz probe/nozzle liner, all other glassware, filters) which are pre-cleaned using solvent rinses and extraction techniques; and
- Uses a condensing coil and XAD-II® resin absorption module located between the filter and impinger train.

All sampling equipment specifications are detailed in the reference method shown in Appendix A.1 of the test plan.

TABLE 5-1. PROPOSED TEST METHODS AMI CENTRAL CAROLINA HOSPITAL MWI

Analyte	Method
CDD/CDF	EPA Proposed Method 23 with GC/MS Method 8290
Particulates	EPA/EMSL Multimetals Train
Lead	
Mercury	
Arsenic	
Nickel	
Cadmium	
Chromium	
Beryllium	
Antimony	
Barium	
Silver	
Thallium	
SO_2	EPA Instrument Methods 6C
O_2/CO_2	3A
CO	10
NO_x	7E
THC	25A/18
HCl	NDIR CEM Analyzer
HCl	EPA Draft Method 26
HBr	EPA Draft Method 26
HF	EPA Draft Method 26
Microorganisms in Emissions	EPA Draft Method "Microbial Survivability Tests for MWI Emissions"
Microorganisms in Pipe Test and Direct Ash Test	EPA Draft Method "Microbial Survivability Tests for MWI Ash"
Opacity	EPA Method 9
Loss On Ignition	Standard Methods of Water & Wastes 209G
Carbon	ASTM D 3178-84

TABLE 5-2. PROPOSED SAMPLING TIMES, MINIMUM SAMPLING VOLUMES AND DETECTION LIMITS FOR THE AMI CENTRAL CAROLINA HOSPITAL MWI TESTS

Sampling Train	Sampling Time (hours)	Minimum Sample Volume (dscf)	Analyte	Detection Limit	
				Flue Gas	Analytical
CDD/CDF	4[a]	120	CDD/CDF	0.3 ng/dscm	0.01 ng
PM/Metals	4[a]	120	PM	0.006 gr/dscf	50-100 mg[e]
			As	0.3 μg/dscm	0.002 μg/ml
			Cd	0.6 μg/dscm	0.006 μg/ml
			Cr	1.6 μg/dscm	0.015 μg/ml
			Pb	0.2 μg/dscm	0.002 μg/ml
			Hg	25 μg/dscm	0.25 μg/ml
			Ni	1.6 μg/dscm	0.015 μg/ml
			Be	0.3 μg/dscm	0.0003 μg/ml
			Ba	0.2 μg/dscm	0.002 μg/ml
			Sb	3.3 μg/dscm	0.032 μg/ml
			Ag	0.71 μg/dscm	0.007 μg/ml
			Tl	4.2 μg/dscm	0.040 μg/ml
HCl/HBr/HF	1.0	120 liters[b]	Cl^-	28 μg/dscm	0.11 μg/ml
			Br^-	32 μg/dscm	0.127 μg/ml
			F^-	100 μg/dscm	0.40[c] μg/ml
Microorganisms	3.2	30	Indicator spores[d]	30 viable spores[c] / dscm	1 viable spores / aliquot

[a] An average sampling rate of 0.5 ft^3/min was used to calculate sampling time.
[b] An average sampling rate of 2 liters/min was used to calculate the sample volume.
[c] Detection limit based on 100 ml aliquot. Method is still under development. Actual limit may vary.
[d] The indicator spore will be Bacillus stearothermophilus. (only 1 l)
[e] Based on average detection limits for tetra-octa CDD/CDF congeners.

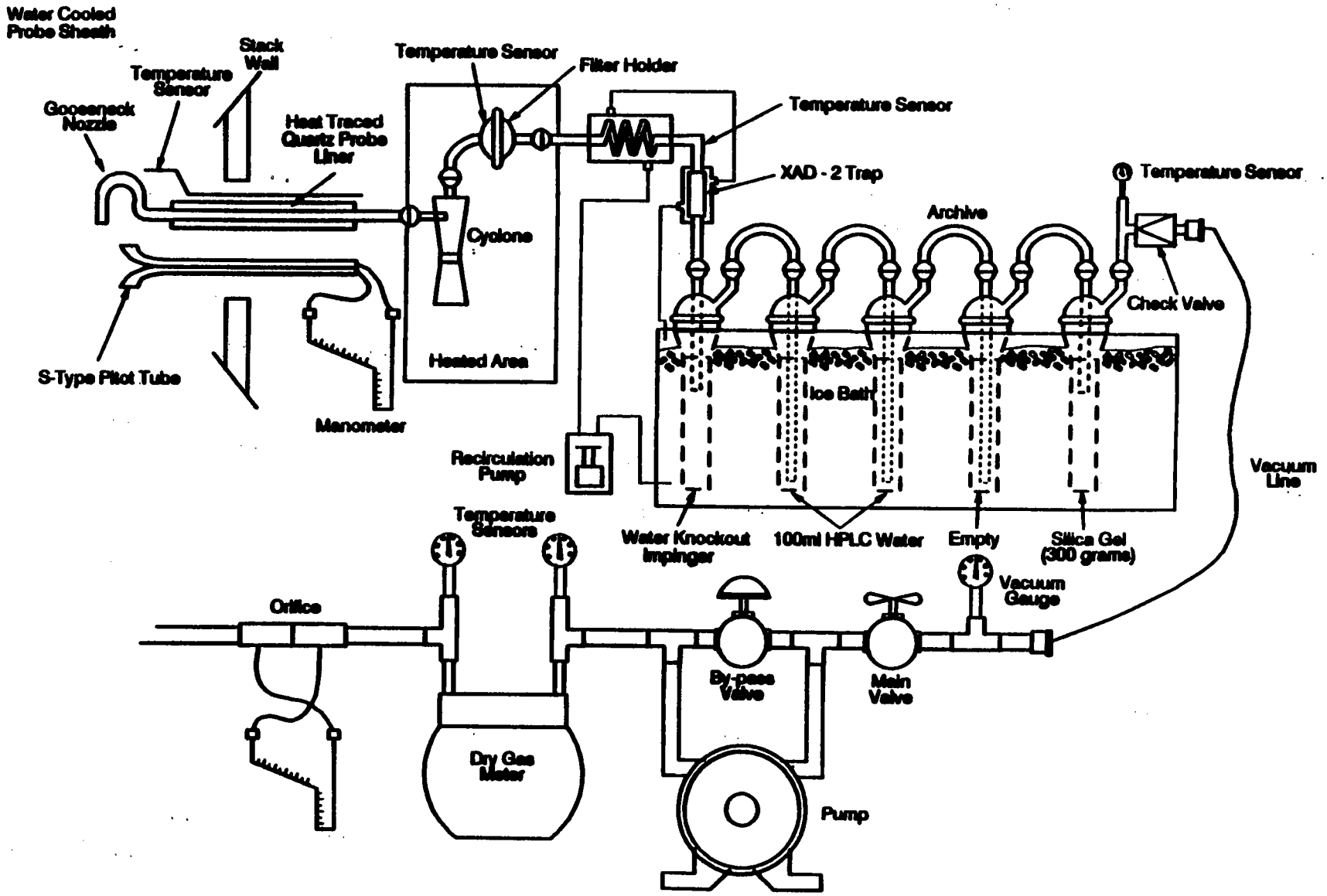


Figure 5-1. CDD/CDF Sampling Train Configuration

5.1.2 CDD/CDF Equipment Preparation

In addition to the standard EPA Method 5 requirements, the CDD/CDF sampling method includes several unique preparation steps which ensure that the sampling train components are not contaminated with organics that may interfere with analysis. The glassware, glass fiber filters, and absorbing resin are cleaned and the filters and resin are checked for residuals before they are packed.

5.1.2.1 Glassware Preparation. Glassware is cleaned as shown in Table 5-3. Glassware is washed in soapy water, rinsed with distilled water, baked, and then rinsed with acetone followed by methylene chloride. Clean glassware is allowed to dry under a hood loosely covered with foil to prevent laboratory contamination. Once the glassware is dry, the air-exposed ends are sealed with methylene chloride-rinsed aluminum foil. All the glass components of the sampling train (including the glass nozzles) plus any sample bottles, flasks, petri dishes, graduated cylinders, and pipets that are used during sampling and recovery will be cleaned according to this procedure. Non-glass components (such as the Teflon®-coated filter screens and seals, tweezers, Teflon® squeeze bottles, nylon probe brushes, and nylon nozzle brushes) are cleaned following the same procedure except that no baking is performed.

This cleaning procedure deviates from the EPA proposed method; however, past experience has shown that the use of chromic acid solution may cause analytical interferences with the compounds of interest.

5.1.2.2 XAD-II® Resin and Filters Preparation. The XAD-II® absorbing resin and glass fiber filters are pre-cleaned by separate procedures according to the specified method. Only pesticide-grade solvents and HPLC-grade water are used to prepare for organic sampling and to recover these samples. The lot number, manufacturer, and grade of each reagent used is recorded in the laboratory notebook.

To prepare the filters, a batch of 50 is placed in a soxhlet pre-cleaned by extraction with toluene. The soxhlet is charged with fresh toluene and refluxed for 16 hours. After the extraction, the toluene is analyzed as described in Sections 5.2 and 5.3 of the reference method for the presence of Tetrachloro Dibenzo-p-Dioxins (TCDD) or Tetrachloro Dibenzofurans (TCDF). If these analytes are found, the filters are re-extracted until no TCDD or TCDF is detected. The filters are then dried completely

TABLE 5-3. CDD/CDF GLASSWARE CLEANING PROCEDURE
(Train Components, Sample Containers and
Laboratory Glassware)

NOTE: USE VITON® GLOVES AND ADEQUATE VENTILATION WHEN RINSING WITH SOLVENTS

1. Soak all glassware in hot soapy water (Alconox®).
2. Tap water rinse to remove soap.
3. Distilled/deionized H_2O rinse (X3).[a]
4. Bake at 450°F for 2 hours.[b]
5. Acetone rinse (X3), (pesticide grade).
6. Methylene chloride (X3), (pesticide grade)
7. Cap glassware with clean glass plugs or methylene chloride rinsed aluminum foil.
8. Mark cleaned glassware with color-coded identification sticker.
9. Glassware is rinsed immediately before using with acetone and methylene chloride (laboratory proof).

[a] (X3) = three times.
[b] Step (4) has been added to the cleanup procedure to replace the dichromate soak specified in the reference method. Radian has demonstrated in the past that it sufficiently removes organic artifacts. It is not used for probe liners and non-glass components of the train that cannot withstand 450°F (i.e., teflon-coated filter screen and seals, tweezers, teflon squeeze bottles, nylon probe and nozzle brushes).

under a clean nitrogen (N_2) stream. Each filter is individually checked for holes, tears, creases, or discoloration, and if found, is discarded. Acceptable filters are stored in a pre-cleaned petri dish, labeled by date of inspection, and sealed with Teflon® tape.

To prepare the absorbing resin, the XAD-II® resin is cleaned in the following sequential order:

- Rinse with HPLC-grade water, discard water;
- Soak in HPLC-grade water overnight, discard water;
- Extract in soxhlet with HPLC-grade water for 8 hours, discard water;
- Extract with methanol for 22 hours, discard solvent;
- Extract with methylene chloride for 22 hours, discard solvent;
- Extract with methylene chloride for 22 hours, retain an aliquot of solvent for gas chromatography analysis of TCDDs and TCDFs; and
- Dry resin under a clean N_2 stream.

Once the resin is completely dry, it is checked for the presence of methylene chloride, TCDDs, and TCDFs as described in Section 3.1.2.3.1 of the reference method. If TCDDs or TCDFs are found, the resin is re-extracted. If methylene chloride is found, the resin is dried until the excess solvent is removed. The absorbent is to be used within four weeks of cleaning.

The cleaned XAD-II® resin is spiked with five CDD/CDF internal standards. Due to the special handling considerations required for the CDD/CDF internal standards, the spiking is performed by Triangle Laboratories. For convenience and to minimize contamination, Triangle Laboratories also performs the resin and filter cleanup procedures and loads the resin into the glass traps.

5.1.2.3 CDD/CDF Method 5 Equipment Preparation. The remaining preparation includes calibration and leak checking of all sampling train equipment. This includes: meterboxes, thermocouples, nozzles, pitot tubes, and umbilicals. Referenced calibration procedures are followed when available. The results are properly documented in a laboratory notebook or project file and retained. If a referenced calibration technique for a particular piece of apparatus is not available, then a

state-of-the-art technique is used. A discussion of the techniques used to calibrate this equipment is presented in Section 7.2.7.

5.1.3 CDD/CDF Sampling Operations

5.1.3.1 Preliminary Measurements. Prior to sampling, preliminary measurements are required to ensure isokinetic sampling. These include determining the traverse point locations, performing a preliminary velocity traverse, cyclonic flow check, and moisture determination. These measurements are used to calculate a "K factor." The K factor is used to determine an isokinetic sampling rate from stack gas flow readings taken during sampling.

Measurements are then made of the duct inside diameter, port nozzle length, and the distances to the nearest upstream and downstream flow disturbances. These measurements are then used to determine sampling point locations by following EPA Reference Method 1 guidelines. The distances are then marked on the sampling probe using an indelible marker.

5.1.3.2 Assembling the Train. Assembling the CDD/CDF sampling train components is completed in the recovery trailer and final train assembly is performed at the stack location. First, the empty, clean impingers are assembled and laid out in the proper order in the recovery trailer. Each ground glass joint is carefully inspected for hairline cracks. The first impinger is a knockout impinger which has a short tip. The purpose of this impinger is to collect condensate which forms in the coil and XAD-II® resin trap. The next two impingers are modified tip impingers which each contain 100 ml of HPLC-grade water. The fourth impinger is empty, and the fifth impinger contains 200 to 300 grams of blue indicating silica gel. After the impingers are loaded, each impinger is weighed, and the initial weight and contents of each impinger are recorded on a recovery data sheet. The impingers are connected together using clean glass U-tube connectors and arranged in the impinger bucket as shown in Figure 5-2. The height of all the impingers is approximately the same to obtain a leak free seal. The open ends of the train are sealed with methylene chloride-rinsed aluminum foil or clean ground glass caps.

The second step is to load the filter into the filter holder in the recovery trailer. The filter holder is then capped off and placed with the resin trap and condenser coil

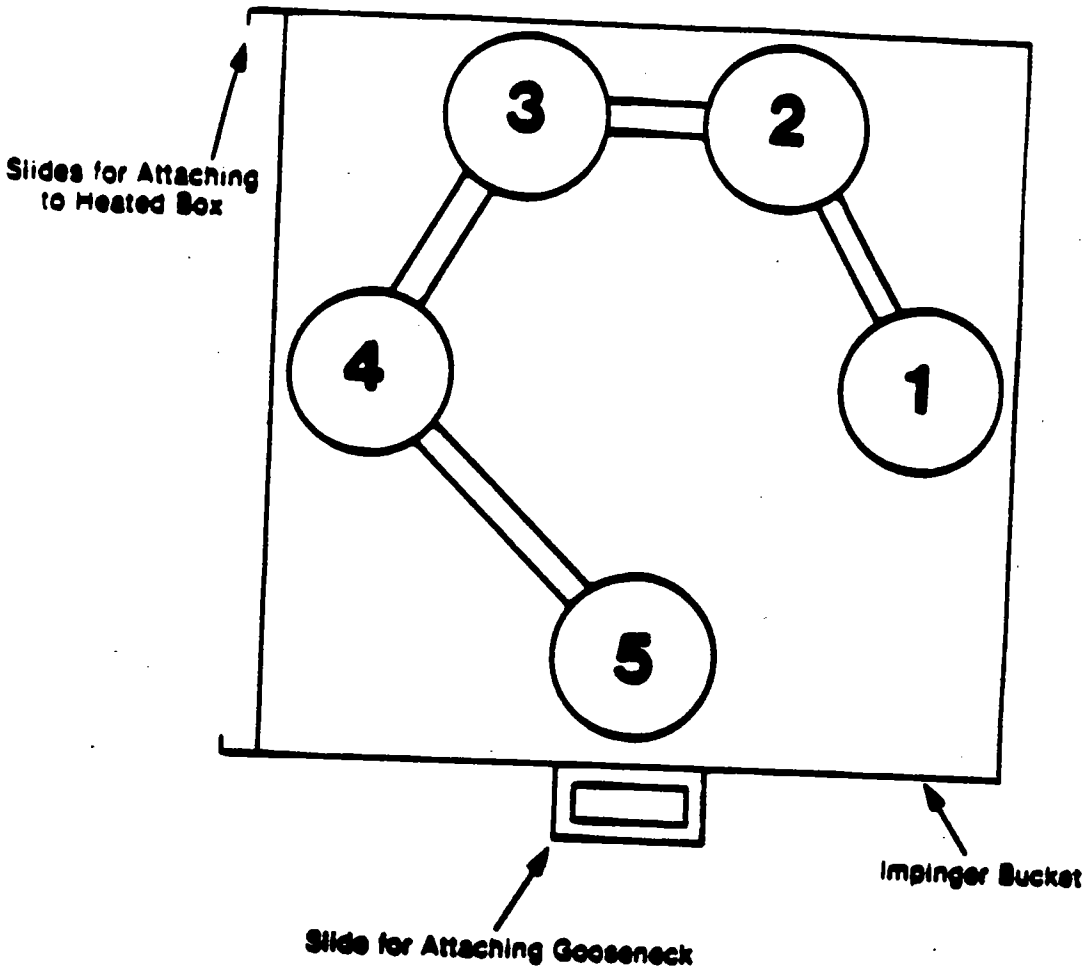


Figure 5-2. Impinger Configuration for CDD/CDF Sampling

(capped) into the impinger bucket. A supply of pre-cleaned foil and socket joints is also placed in the bucket in a clean plastic bag for the convenience of the samplers. To avoid contamination of the sample, sealing greases are not used. The train components are transferred to the sampling location and assembled as previously shown in Figure 5-1.

5.1.3.3 Sampling Procedures. After the train is assembled, the heaters are turned on for the probe liner and heated filter box and the sorbent module/condensor coil recirculating pump is turned on. When the system reaches the appropriate temperatures, the sampling train is ready for pre-test leakchecking. The temperature of the sorbent module resin must not exceed 50°C (120°F) at any time and during testing it must not exceed 20°C (68°F). The filter skin temperature is maintained at 120 ±14°F (248 ±25°F). The probe temperature is maintained above 100°C (212°F).

The sampling trains are leak checked at the start and finish of sampling. (Method 5/23 protocol only requires post-test leakchecks and recommends pre-test leakchecks.) Radian protocol also incorporates leak checks before and after every port change. An acceptable pre-test leak rate is less than 0.02 acfm (ft^3/min) at approximately 15 inches of mercury (in. Hg). If during testing, a piece of glassware needs to be emptied or replaced, a leak check is performed before the glassware piece is removed, and after the train is re-assembled.

To leak check the assembled train, the nozzle end is capped off and a vacuum of 15 in. Hg is pulled in the system. When the system is evacuated, the volume of gas flowing through the system is timed for 60 seconds. After the leak rate is determined, the cap is slowly removed from the nozzle end until the vacuum drops off, and then the pump is turned off. If the leak rate requirement is not met, the train is systematically checked by first capping the train at the filter, at the first impinger, etc., until the leak is located and corrected.

After a successful pre-test leak check has been conducted, all train components are at their specified temperatures, initial data is recorded [dry gas meter (DGM) reading], the test can be initiated. Sampling train data are recorded periodically on standard data forms. A checklist for CDD/CDF sampling is included in Table 5-4. A sampling operation that is unique to CDD/CDF sampling is that the gas temperature

TABLE 5-4. CDD/CDF SAMPLING CHECKLIST

Before test starts:

1. Check impinger set to verify the correct order, orientation and number of impingers. Verify probe markings, and remark if necessary.

2. Check that you have all the correct pieces of glassware. Have a spare probe liner, probe sheath, meter box and filter ready to go at location.

3. Check for data sheets and barometric pressure.

4. Bag sampling equipment for CO_2/O_2 needs to be ready except when using CEMs for CO_2/O_2 determinations.

5. Examine meter box - level it, zero the manometers and comfirm that the pump is operational.

6. Verify the filter is loaded correctly and as tight as possible; place filter in line with the train and leak check at 15 inches Hg.

7. Add probe to train.

8. Check thermocouples - make sure they are reading correctly.

9. Conduct pitot leak check, recheck manometer zero.

10. Do final leak check; record leak rate and vacuum on sampling log.

11. Turn on variacs and check to see that the heat is increasing.

12. Check that cooling water is flowing and on. Add ice to impinger buckets.

13. Check isokinetic K-factor - make sure it is correct. (Refer to previous results to confirm assumptions). (Two people should calculate this independently to double check it.)

During Test:

1. Notify crew chief of any sampling problems ASAP. Train operator should fill in sampling log and document any abnormalities.

2. Perform simultaneous/concurrent testing with other locations (if applicable). Maintain filter temperature between 248°F ±25°F. Keep temperature as steady as possible. Maintain the resin trap and impinger temperatures below 68°F. Maintain probe temperature above 212°F.

TABLE 5-4. CDD/CDF SAMPLING CHECKLIST, continued

3. Leak check between ports and record on data sheet. Leak check if the test is stopped to change silica gel, to decant condensate, or to change filters.

4. Record sampling times, rate, and location for the fixed gas bag sampling (CO, CO_2, O_2), if applicable.

5. Blow back pitot tubes periodically is expected mositure entrapment.

6. Change filter if vacuum suddenly increases or exceeds 15 inches Hg.

7. Check impinger solutions every 1/2 hour; if the knockout impinger is approaching full, stop test and empty it into a pre-weighed bottle and replace it in the train.

8. Check impinger silica gel every 1/2 hour; if indicator color begins to fade, request a prefilled, preweighed impinger from the recovery trailer.

9. Check the ice in the impinger bucket frequently. If the stack gas temperatures are high, the ice will melt at the bottom rapidly. Maintain condensor coil and silica gel impinger gas temperatures below 68°F.

After test is completed:

1. Record final meter reading.

2. Do final leak check of sampling train at maximum vacuum during test.

3. Do final pitot leak check.

4. Check completeness of data sheet. Verify the impinger bucket identification is recorded on the data sheets. Note any abnormal conditions.

5. Leak check function (level, zero, etc.) of pitot tubes and inpsect for tip damage.

6. Disassemble train, cap sections, and take each section and all data sheets down to recovery trailer.

7. Probe recovery (use 950 ml bottles)
   a) Bring probes into recovery trailer (or other enclosed area).
   b) Wipe the exterior of the probe to remove any loose material that could contaminate the sample.

TABLE 5-4. CDD/CDF SAMPLING CHECKLIST, continued

c) Carefully remove the nozzle/probe liner and cap it off with prerinsed aluminum foil.
d) For acetone rinses (all trains)
   - Attach precleaned cyclone flask to probe to catch rinses
   - Wet all sides of probe interior with acetone
   - While holding the probe in an inclined position, put precleaned probe brush down into probe and brush it in and out
   - Rinse the brush, while in the probe, with acetone
   - Do this at least 3 times until all the particulate has been recovered.
   - Recover acetone into a preweighed, prelabeled sample container
e) Follow the procedure outlined in (d) using methylene chloride. Recover the solvent into the same acetone recovery bottle.
f) Follow the procedure outlined in (d) using toluene. Recover this solvent into a separate preweighed prelabelled sample container.

7. Cap both ends of nozzle/probe liner for the next day, and store in dry safe place.

8. Make sure data sheets are completely filled out, legible, and give them to the Crew Chief.

entering the resin trap must be below 20°C (68°F). The gas is cooled by a water jacket condenser through which ice water is circulated.

The leak rates and sampling start and stop times are recorded on the sampling task log. Also, any other events that occur during sampling are recorded on the task log, such as sorbent module heat excursions, pitot cleaning, thermocouple malfunctions, heater malfunctions, or any other unusual occurrences.

If the probe liner breaks while the DGM is not running (i.e., during port changes or after the run is completed), the probe liner is replaced, the run is completed, and sample recovery done on both the broken sections of the glass liner and the replacement liner. If the break occurs while the DGM is running and the exact time of the break is noted, the test is stopped so that the probe liner can be replaced. The run is then completed and sample recovery done on all liner sections. If the recovered sample appears unusual, the sample is discarded and an additional run is performed later. If the recovered sample appears normal, the run is tentatively acceptable.

At the conclusion of the test run, the sample pump (or flow) is turned off, the probe is removed from the duct, a final DGM reading is taken, and a post-test leak check is completed. The procedure is identical to the pre-test procedure; however, the vacuum should be at least one inch Hg higher than the highest vacuum attained during sampling. An acceptable leak rate is less than 4 percent of the average sample rate or 0.02 acfm (whichever is lower). If a final leak rate does not meet the acceptable criterion, the test run may still be accepted upon approval of the test administrator. If so, the measured leak rate is reduced by subtracting the allowable leak rate from it and then multiplied for the period of time in which the leak occurred. This "leaked volume" is then subtracted from the measured gas volume in order to determine the final gas sample volume.

5.1.4 CDD/CDF Sample Recovery

To facilitate transfer from the sampling location to the recovery trailer, the sampling train is disassembled into the following sections: the probe liner, filter holder, filter to condenser glassware, condenser sorbent module, and the impingers in their bucket. Each of these sections is capped with methylene chloride-rinsed aluminum foil or ground glass caps before removal to the recovery trailer. Once in the trailer, field

recovery follows the scheme shown in Figure 5-3. The samples are recovered and stored in cleaned amber glass bottles to prevent light degradation.

The solvents used for train recovery are all pesticide grade. The use of the highest grade reagents for train recovery is essential to prevent the introduction of chemical impurities which interfere with the quantitative analytical determinations.

Field recovery results in the sample components listed in Table 5-5. The sorbent module is stored in a cooler on ice at all times. The samples are shipped to the analytical laboratory by truck accompanied by written information designating target analyses.

5.1.5 CDD/CDF Analytical Procedures

The analytical procedure used to obtain CDD/CDF concentrations from a single flue gas sample is by HRGC and HRMS (resolution from 8000-10000 m/e). The target CDD/CDF congeners are listed in Table 5-6. The analyses are performed by Triangle Laboratories, Inc., by Method 8290X.

The flue gas samples are analyzed in two fractions according to the scheme in Figure 5-4. One fraction is the total train methylene chloride and acetone rinses, filter(s), and sorbent module; the other fraction is comprised of the toluene rinse of applicable portions of the sampling train. For the CDD/CDF analysis, isotopically-labeled surrogate compounds and internal standards are added to the samples before the extraction process is initiated. The internal standards and surrogates that are used are described in detail in EPA Method 23.

Data from the mass spectrometer are recorded and stored on a computer file as well as printed on paper. Results such as amount detected, detection limit, retention time, and internal standard and surrogate standard recoveries are calculated by computer. The chromatograms are retained by the analytical laboratory and also included in the analytical report delivered to Radian Corporation.

5.1.5.1 Preparation of Samples for Extraction. Upon receiving the sample shipment, the samples are checked against the Chain-of-Custody forms and then assigned an analytical laboratory sample number. Each sample component is reweighed to determine if leakage occurred during travel. Color, appearance, and other particulars of the samples are noted. Samples are extracted within 21 days of collection.

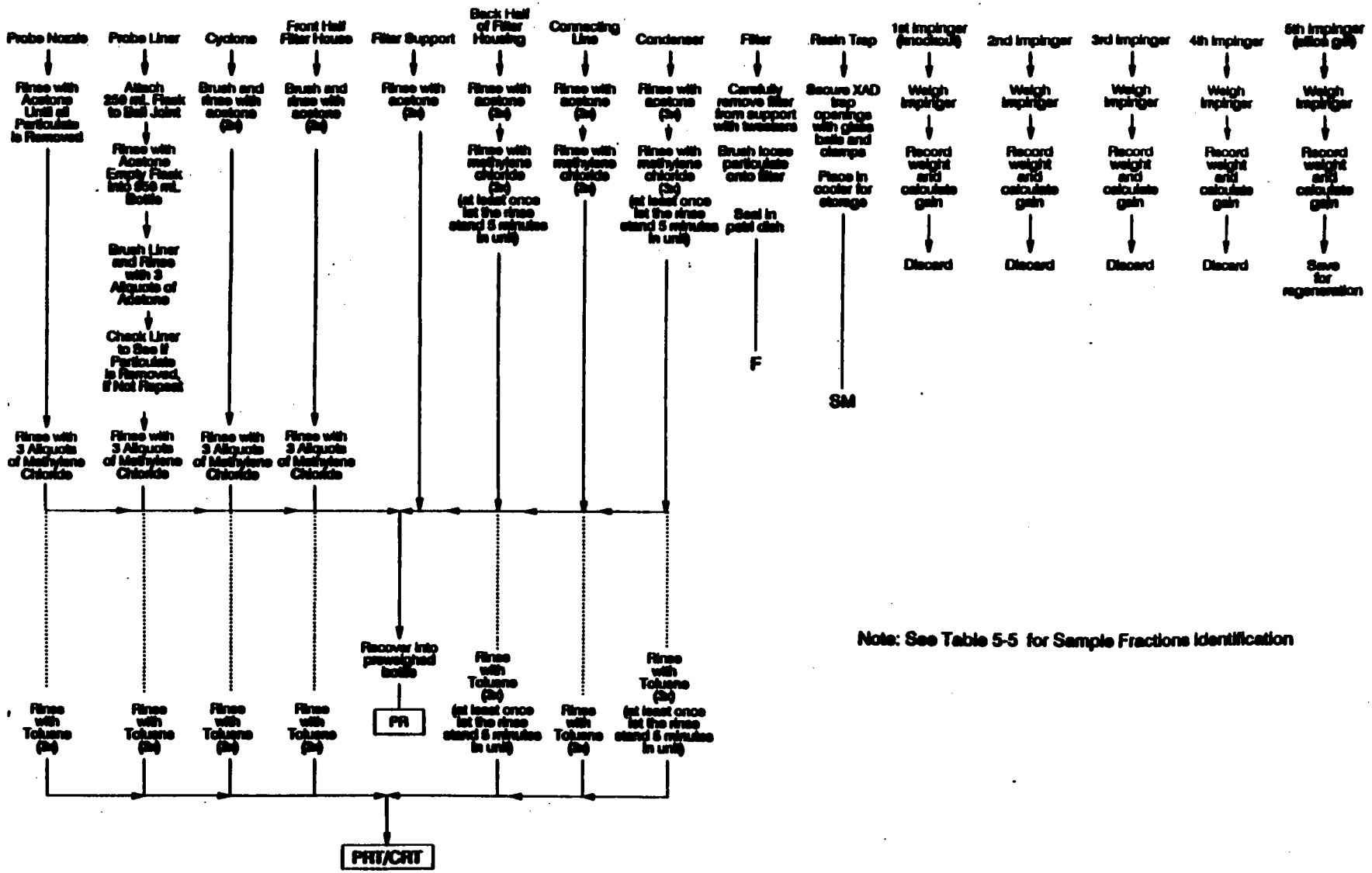


Figure 5-3. PCB/CDD/CDF/TCO Field Recovery Scheme

TABLE 5-5. CDD/CDF SAMPLE FRACTIONS SHIPPED TO ANALYTICAL LABORATORY

Container/ Component	Code	Fraction
1	F	Filter(s)
2	PR[a]	Acetone and methylene chloride rinses of nozzle/probe, cyclone, front half/back half filter holder, filter support, connecting glassware, condensor
3	PRT[b] CRT[b]	Toluene rinse of nozzle/probe, cyclone, front half/back half filter holder, filter support, connecting line and condensor
4	SM	XAD-II® resin trap (sorbent module)

[a] Rinses include acetone and methylene chloride recovered into the same sample bottle.
[b] Rinses of toluene recovered into separate sample bottle (sometimes toluene probe rinse (PRT) and coil rinse (CRT) are recovered separately).

TABLE 5-6. CDD/CDF CONGENERS TO BE ANALYZED

DIOXINS:

2,3,7,8 tetrachlorodibenzo-p-dioxin (2,3,7,8 TCDD)
Total tetrachlorinated dibenzo-p-dioxins (TCDD)
1,2,3,7,8 pentachlorodibenzo-p-dioxin (1,2,3,7,8 PeCDD)
Total pentachlorinated dibenzo-p-dioxins (PeCDD)
1,2,3,4,7,8 hexachlorodibenzo-p-dioxin (1,2,3,4,7,8 HxCDD)
1,2,3,6,7,8 hexachlorodibenzo-p-dioxin (1,2,3,6,7,8 HxCDD)
1,2,3,7,8,9 hexachlorodibenzo-p-dioxin (1,2,3,7,8,9 HxCDD)
Total hexachlorinated dibenzo-p-dioxins (HxCDD)
1,2,3,4,6,7,8 heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8 HpCDD)
Total heptachlorinated dibenzo-p-dioxins (HpCDD)
Total octachlorinated dibenzo-p-dioxins (OCDD)

FURANS:

2,3,7,8 tetrachlorodibenzofurans (2,3,7,8 TCDF)
Total tetrachlorinated dibenzofurans (TCDF)
1,2,3,7,8 pentachlorodibenzofuran (1,2,3,7,8 PeCDF)
2,3,4,7,8 pentachlorodibenzofuran (2,3,4,7,8 PeCDF)
Total pentachlorinated dibenzofurans (PeCDF)
1,2,3,4,7,8 hexachlorodibenzofuran (1,2,3,4,7,8 HxCDF)
1,2,3,6,7,8 hexachlorodibenzofuran (1,2,3,6,7,8 HxCDF)
2,3,4,6,7,8 hexachlorodibenzofuran (2,3,4,6,7,8 HxCDF)
1,2,3,7,8,9 hexachlorodibenzofuran (1,2,3,7,8,9 HxCDF)
Total hexachlorinated dibenzofurans (HxCDF)
1,2,3,4,6,7,8 heptachlorodibenzofuran (1,2,3,4,6,7,8 HpCDF)
1',2,3,4,7,8,9 heptachlorodibenzofuran (1',2,3,4,7,8,9 HpCDF)
Total heptachlorinated dibenzofurans (HpCDF)
Total octachlorinated dibenzofurans (OCDF)

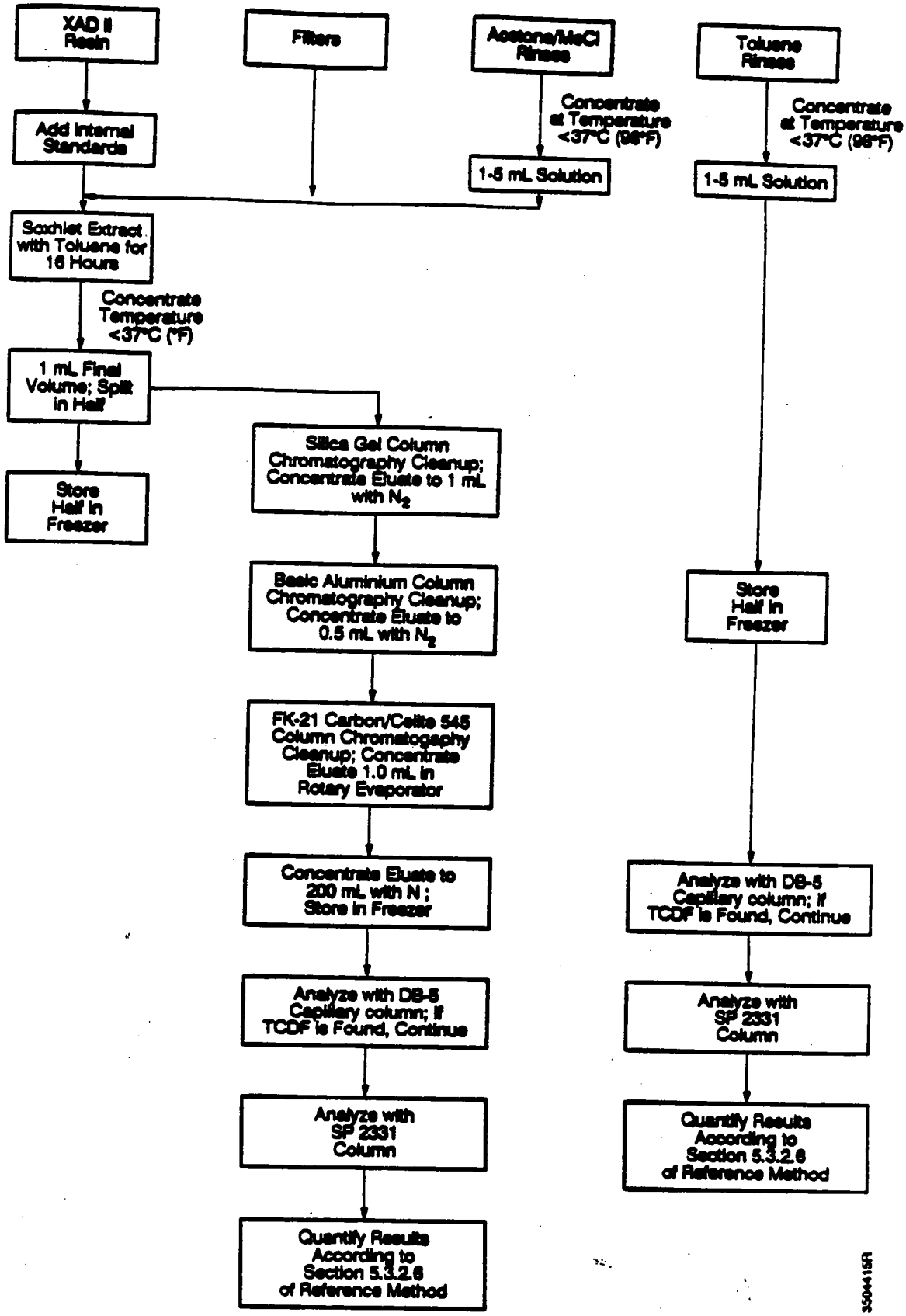


Figure 5-4. Extraction and Analysis Schematic for CDD/CDF Samples

5.1.5.2 Calibration of GC/MS System. A five-point calibration of the GC/MS system is performed to demonstrate instrument linearity over the concentration range of interest. Relative response factors are calculated for each congener or compound of interest. The response factors are verified on a daily basis using a continuing calibration standard consisting of a mid-level mixed isomer standard. The instrument performance is acceptable only if the measured response factors for the labeled and unlabeled compounds and the ion-abundance ratios are within the allowable limits specified in the method (52200, 52201 FR 891220).

5.1.6 CDD/CDF Analytical Quality Control

All quality control procedures specified in the test method are followed. Blanks are used to determine analytical contamination, calibration standards are used for instrument calibration and linearity checks, internal standards are used to determine isomer recoveries and adjust response factors for matrix effects, surrogate standards are used to measure the collection efficiency of the sampling methodology, and an alternate standard is used as a column efficiency check.

5.1.6.1 CDD/CDF Quality Control Blanks. Three different types of sample blanks are collected for CDD/CDF analysis. The type of blanks that are required are shown in Table 5-7.

Reagent blanks of 1000 ml of each reagent used at the test site are saved for potential analysis. Each reagent blank is of the same lot as was used during the sampling program. Each lot number and reagent grade is recorded on the field blank label and in the laboratory notebook.

A glassware blank (proof blank) is recovered from each set of sample train glassware that is used to collect the organic samples. The precleaned glassware, which consists of a probe liner, filter holder, condensor coil, and impinger set, is loaded as if for sampling and then quantitatively recovered exactly as the samples are. Analysis of the generated fractions is used to check the effectiveness of the glassware cleaning procedure only if sample analysis indicates a potential contamination problem.

A field blank is collected from a set of CDD/CDF glassware that has been used to collect at least one sample and has been recovered. The train is re-loaded and left at a sampling location during a test run. The train is then recovered. The purpose of the

TABLE 5-7. CDD/CDF BLANKS COLLECTED

Blank	Collection	Analysis
Field Blanks	One run collected and analyzed for each sampling location.	Analyze with flue gas samples.
Glassware Proof Blank	Each train to be used (2) will be loaded and quantitatively recovered prior to sampling	Archive for potential analysis
Method Blank	At least one for each analytical batch	Analyze with each analytical batch of flue gas samples
Reagent Blanks	One 1000 ml sample for each reagent and lot.	Archive for potential analysis.

field blank is to measure the level of contamination that occurs from handling, loading, recovering, and transporting the sampling train. The field blanks are analyzed with the flue gas samples. If they are unsatisfactory in terms of contamination, reagent blanks may be analyzed to determine the specific source of contamination.

To verify the flue gas sample was quantitatively recovered, toluene rinses are also analyzed separately from the other fractions. These results are not incorporated into the final emission values; however, they are used as QA/QC indicators.

In addition to the three types of blanks that are required for the sampling program, the analytical laboratory analyzes a method blank with each set of flue gas samples. This consists of prepping and analyzing reagent water by the exact procedure used for the samples analysis. The purpose of this is to verify that there is no laboratory contamination of the field samples.

5.1.6.2 Quality Control Standards and Duplicates. Recoveries of the internal standards must be between 40 to 130 percent for the tetra- through hexachlorinated compounds and between 25 to 130 percent for the hepta- and octachlorinated homologues. If these requirements are not met, the data is acceptable if the signal to noise ratio is greater than or equal to ten. If these requirements are met, the results for the native (sampled) species are adjusted according to the internal standard recoveries.

Surrogate standard recoveries must be between 70 to 130 percent. If the recoveries of all standards are less than 70 percent, the project director is notified immediately to determine if the surrogate results can be used to adjust the results of the native species.

Duplicate analysis is performed for every ten samples. The purpose of this is to evaluate the precision of the combined sample preparation and analytical methodology.

A summary of the acceptance, criteria, control limits, and corrective action for the procedures described in this section is shown in Table 7-1.

5.2 PARTICULATE MATTER AND METALS EMISSIONS TESTING METHOD

Sampling for PM and metals is performed according to an EPA Emission Measurement Branch (EMB) draft protocol entitled "Methodology for the Determination of Metals Emissions in Exhaust Gases from Incineration Processes." The protocol is presented in Appendix A. This method is applicable for the determination of

particulates and Pb, Ni, zinc (Zn), phosphorus (P), Cr, copper (Cu), manganese (Mn), selenium (Se), Be, Tl, Ag, Sb, Ba, Cd, As, and Hg emissions from various types of incinerators. Analyses of the Central Carolina Hospital MWI test samples will be performed for As, Cd, Cr, Hg, Ni, Pb, Sb, Ag, Ba, Be, and Tl.

The PM emissions are also determined from this sampling train. Particulate concentrations are based on the weight gain of the filter and the front half acetone rinses (probe, nozzle, and filter holder). After the gravimetric analyses have been completed, the sample fractions are then analyzed for the target metals as discussed in Section 5.2.5.

5.2.1 PM/Metals Sampling Equipment

The methodology uses the sampling train shown in Figure 5-5. The 5-impinger train consists of a quartz nozzle/probe liner followed by a heated filter assembly with a Teflon® filter support, a series of impingers, and the usual EPA Method 5 meterbox and vacuum pump. The sample is not exposed to any metal surfaces in this train. The contents of the sequential impingers are: two impingers with a 5 percent HNO_3/10 percent H_2O_2 solution, two impingers with a 4 percent $KMnO_4$/10 percent sulfuric acid (H_2SO_4) solution, and an impinger containing silica gel. An optional empty knockout impinger may be added if the moisture content of the flue gas is high. The second impinger containing HNO_3/H_2O_2 shall be of the Greenburg-Smith design; the other impingers shall have straight tubes. The impingers are connected together with clean glass U-tube connectors and are arranged in an impinger bucket as shown in Figure 5-6. Sampling train components are recovered and analyzed in separate front and back half fractions according to the described method.

5.2.2 PM/Metals Sampling Equipment Preparation

5.2.2.1 Glassware Preparation. Glassware is washed in hot soapy water, rinsed with tap water (3X), and then rinsed with deionized distilled water (3X). The glassware is then subjected to the following series of soaks and rinses:

- Soak in a 10 percent HNO_3 solution for a minimum of 4 hours;
- Rinse with deionized distilled water rinse (3X); and
- Rinse with acetone rinse.

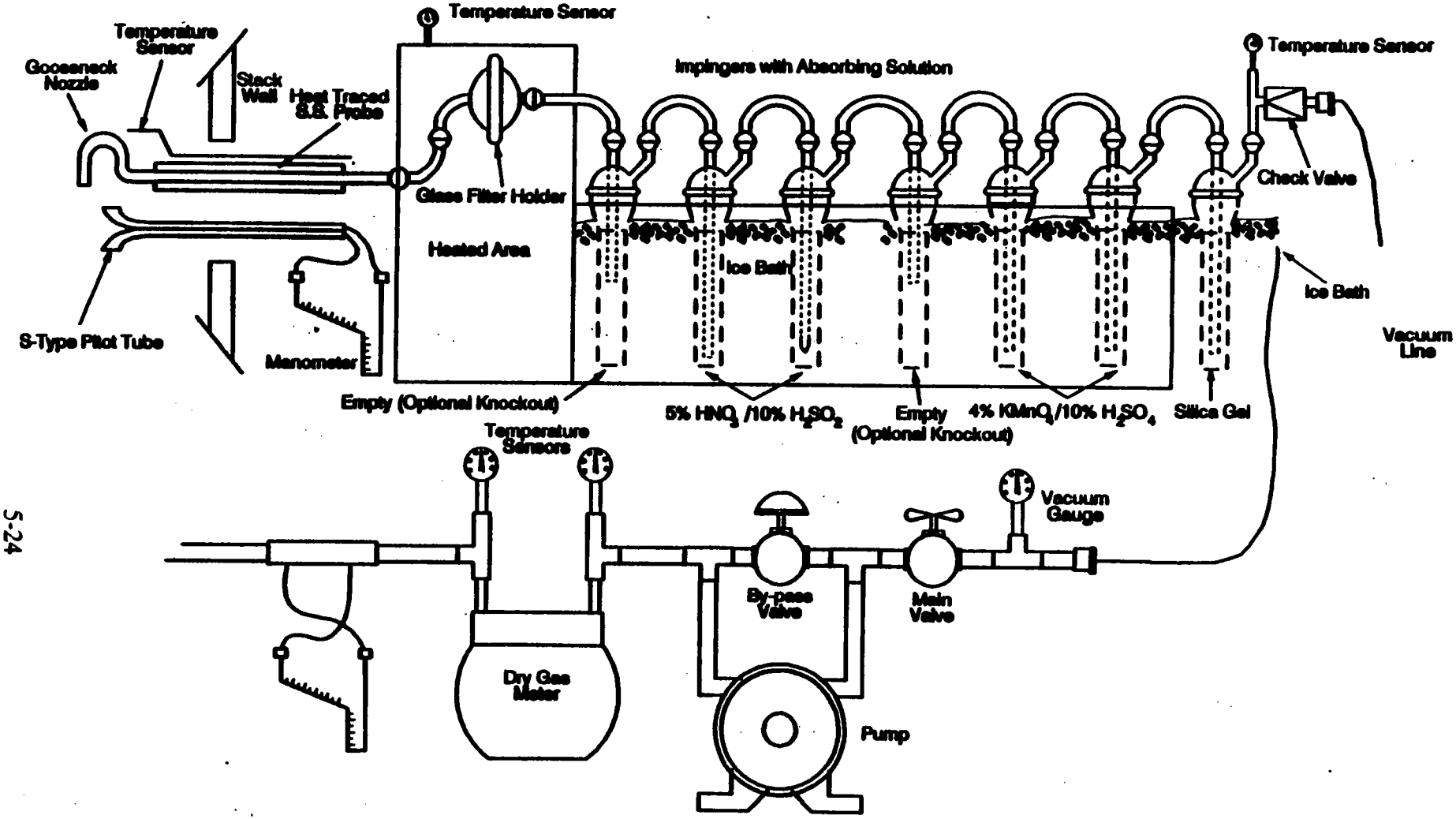


Figure 5-5. Schematic of Multiple Metals Sampling Train

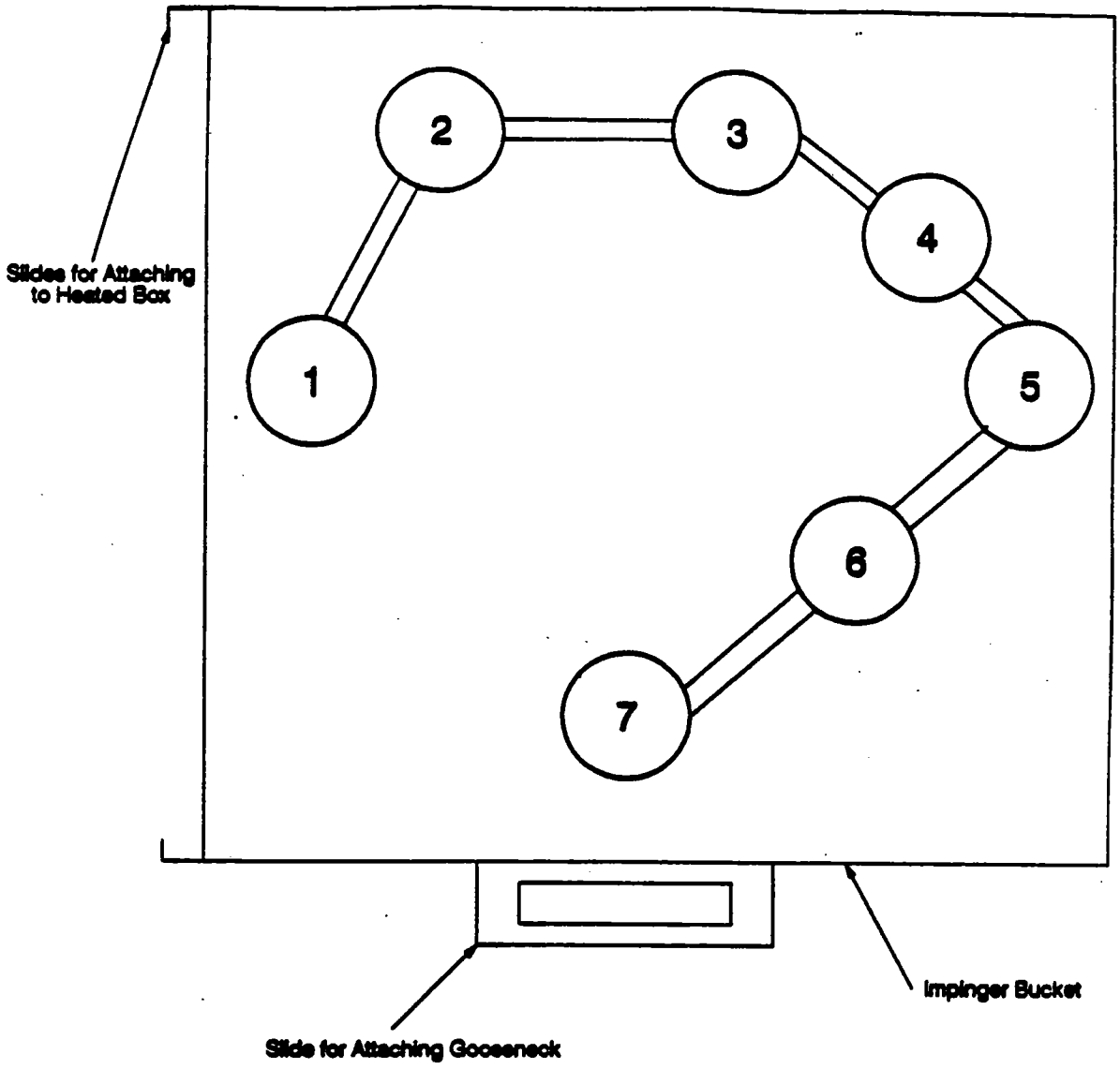


Figure 5-6. Impinger Configuration for PM/Metals Sampling (optional knock out impinger not shown)

The cleaned glassware is allowed to air dry in a contamination-free environment. The ends are then covered with parafilm. All glass components of the sampling train plus any sample bottles, pipets, Erlenmeyer flasks, petri dishes, graduated cylinders, and other laboratory glassware used during sample preparation, recovery, and analysis are cleaned according to this procedure.

5.2.2.2 Reagent Preparation. The sample train filters are Pallflex Tissuequartz 2500QAS filters. The acids and H_2O_2 peroxide are Baker "Instra-analyzed" grade or equivalent. The peroxide is purchased specifically for this test site and is kept cold until it is opened.

The reagent water is Baker "Analyzed HPLC" grade or equivalent. The lot number, manufacturer, and grade of each reagent that is used is recorded in the laboratory notebook.

The HNO_3/H_2O_2 absorbing solution and the acidic $KMnO_4$ absorbing solution is prepared fresh daily according to Sections 4.2.1 and 4.2.2 of the reference method. The analyst wears both safety glasses and protective gloves when the reagents are mixed and handled. Each reagent has its own designated transfer and dilution glassware. This glassware is marked for identification with a felt tip glass marking pen and used only for the reagent for which it is designated.

The analyst may save time preparing the acidic $KMnO_4$ solution each day by observing the following procedure, beginning at least one day before the reagent is needed.

- Quantitatively remove 400 ml from a 4 liter bottle of Baker "Analyzed HPLC" water. Label this bottle 4.4 percent $KMnO_4$ in water.

- Quantitatively add 160 g of potassium permanganate crystals to the bottle; stir with a Teflon® stirring bar and stirring plate as thoroughly as possible. This reagent will be stored on the counter in a plastic tub at all times.

- Each morning the acidic reagent is needed, decant 900 ml of $KMnO_4$ solution into a 1000 ml volumetric flask. Carefully add 100 ml of concentrated H_2SO_4 and mix. This reagent is volatile and must be mixed cautiously. Hold the flask cap on the flask, mix once, vent quickly. Complete the mixing slowly until the mixture is homogenous. Allow the solution to cool and bring the final volume to 1000 ml with H_2O.

- Carefully filter this reagent through Wattman 541 filter paper into another volumetric flask or 2 liter amber bottle. Label this bottle 4 percent acidic $KMnO_4$ absorbing solution. Vent the top and store the reagent in a plastic tub at all times.

5.2.2.3 Equipment Preparation. The remaining preparation includes calibration and leak checking of all train equipment as specified in EPA Method 5. This equipment includes the probe nozzles, pitot tubes, metering system, probe heater, temperature gauges, leakcheck metering system, and barometer. A laboratory field notebook is maintained to record these calibration values.

5.2.3 PM/Metals Sampling Operations

The sampling operations used for PM/Metals testing are virtually the same as those for the CDD/CDF tests as discussed in Section 5.1.2. The only differences are that there is no condensor coil so coil temperatures are not recorded and glass caps, Teflon® tape, or parafilm is used to seal off the sample train components rather than foil. Detailed instructions for assembling the metals sampling train are found beginning on page 14 of the reference method.

5.2.4 PM/Metals Sample Recovery

Begin recovery procedures as soon as the probe is removed from the stack and the post-test leakcheck is completed.

To facilitate transfer from the sampling location to the recovery trailer, the sampling train is disassembled into three sections: the nozzle/probe liner, filter holder, and impingers in their bucket. Each of these sections is capped with Teflon® tape or parafilm before removal to the recovery trailer.

Once in the trailers, the sampling train is recovered as separate front and back half fractions. A diagram illustrating front half and back half sample recovery procedures is shown in Figure 5-7. No equipment with exposed metal surfaces is used in the sample recovery procedures. The weight gain in each of the impingers is recorded to determine the moisture content in the flue gas. Following weighing of the impingers, the front half of the train is recovered, which includes the filter and all sample-exposed surfaces forward of the filter. The probe liner is rinsed with acetone by tilting and rotating the probe while squirting acetone into its upper end so that all inside surfaces are wetted. The acetone will be quantitatively collected into the appropriate bottle.

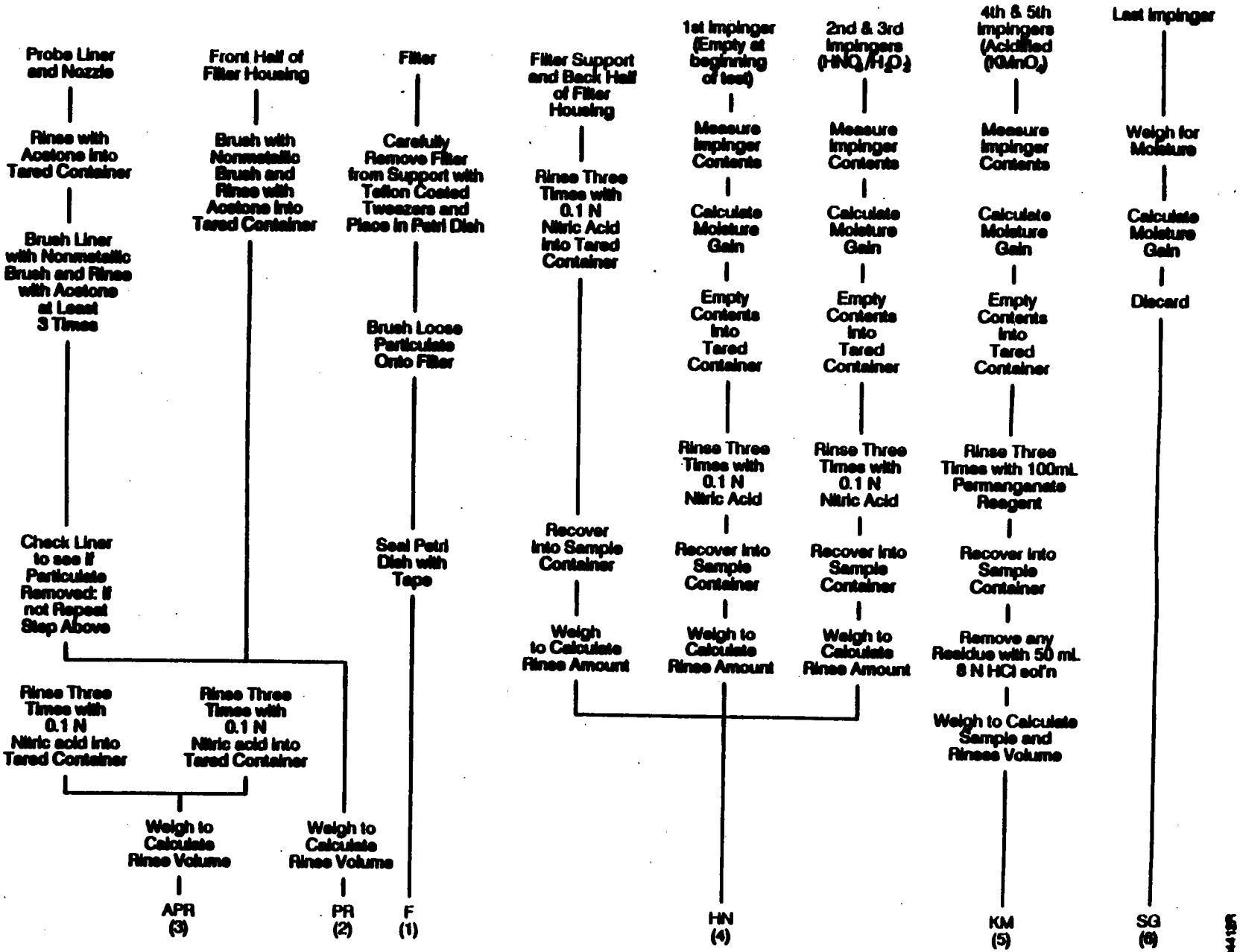


Figure 5-7. Metals Sample Recovery Scheme

This rinse is followed by additional brush/rinse procedures using a non-metallic brush; the probe is held in an inclined position and acetone is squirted into the upper end as the brush is pushed through with a twisting action. All of the acetone and particulate is caught in the sample container. This procedure is repeated until no visible particulate remains and finished with a final acetone rinse of the probe and brush. The front half of the filter is also rinsed with acetone until all visible particulate is removed. After all front half acetone washes are collected, the cap is tightened, the liquid level marked, and the bottle weighed to determine the acetone rinse volume. The method specifies a total of 100 ml of acetone may be used for rinsing these components. However, Radian feels that a thorough rinse requires more reagent. An acetone reagent blank of approximately the same volume as the acetone rinses is analyzed with the samples.

The nozzle/probe liner, and front half of the filter holder is rinsed three times with 0.1N HNO_3 and placed into a separate amber bottle. The bottle is capped tightly, the weight of the combined rinse recorded, and the liquid level marked. The filter is placed in a clean, well-marked glass petri dish and sealed with Teflon® tape.

Prior to recovering the back half impingers, the contents are weighed for moisture control determinations. Any unusual appearance of the filter or impinger contents are noted. Pictures may be taken to further document any abnormality.

The contents in the knockout impinger (if used) is recovered into a preweighed, prelabeled bottle with the contents from the HNO_3/H_2O_2 impingers. These impingers and connecting glassware are rinsed thoroughly with 0.1N HNO_3, the rinse is captured in the impinger contents bottle, and a final weight is taken. Again, the method specifies a total of 100 ml of 0.1N HNO_3 be used to rinse these components. A HNO_3 reagent blank of approximately the same volume as the rinse volume is analyzed with the samples.

The impingers that contain the acidified $KMnO_4$ solution are poured together into a preweighed, prelabeled bottle. The impingers and connecting glassware are rinsed with at least 100 ml of the acidified $KMnO_4$ solution (from the same batch used for sampling) a minimum of three times. Rinses are added to the sample recovery bottle. A final 50 ml 8N hydrochloric acid (HCl) rinse is conducted and placed into the sample recovery

bottle. A final weight is recorded and the liquid level is marked on the bottle. The bottle cap is loosely tightened to allow venting.

After final weighing, the silica gel from the train is saved in a bag for regeneration after the job has been completed. The ground glass fittings on the silica gel impinger are wiped off after sample recovery to assure a leak tight fit for the next test.

A reagent blank is recovered in the field for each of the following reagents:

- Acetone blank - 100 ml sample size;
- 0.1N HNO_3 blank - 1000 ml sample size;
- 5 percent HNO_3/10 percent H_2O_2 blank - 200 ml sample size;
- Acidified $KMnO_4$ blank - 1000 ml sample size; this blank should have a vented cap;
- 8N HCl blank - 50 ml sample size;
- Dilution water; and
- Filter blank - one each.

Each reagent blank is of the same lot as was used during the sampling program. Each lot number and reagent grade is recorded on the field blank label.

The liquid level of each sample container is marked on the bottle in order to determine if any sample loss occurred during shipment. If sample loss has occurred, the sample may be voided or a method may be used to incorporate a correction factor to scale the final results depending on the volume of the loss.

Approximate detection limits for the various metals of interest are summarized in Table 5-8.

5.2.5 Particulate Analysis

The same general gravimetric procedure described in Method 5, Section 4.3 is followed. Both filters and precleaned beakers are weighed to a constant weight before use in the field. The same balance used for taring is used for weighing the samples.

TABLE 5.8 APPROXIMATE DETECTION LIMITS FOR METALS OF INTEREST USING EMB DRAFT METHOD

Metal	Method[a]	Analytical Detection Limits (μg/ml)	Instack Method Detection Limits[b] Front Half (300 ml sample size) ($\mu g/m^3$)	Instack Method Detection Limits[b] Back Half (150 ml sample size) ($\mu g/m^3$)
Chromium	ICAP	0.007	1.7	0.8
Cadmium	ICAP	0.004	1.0	0.5
Arsenic[d]	GFAAS	0.001	0.3	0.1
Lead[d]	GFAAS	0.001	0.2	0.1
Mercury	CVAAS	0.0002	0.05	0.03[c]
Nickel	ICAP	0.015	3.6	1.8
Barium	ICAP	0.002	0.5	0.3
Beryllium	ICAP	0.0003	0.07	0.04
Silver	ICAP	0.007	1.7	0.9
Antimony	ICAP	0.032	7.7	3.8
Thallium	ICAP	0.040	9.6	4.8

[a] ICAP = Inductively Coupled Argon Plasma
GFAAS = Graphite Furnace Atomic Absorption Spectroscopy
CVAAS = Cold Vapor Atomic Absorption Spectroscopy

[b] These detection limits are based on a stack gas sample volume of 1.25 m^3. If 5 m^3 are collected, the instack method detection limits are 1/4 of the values indicated.

[c] The detection limit for mercury is the same in the HNO_3/H_2O_2 fraction as it is in the $KMnO_4$ fraction.

[d] If Fe and Al are present, samples will be diluted which may raise analytical detection limits.

The acetone rinses are evaporated under a clear hood at 20°C (68°F) in a tared beaker temperature silica gel. The filter is also desiccated under the same conditions to a constant weight. Weight gain is reported to the nearest 0.1 mg. Each replicate weighing must agree to within 0.5 mg or 1 percent of total weight less tare weight, whichever is greater, between two consecutive weighings, and must be at least 6 hours apart.

5.2.6 Metals Analytical Procedures

A diagram illustrating the sample preparation and analytical procedure for the target metals is shown in Figure 5-8.

The front half fractions basically are digested with concentrated HNO_3 and hydrofluoric (HF) acid in either a microwave pressure vessel or a Parr® bomb. The microwave digestion takes place over a period of approximately 10 to 12 minutes in intervals of 1 to 2 minutes at 600 watts; the Parr® bomb digestion is for 6 hours at 140°C (285°F). Both the digested filter and the digested probe rinses are combined to yield the front half sample fraction. The fraction is diluted to a specified volume with water and divided for analysis by applicable instrumentation.

The absorbing solutions from the HNO_3/H_2O_2 impingers are combined. An aliquot is removed for the analysis of mercury by CVAAS and the remainder is acidified and reduced to near dryness. The sample is then digested in either a microwave or by conventional digestion, with 50 percent HNO_3 and 3 percent H_2O_2. After the fraction has cooled, it is filtered and diluted to a specified volume with water.

Each sample fraction is analyzed by ICAPS using EPA Method 200.7. All target metals except mercury, iron, and aluminum, are quantified. If iron and aluminum are present, the samples are diluted to reduce their interferences on arsenic and lead. If arsenic or lead levels are less than 2 ppm, GFAAS is used to analyze for these elements by EPA Methods 7060 and 7421. Matrix modifiers such as specific buffering agents may be added to these aliquots to react with and tie up interfering agents. The total volume of the absorbing solutions and rinses for the various fractions are measured and recorded in the field notebook.

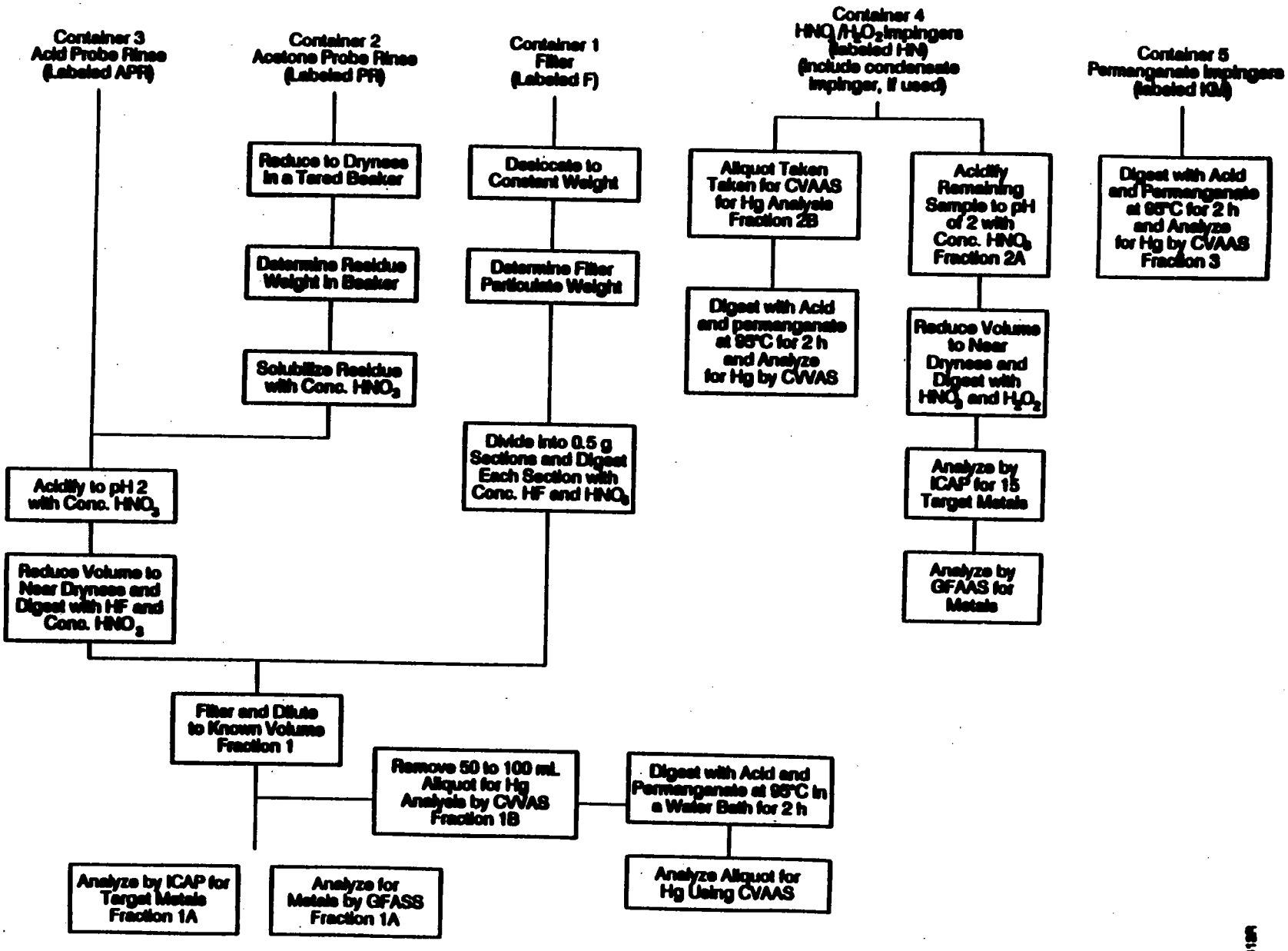


Figure 5-8. Metals Sample Preparation and Analysis Scheme

To prepare for mercury analysis by CVAAS, an aliquot from the $KMnO_4$ impingers, HNO_3/H_2O_2 impingers, filter digestion, and front half rinses are digested with acidic reagents at 95°C in capped BOD bottles for approximately 3 hours. Hydroxylamine hydrochloride solution and stannous chloride is added immediately before analysis. Cold vapor AAS analysis for mercury follows the procedure outlined in EPA Method 7470 or in Standard Methods for Water and Wastewater Analysis, Method 303F.

5.2.7 Quality Control for Metals Analytical Procedures

All quality control procedures specified in the test method are followed. All field reagent blanks are processed, digested, and analyzed as specified in the test method. To ensure optimum sensitivity in measurements, the concentrations of target metals in the solutions are at least 10 times the analytical detection limits.

5.2.7.1 ICAP Standards and Quality Control Samples. The quality control procedures include running two standards for instrument checks (or frequency of 10 percent), two calibration blank runs (or frequency of 10 percent), one interference check sample at the beginning of the analysis (must be within 10 percent or analyze by standard addition), one quality control sample to check the accuracy of the calibration standards (must be within 10 percent of calibration), one duplicate analysis and one standard addition for every 10 samples (must be within 5 percent of average or repeat all analysis).

Standards less than 1 μg/ml of a metal are prepared daily; those with concentrations greater than this are made weekly or bi-monthly.

5.2.7.2 Graphite Furnace Standards and Quality Control Samples. Standards used for GFAAS analysis must be matrix matched with the samples analyzed and the matrix modifiers that were added. Standards less than 1 μg/ml of a metal are prepared daily; those with concentrations greater than this are made weekly or bi-monthly. A minimum of five standards make the standard curve. Quality control samples are

prepared from a separate 10 μg/ml standard by diluting it into the range of the samples.

All samples are analyzed in duplicate. A matrix spike on one front half sample and one back half sample for each 10 field samples is analyzed. If recoveries of less than 75 percent or greater than 120 percent are obtained for the matrix spike, each sample is analyzed by the method of additions. One quality control sample is analyzed to check the accuracy of the calibration standards. The results must be within 10 percent or the calibration repeated.

5.2.7.3 Mercury Standards and Quality Control. An intermediate mercury standard is prepared weekly; working standards are prepared daily. The calibration curve is made with at least six points. Quality Control samples are prepared from a separate 10 μg/ml standard by diluting it into the range of the samples.

A quality control sample must agree within 10 percent of the calibration, or the calibration repeated. A matrix spike on one of every 10 samples from the HNO_3/H_2O_2 back half sample fraction must be within 20 percent or the samples are analyzed by the method of standard addition.

5.3 MICROBIAL SURVIVABILITY TESTING

The Central Carolina Hospital MWI was loaded with waste containing indicator spores which measure the ability of microbes to survive the incineration process. This directly reflects microbial destruction efficiency for that incinerator. The first test method is aimed at determining microbial survivability in the combustion gases and the ash. This method involves inoculating a known quantity of spores in solution onto materials normally found in the medical waste stream (i.e., petri dishes, gauze, etc.). Direct ash sampling and flue gas testing are conducted in order to determine the destruction efficiency. Test procedures follow guidelines set forth by the EPA draft methods located in Appendix A.3 and A.4 of the test plan.

The second test method utilizes spiked spore samples encased in insulated metal containers charged to the incinerator with the waste stream. These tests are aimed at comparing this method with the direct ash sampling method and should provide a general assessment of microbial survivability and destruction efficiency. Three sets of samples (two different diameters) are periodically charged into the incinerator through out the test day. Following the test, the viability of the indicator spores in each sample

is checked to assess the destruction efficiency of spores that remain in the ash. Testing procedures used here follow an EPA draft method entitled "Microbial Survivability Test for Medical Waste Incinerator Ash." The following sections detail both spiking procedures (emissions/ash and pipe) as well as the spore flue gas sampling and analytical techniques.

5.3.1 Spiking Procedure for Emissions and Ash Microbial Loading

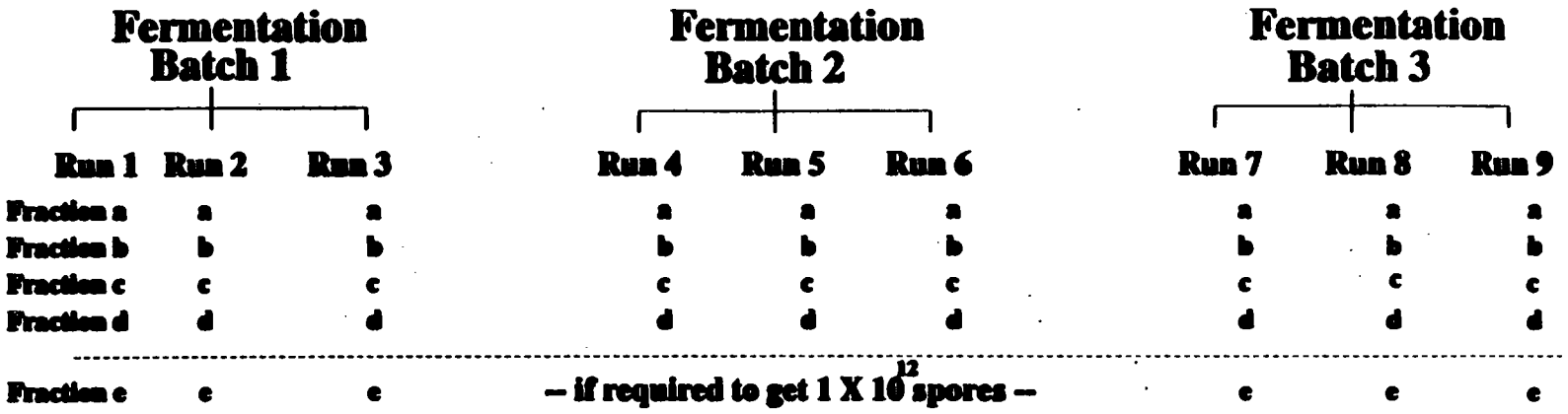
In addition to the pipe samples, a second series of waste materials inoculated with indicator spores are charged into the incinerator. A known quantity of B. stearothermophilus wet spores are inoculated onto or in materials normally found in the medical waste stream such as petri dishes, test tubes, gauze, etc. The waste is loaded into the incinerator to coincide with the emission tests conducted at the incinerator outlet. Direct ash samples are collected after the ash has cooled sufficiently.

5.3.1.1 Equipment. A "wet spore" culture solution is prepared by the University of Alabama. The culture inoculum is divided between the nine sampling runs as shown in Figure 5-9. The spore solution is prepared as a frozen slurry in 1-liter amounts. Inoculation quantities are approximately 600 to 700 mls. The culture inoculum is added to various materials using sterile syringes or other implements as required.

5.3.1.2 Spiking Preparation and Procedure. The spiked waste sample is prepared so that about 1×10^{11} to 1×10^{12} spores are charged into the incinerator per sample run (the exact quantity is recorded). The total charge is separated into four culture batches. Each bag of spiked waste is loaded into the ram feeder at equal time intervals over the course of the emissions test run. For the proposed 4-hour test, spiked bags are loaded at sampling times of 0, 1, 2, and 3 hours from the start of testing.

5.3.2 Indicator Spore Flue Gas Sampling

Flue gas is extracted from the incinerator stack during the burn cycle to determine spore emissions. The testing procedure follows the previously mentioned, draft EPA method. Flue gas samples are collected isokinetically in a buffered solution in impingers (no filter). The recovered samples are divided into different volume aliquots. These samples are cultured and colonies are identified using gram stains to establish cellular morphology, and possibly other biochemical tests as needed.



Notes: Each fraction will be loaded into the incinerator at equally spaced intervals over the duration of the test run during normal charge periods.

At least twelve fractions or doses per test condition. Additional fractions will be added from Batch 4 (fraction e) if necessary to achieve 1 X 10^{12} spores per run.

Figure 5-9. Indicator Spore Spiking Scheme for Combustion Gas Destruction Efficiency Testing

The colonies are then enumerated. The following sections describe the flue gas sampling techniques to be used.

5.3.2.1 Equipment. A schematic of the spore sampling train is shown in Figure 5-10. Flue gas samples are extracted isokinetically through a quartz nozzle/probe system housed in a water-cooled sheath. A smaller tube is located inside the sampling probe to deliver a buffered solution at the nozzle end of the probe. This allows the gas sample stream to be immediately buffered, preventing acid condensate from killing viable spores. From the probe, the sample stream is delivered to a series of chilled impingers. The first two contain 200 ml and 100 ml, respectively, of phosphate-buffered solution to collect indicator spores. The third impinger serves as a knock-out (empty) and the fourth contains silica gel. In between the third and fourth impinger, a small amount of quartz wool was placed to collect PM. This material was rinsed into the impinger catch during recovery operations. The remainder of the sampling train is identical to a Method 5 system. (Meter box containing pump, meter, velocity and sampling pressure manometers, etc.)

A Peristaltic pump is used to deliver the buffer solution to the probe tip. The pump is capable of accurately metering a 10 to 20 ml/minute flow rate.

5.3.2.2 Sampling Preparation. All equipment used for sampling and sample recovery, which come into contact with the sample, is H_2O_2/alcohol disinfected and washed before each run. The nozzle/probe liner, impingers, impinger connections, and the nozzle/probe brush are first washed using the same procedure as discussed in Section 5.3.4.2. Following washing, all components are disinfected with H_2O_2/alcohol. After completing this procedure, all components are sealed with Parafilm® to prevent contamination. Additional sample containers, recovery items, and analytical equipment are sterilized by autoclaving or another equivalent method. Some of the items which need to be sterilized are wash bottles, two liter glass sample storage bottles, incubation tubes, petri dishes, filter units, reagent water (sterile deionized), and buffering reagent.

The train is assembled by first antiseptically adding the buffer solution to the first two impingers. Silica gel is added to the fourth impinger and the impinger train is connected to the meter box via an umbilical line. A pre-test leakcheck on the impinger

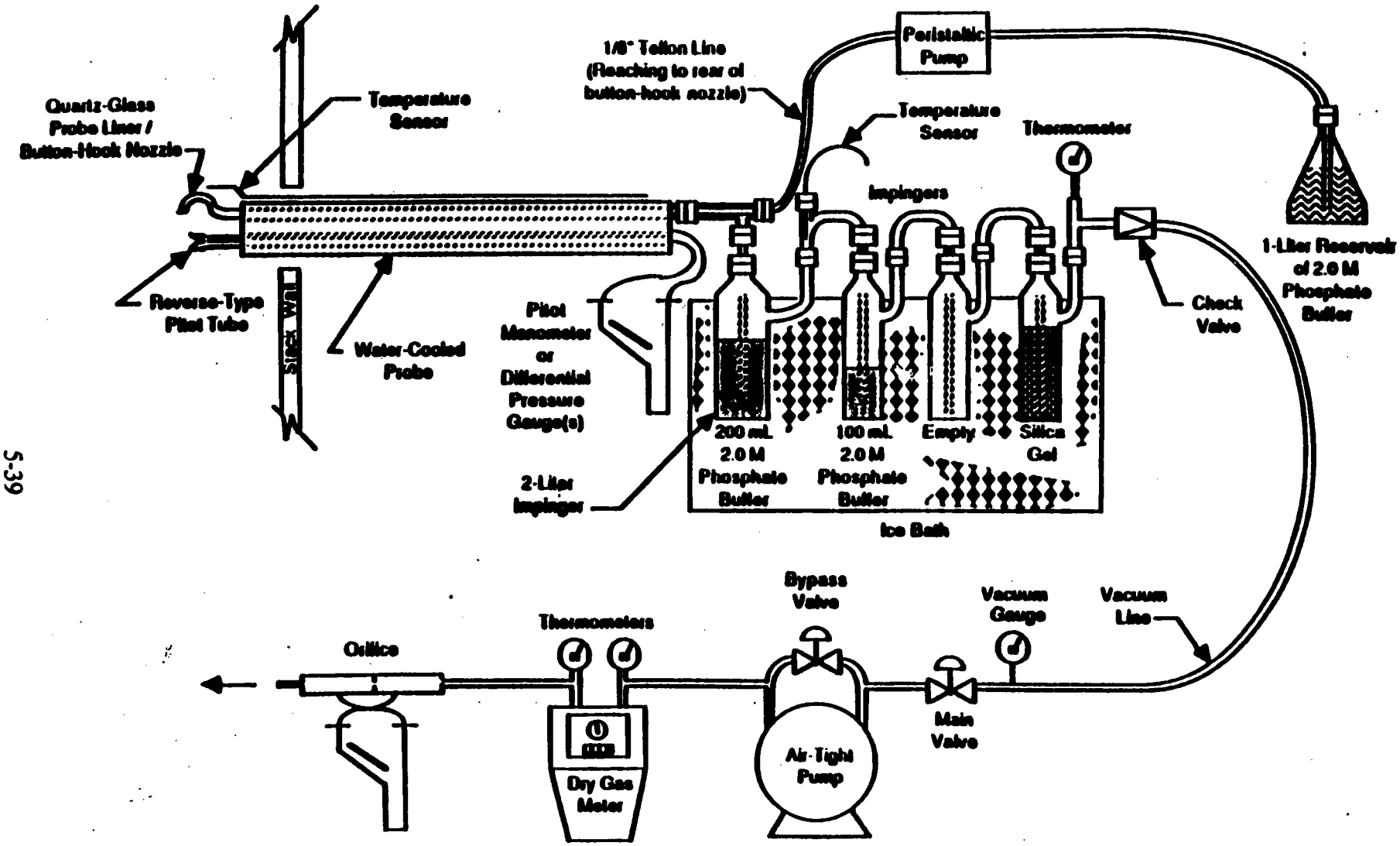


Figure 5-10. Sampling Train for Determination of Indicator Spore Emissions

train is completed at approximately 15 in. Hg. Leakage rates in excess of 4 percent of the average sampling rate or 0.02 cfm, whichever is less, are unacceptable.

5.3.2.3 Flue Gas Sampling. Before inserting the probe into the stack, the nozzle cap is removed and alignment of the nozzle and pitot tube are checked. The probe cooling water flow is started and adjusted. The buffering system pump is then started making sure that the probe is slightly inclined so that the buffer solution drains into the first impinger. The probe is inserted into the duct and located at the first sampling traverse point. Isokinetic sampling commences in accordance with Method 5 guidelines. All sampling parameters (ΔP, gas meter readings, stack temperature, meter temperatures, meter ΔH, meter vacuum, first impinger temperature, and silica gel impinger temperature) are periodically monitored, adjusted, and recorded throughout the test run.

Two different trains are used. When the first traverse is completed, the second traverse is immediately started with the second train.

After completion of the test run, the probe is removed from the stack and the flow of buffering solution turned off. The final meter reading is recorded and the sample train is leak checked. Post-test leakchecks are completed at a vacuum equal to or greater than the maximum vacuum reached during the sampling run. Acceptable post-test leakcheck criterion is the same as was previously mentioned for the pre-test leakchecks.

5.3.2.4 Sample Recovery. Sample recovery procedures are summarized in Figure 5-11. After the probe has cooled, the probe cooling water is turned off. The nozzle tip is inspected for port scrapings or any external matter near the tip and removed if found. The probe is disconnected from the impinger train and along with the probe buffer delivery tube, are rinsed and brushed with sterile buffer solution. All rinses are collected in a sterile sample bottle.

The impingers are weighed and the contents are antiseptically transferred to the sample bottle containing the nozzle/probe rinsings. The pH of the sample is adjusted if necessary to 6.0 to 7.5 with 1.0 N NaOH. The level of liquid in the sample bottle is marked to determine later if leakage occurred during transport. The bottle is then packed in ice so that sample temperatures are maintained at or below 4°C (39°F), for shipment to the laboratory.

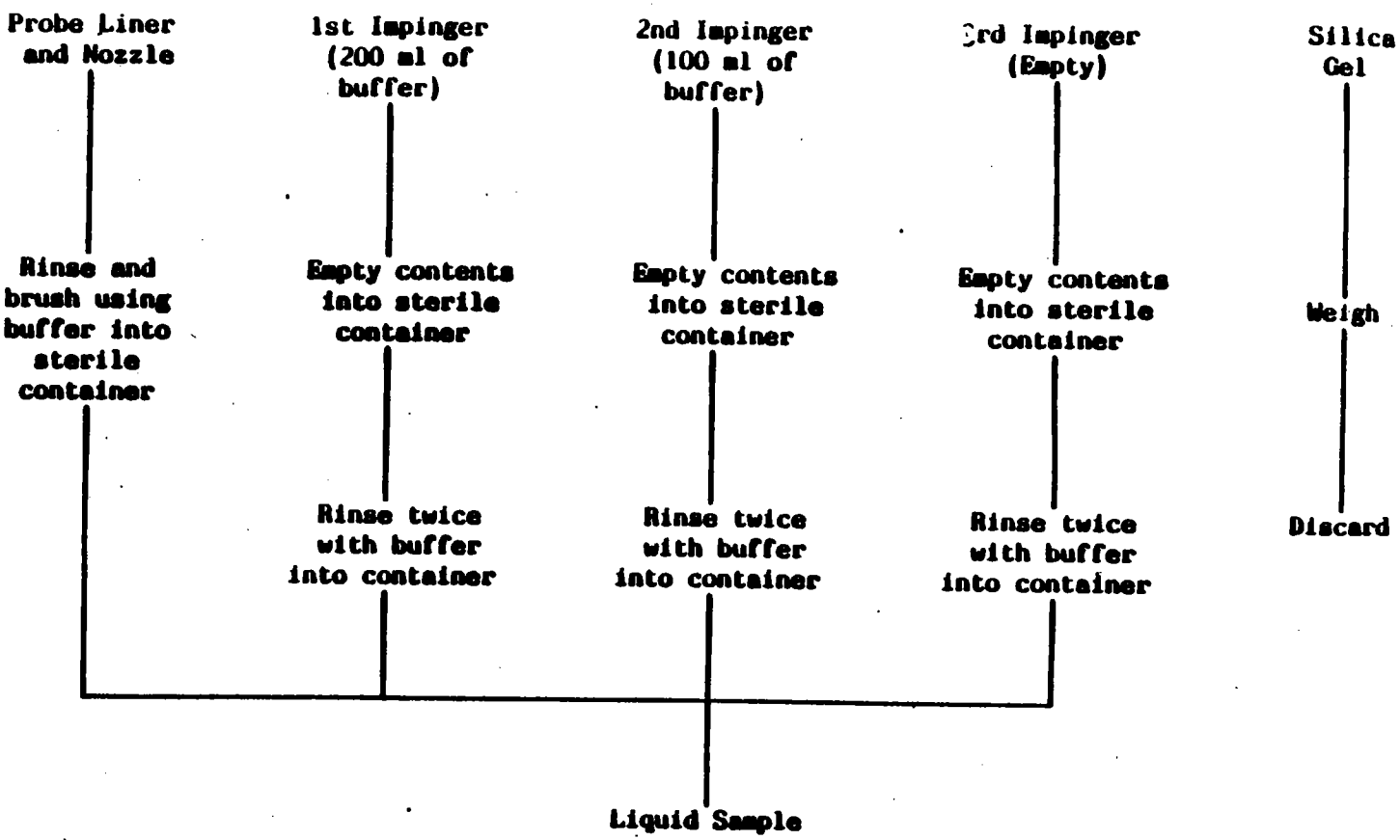


Figure 5-11. Sample Recovery Scheme for Microbial Viability Testing

5.3.3 Direct Ash Sampling for Indicator Spores

Direct ash sampling provides an indication of the ability of the indicator organism to survive the incinerator process under various conditions. An outline of the proposed ash sampling protocol can be found in Appendix A of the test plan. Ash samples are recovered from the ash when it has cooled sufficiently. Ash samples are taken using a sampling thief. During each sampling run, three samples are taken. Two are transported to the laboratory to culture and identify and the third sample is used to determine the pH of the material. Laboratory samples are tested in accordance with proposed Draft Method found in Appendix A of the test plan.

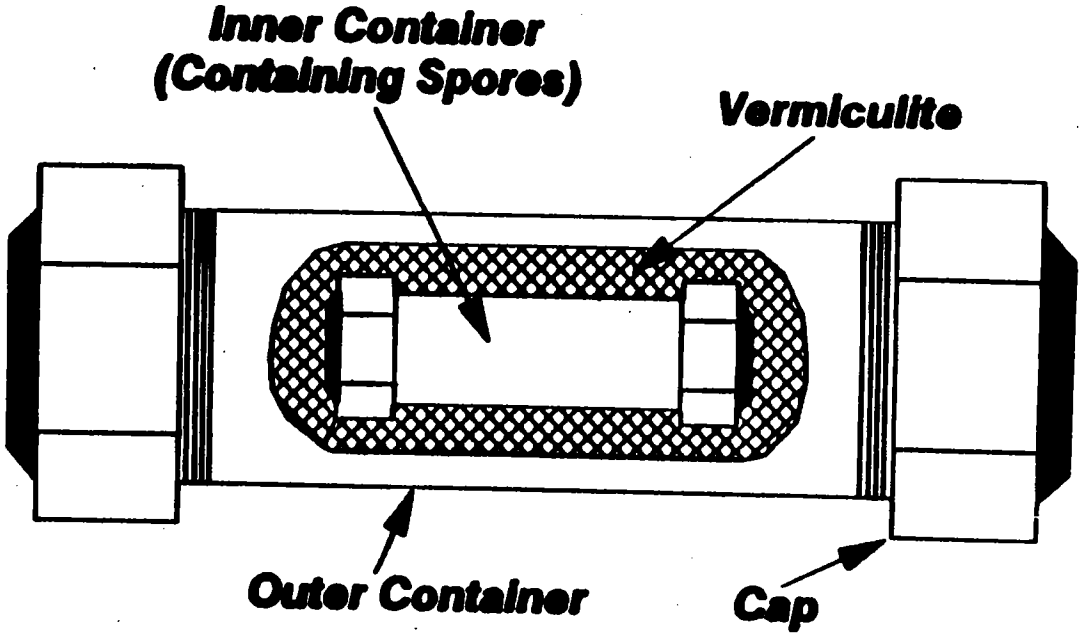
5.3.3.1 Equipment. Ash samples are taken using a precleaned plastic scoop and placed in sample containers for transport to the laboratory. These samples are stored on ice. The pH of the ash is determined by adding a known amount of deionized water to a weighed aliquot of ash and measuring the pH by specific ion electrode.

5.3.4 Pipe Spiking Procedures

The waste is charged into the incinerator with known quantities of Bacillus stearothermophilus (B. stearothermophilus) contained in insulated pipes. Samples are cultured according to the Draft Method found in Appendix A.4 of the test plan. Colonies of B. stearothermophilus are then gram stained to ensure correct cellular morphology and further identified using biochemical tests as needed. Enumeration of B. stearothermophilus is then completed.

5.3.4.1 Spiking Equipment. A diagram of the pipe sample assembly used for the pipe test is shown in Figure 5-12. The indicator organisms are freeze-dried spores (lyophilized) that were prepared by American Type Culture Collection in Rockville, Maryland. A small amount of lyophilized material equalling approximately 10^6 spores is prepared and placed in a small glass vial. Each pipe sample uses the contents of 1 spore vial.

The sample is placed in a short piece (2-4 inch) of 3/8 stainless steel tubing capped on both ends with Swagelock™ caps. This "inner container" is then placed in an "outer container" which is a 1¼ inch or 2 inch diameter steel pipe nipple about 4 to 6 inches long. Each outer container is identified with a unique identification number for tracking of feed time and location. Enough vermiculite or other thermal insulation



Two sizes will be used:
2" diameter x 6" long and 1 1/2" diameter x long

Figure 5-12. Ash Quality Pipe Assemblies

surrounds the inner container to maintain its position in the center of the outer container and to protect it from thermal shock. Both ends of the outer container are capped.

5.3.4.2 Spiking Preparation. The inner container and caps are cleaned and disinfected before use. This procedure consists of soaking the containers for at least one hour in 1.0 N HNO_3, washing with laboratory detergent, rinsing 3 times with tap water, 3 times with sterilized deionized water, and finally, rinsing with 90 percent alcohol.

The spiked sample is prepared by placing a known amount of spores (targeted at 10^6) inside the inner container and then sealed using the end caps. The inner container is placed in the outer container with enough vermiculite to position it in the center. Additional vermiculite is added and tapped down gently. Finally, the outer container is sealed by securing the other end cap.

5.3.4.3 Spiking Procedure. The incinerator spike varies according to the loading procedure. The Central Carolina Hospital MWI is a ram-loading, continuous-burning incinerator, which operates from approximately 7:00 a.m. to 3:00 p.m. each day. A single pipe spike is charged to the incinerator at the beginning, middle, and end of each day's operation. The first pipe is fed in the first load of the day at about 7:00 a.m. The second pipe is added to a load approximately at noon. The last pipe is added with the last load of the day (about 3:00 p.m.). The exact times for charging the spikes are coordinated with hospital personnel.

The pipe sample is placed in the charging hopper at random locations that correspond to where the MWI bags are placed in the hopper.

5.3.4.4 Sample Recovery. The pipes are recovered from the incinerator following a cool down period the morning following the test run. The ash cleanout door is opened at about 7:00 a.m. During this period, the location of the samples on the grate is recorded to the extent possible. The samples are recovered and the hot ashes removed from the ignition chamber. Excess debris is removed from the outer container and each pipe is placed in a plastic bag. The pipe samples are maintained at or below 4°C (39°F) in an ice cooler with care to protect them from contamination from melting ice.

5.3.5 Microbial Analysis

The quantity of viable spores are determined from the pipe samples, flue gas samples, and the direct ash samples. Sample preparation for the three sample types is discussed below.

5.3.5.1 Pipe Sample and Ash Analytical Preparation Procedure. The sample preparation and analysis scheme for the pipe and ash samples are presented in Figures 5-13 and 5-14. The analysis is performed within 96 hours after sample recovery. The contents of the inner container of the pipe and the direct ash samples are transferred to separate sterile incubation tubes. The inside of the sample containers are rinsed with sterile phosphate buffer solution into the respective incubation tube. Any glassware used for this transfer procedure is rinsed with sterile deionized water into the respective incubation tubes. The direct ash samples are mixed and aseptically added to 100 mls of sterile deionized water before further processing.

5.3.5.2 Flue Gas Sample Analytical Preparation Procedure. The sample preparation and analysis scheme is presented in Figures 5-15. The level of each sample is checked to determine if leakage during shipment occurred. Each sample contains approximately 1.5 to 2.0 liters of sample. The sample is then aliquoted and prepared as shown in Figure 5-15. Three 10 ml aliquots, three 100 ml aliquots, and three equal volume of the remaining solution is prepared. The aliquots are placed in sterile incubation tubes, one set is processed without heat-treatment, the other with heat-treatment. Each aliquot is then filtered and placed onto agar plates as discussed in the following sections.

5.3.5.3 Colonial Enumeration and Identification Procedure. Agar plates are prepared by pouring the molten trypticase soy agar into a sufficient number of petri dishes for both sample and field blanks. The media is then allowed to harden. Each sample is then filtered through a separate vacuum filter unit employing a sterile cellulose nitrate filter (0.2 μm). The incubation tube is rinsed with sterile deionized water and poured through the filter as well. Each filter is removed from the filtering unit using sterile forceps and placed face up on an agar plate. The plates are incubated in an air convection incubator at 65°C (49°F) for 18 to 24 hours prior to colonial examination.

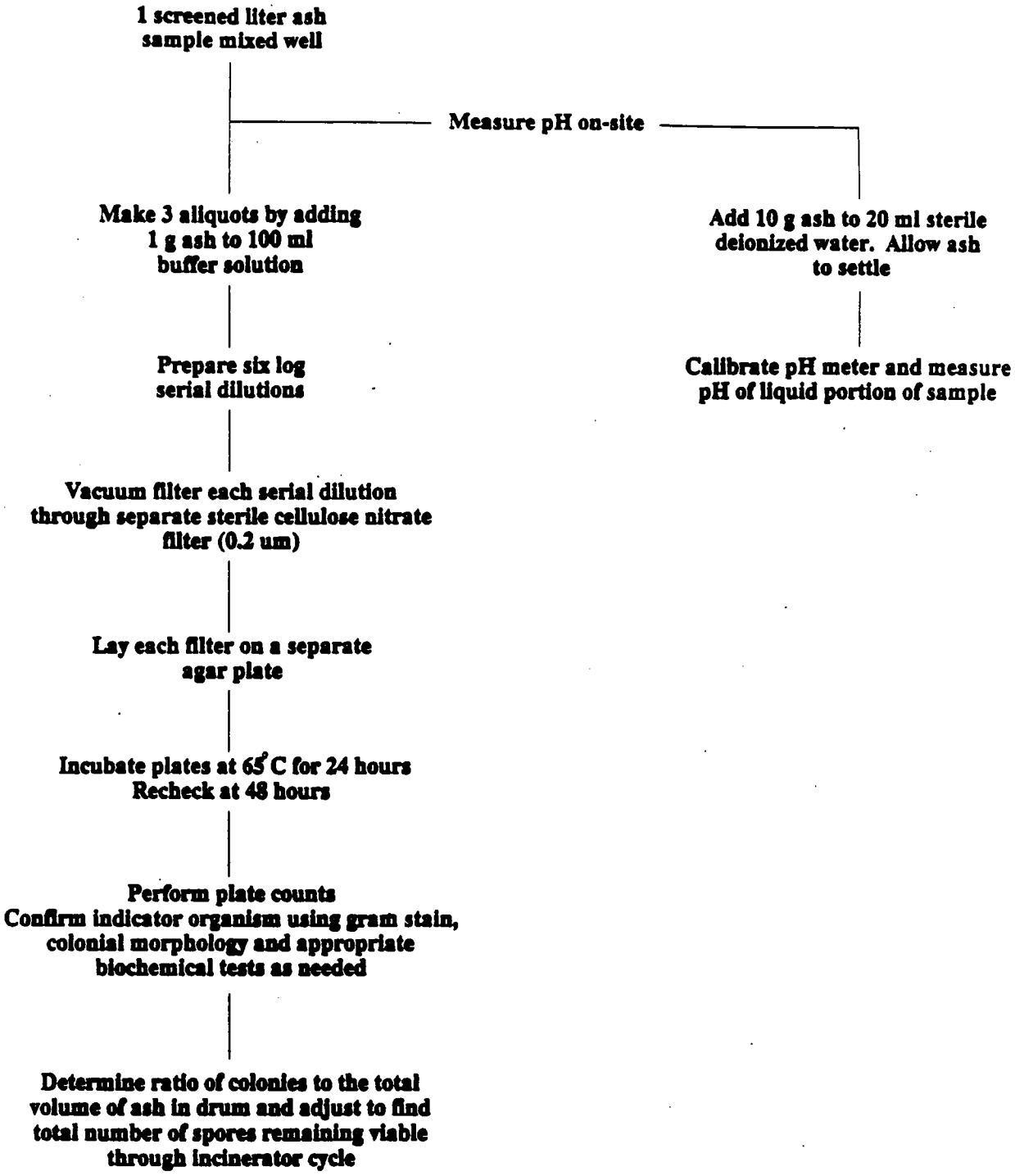


Figure 5-13. Sample and Analysis Scheme for Microbial Testing of Ash Samples

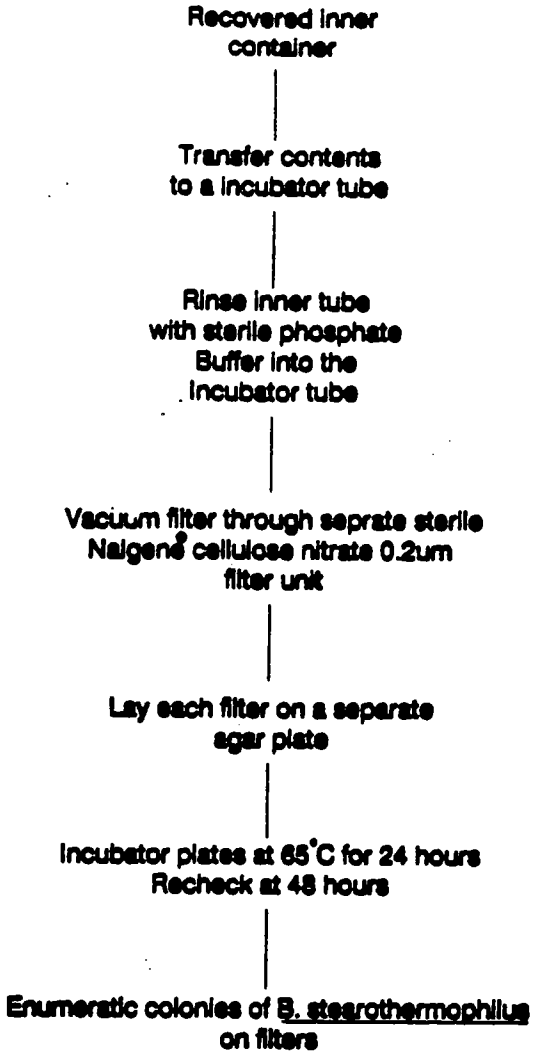


Figure 5-14. Analysis Scheme for Pipe Sample Microbial Viability Tests

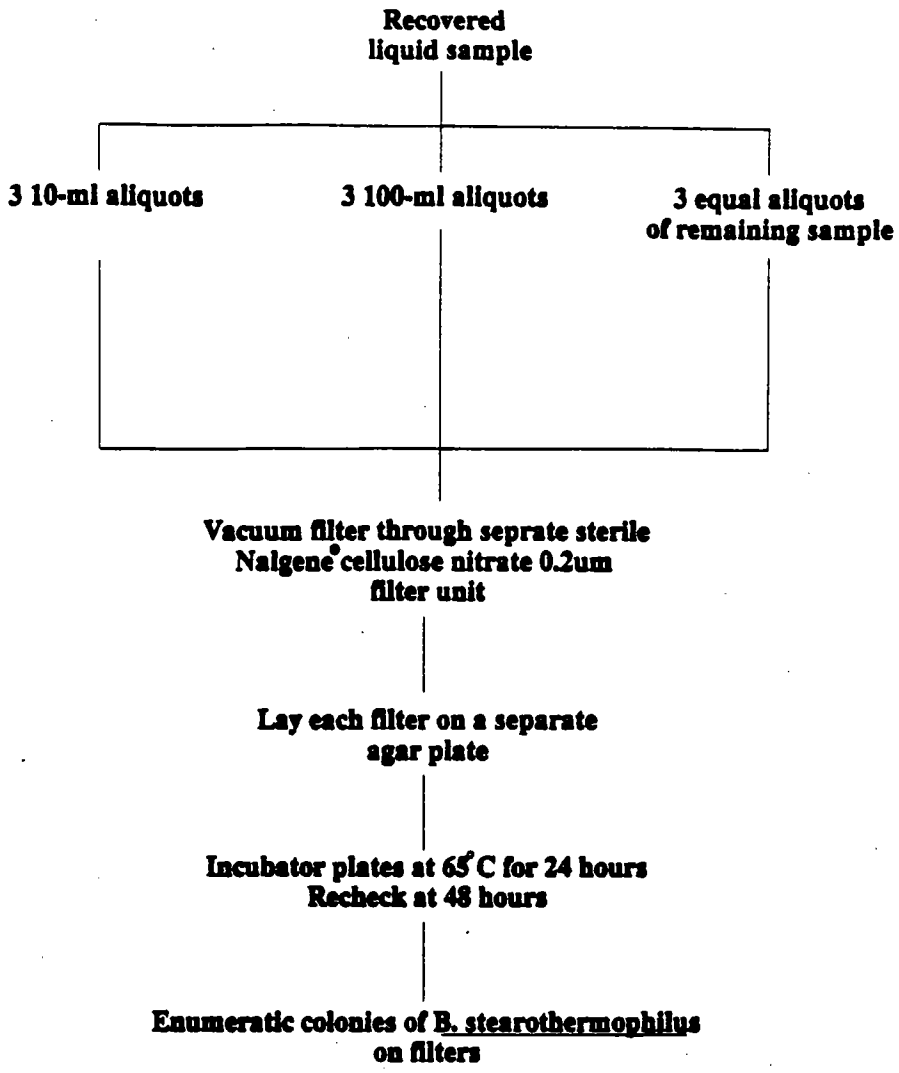


Figure 5-15. Sample Preparation and Analysis Scheme for Microbial Testing

The plates are removed from the incubator and colonies of B. stearothermophilus are quantified. A variety of tests including a gram stain and biochemicals may be used to confirm that the colonies are B. stearothermophilus.

5.3.5.4 Indicator Spore Analytical Quality Control. The QA/QC procedures followed during spore enumeration and verification procedures (analysis) are documented in Table 5-9. An aliquot from one batch of the wet spore spiking slurry is sent to RTI to verify the manufacturer's count.

Field blanks from a flue gas (impinger) sample as well as a non-charged pipe sample, are analyzed to check for contamination during preparation or recovery procedures. Duplicates are analyzed for impinger samples from two test runs.

A blank ash sample is collected prior to the test program to check for the presence of indicator spores prior to any spiking.

5.4 HYDROGEN CHLORIDE/HYDROGEN BROMIDE/HYDROGEN FLUORIDE EMISSIONS TESTING BY EPA METHOD 26

Hydrogen chloride HBr, and HF sampling is accomplished using a single sampling train. The procedure follows the EPA Method 26 draft protocol entitled "The Determination of HCl Emissions from Municipal and Hazardous Waste Incinerators." In this method, an integrated gas sample is extracted from the stack and passed through acidified water. In acidified water, HCl solubilizes and forms Cl^- ions. Ion chromatography is used to detect the Cl^- ions present in the sample. For this test program, the presence of Br^- and F^- ions are also be detected by IC. The method is included in Appendix A.

5.4.1 HCl/HBr/HF Sampling Equipment

A diagram of the HCl/HBr/HF sampling train is shown in Figure 5-16. The sampling train consists of a quartz probe with a pallflex Teflon/glass filter to remove PM, and a series of chilled midget impingers and a DGM system. A small amount of quartz glass wool was placed in the front half of the filter holder to help remove excessive PM found in this gas stream. Because the high temperatures of the stack and the shortness of the sampling probe keep sample gas in the probe above the acid dewpoint, the probe is not heated. The train consists of an optional knockout impinger followed by two impingers containing 0.1 N sulfuric acid (H_2SO_4) to collect HCl, HBr,

TABLE 5-9. INDICATOR SPORE TESTING QA/QC CHECKS

Sample Type	Number	QA/QC Check
Wet Spores	1	Verify manufacturer's wet spore count by sending an aliquot from one slurry to RTI for count.
Field Blank - Impinger Sample	1	Prepare train through leakcheck, run buffer solution for 2 hours, collect 1 field blank sample
Field Blank - Pipe Sample	2	Fully prepare pipe sample without placing spore charge inside to check for handling contamination
Duplicates - Impinger Sample	2	Complete duplicate analyses on 2 impinger samples from 2 test runs
Field Duplicates - Pipe Samples	3	Load duplicate pipe samples on 3 separate occasions into incinerator and analyze
Pre-Test Ash Blank	1	Collect ash samples using the test procedures prior to any spiking of indicator spores

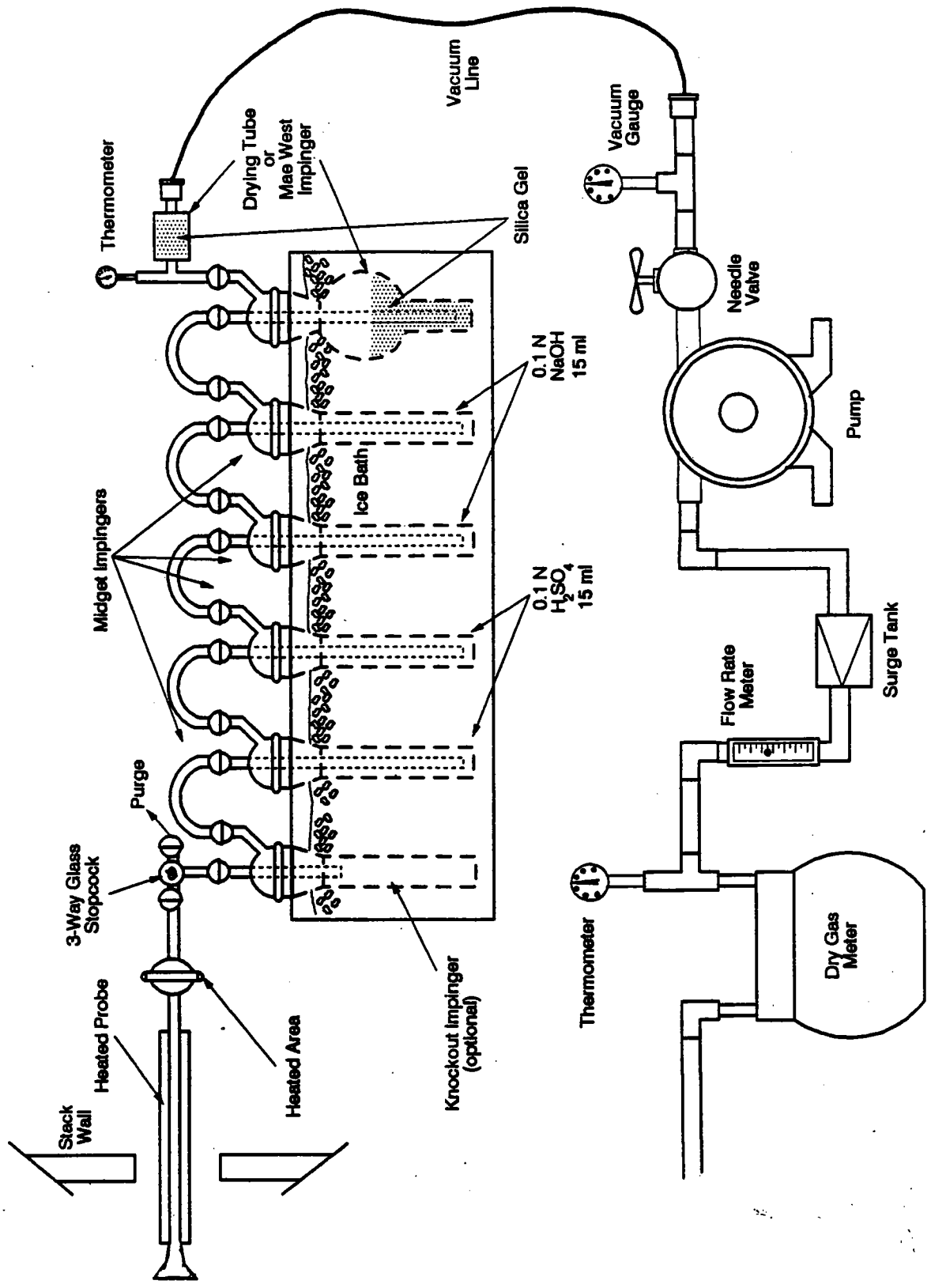


Figure 5-16. HCl Sample Train Configuration

and HF; two impingers containing 0.1 N NaOH to capture any pollutants present in the flue gas that might cause DGM damage; and finally one silica gel impinger.

5.4.2 HCl/HBr/HF Sampling Preparation

5.4.2.1 Equipment Preparation. Sampling preparation includes calibration and leak checking of all train equipment. This includes meterboxes, thermocouples, and umbilicals. Referenced calibration procedures are followed when available, and the results properly documented and retained. If a referenced calibration technique for a particular piece of apparatus is not available, then a state-of-the-art technique is used.

5.4.2.2 Assembling the Train. Assembly of the sampling train is done both in the recovery trailer and at the stack location. First, the empty clean impingers are assembled and laid out in the proper order. The optimal knockout impinger was not used for testing at this facility. The first two impingers contained 15 to 20 ml 0.1 N H_2SO_4 each, followed by two impingers filled with 15 to 20 ml each of 0.1 N NaOH, and finally an impinger containing 20 to 30 grams of silica gel. When the impingers are loaded, they may be wrapped with Teflon® tape to secure the two sections of the impinger. The impingers are connected together using U-tube connectors and arranged in the impinger bucket. The height of all the impingers should be approximately the same to easily obtain a leak-free seal. The open ends of the train are sealed with aluminum foil.

5.4.3 HCl/HBr/HF Sampling Operations

Prior to sampling, the HCl/HBr/HF train is leakchecked as required by Method 26 protocol. The leak checking procedure is the same as that discussed in Section 5.1. The leak rate, sampling start and stop times, and any other events are be recorded on the sampling task log. Upon completion of a sampling run, repeat the leakcheck procedure. Sampling train data are recorded every five minutes, and include readings of the DGM, DGM temperature, flow rate meter, and vacuum gauge.

5.4.4 HCl/HBr/HF Sample Recovery

The impingers are disconnected from the probe and filter and moved to the recovery trailer. Once in the trailer, the contents of the two acidified impingers are quantitatively recovered with deionized distilled water and placed into a clean sample bottle. The sample bottle should be sealed, mixed and labeled, and the fluid level marked. The contents of the second set of impingers (containing the 0.1 N NaOH) are discarded for every triplicate series except for one. These will be archived for possible future analyses. The sample recovery scheme is shown in Figure 5-17.

5.4.5 HCl/HBr/HF Analytical Procedures

Before analysis, the samples are checked against the chain-of-custody forms and then given an analytical laboratory sample number. Then, each sample is examined to determine if any leakage occurred and any color or other particulars of the samples are noted.

The IC conditions are described by the type of analytical column and whether suppressed or nonsuppressed IC is used. Prior to sample analysis, a stable baseline is established and water samples are injected until no Cl^-, Br^-, or F^- appears in the chromatogram. Then, the IC is calibrated using standards spanning the appropriate concentration range, starting with the lowest concentration standard. Next, a QC check sample is injected in duplicate, followed by a water blank and the field samples. The calibration standards are re-injected at the end of the analysis to allow compensation for any drift in the instrument response during analysis of the field samples. The Cl^-, Br^-, and F^- sample concentrations are calculated from either the respective ion peak area or peak height and the calibration curve.

5.4.6 HCl/HBr/HF Analytical Quality Control

The IC is calibrated with a minimum of three concentrations, not including zero. A correlation coefficient of greater than or equal to 0.995 must be achieved to have an acceptable calibration. At least 10 percent of the total number of samples are analyzed in duplicate. Ion concentrations in the duplicates must agree to within ±20 percent.

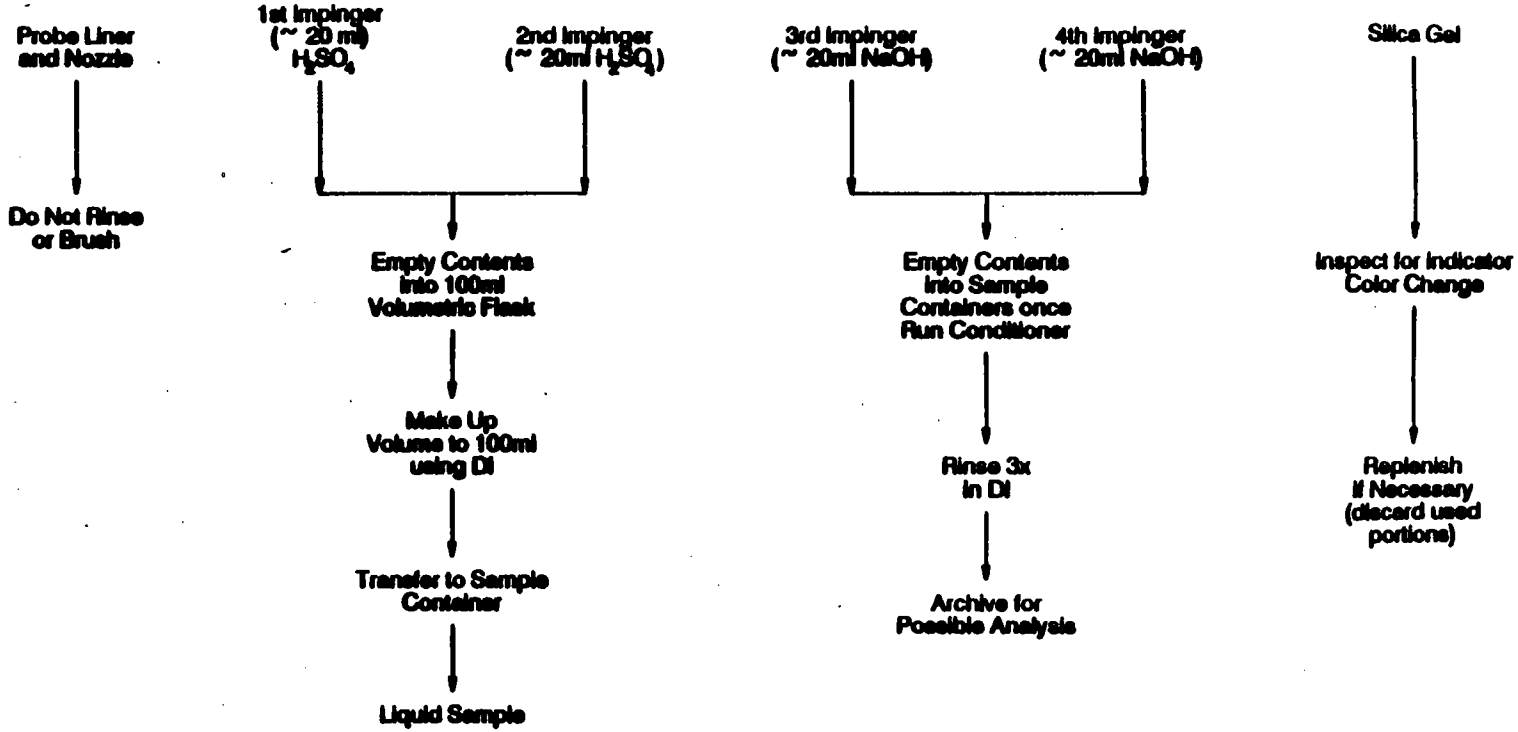


Figure 5-17. HCl/HBr/HF Sample Recovery Scheme

5.5 EPA METHODS 1-4

5.5.1 Traverse Point Location By EPA Method 1

The number and location of sampling traverse points necessary for isokinetic and flow sampling will be dictated by EPA Method 1 protocol. These parameters are based upon how much duct distance separates the sampling ports from the closest downstream and upstream flow disturbances. The minimum number of traverse points for a circular duct less than 24 inches is 4 (8 total sample points). Several sets of perpendicular sampling ports are established in the incinerator outlet. Traverse point locations are determined for each port depending on the distances to duct disturbances (see Section 4).

5.5.2 Volumetric Flow Rate Determination by EPA Method 2

Volumetric flow rate is measured according to EPA Method 2. A Type K thermocouple and S-type pitot tube are used to measure flue gas temperature and velocity, respectively. All of the isokinetically sampled methods that are used incorporate Method 2 (CDD/CDF, PM/Metals, Microorganisms).

5.5.2.1 Sampling and Equipment Preparation. For EPA Method 2, the pitot tubes are calibrated before use following the directions in the method. Also, the pitots are leak checked before and after each run.

5.5.2.2 Sampling Operations. The parameters that are measured include the pressure drop across the pitots, stack temperature, and stack static and ambient pressure. These parameters are measured at each traverse point, as applicable. A computer program is used to calculate the average velocity during the sampling period.

5.5.3 O_2 and CO_2 Concentrations by EPA Method 3A

The O_2 and CO_2 concentrations are determined by CEMs following EPA Method 3A. Flue gas is extracted from the duct and delivered to the CEM system through heated Teflon® tubing. The sample stream is then conditioned (particulate and moisture removed) and is directed to the analyzers. The O_2 and CO_2 concentrations are, therefore, determined on a dry basis. Average concentrations are calculated to coincide with each respective time period of interest. More information on the CEM system will be given in Section 5.6.

5.5.4 Average Moisture Determination by EPA Method 4

The average flue gas moisture content is determined according to EPA Method 4. Before sampling, the initial weight of the impingers is recorded. When sampling is completed, the final weights of the impingers are recorded, and the weight gain is calculated. The weight gain and the volume of gas sampled are used to calculate the average moisture content (percent) of the flue gas. The calculations are performed by computer. Method 4 is incorporated in the techniques used for all of the manual sampling methods that are used during the test.

5.6 CONTINUOUS EMISSIONS MONITORING (CEM) METHODS

EPA Methods 3A, 7E, 6C, and 10 are continuous monitoring methods for measuring CO_2, O_2, NO_x, SO_2, and CO concentrations. Total hydrocarbons are analyzed by EPA Method 25A. Flue gas HCl concentrations are also monitored using CEM procedures using state-of-the-art equipment and procedures. A diagram of the CEM system is shown in Figure 5-18.

Two extractive systems are used to obtain flue gas samples for the CEM systems. One system is for HCl monitoring and the other system is for all other CEMs. For the main CEM extraction system, samples are withdrawn continuously at a single point from the incinerator outlet duct and transferred to the CEM trailer through heat-traced Teflon® line. The flue gas is conditioned (temperature lowered and moisture removed) before the flue gas stream is split using a manifold to the various analyzers. Hydrocarbon measurements are made on a wet basis; therefore, its sample stream bypasses the gas conditioner.

5.6.1 CEM Sampling Equipment

5.6.1.1 Sample Probes. The main CEM probe consists of a black iron pipe mounted to a Swagelok® reducing union which is attached directly to the heat trace tubing. The probe is placed approximately at a point of average velocity in the stack determined by a prior velocity traverse.

5.6.1.2 Heated Lines. Heated sample lines are used to transfer the flue gas samples to the instrument trailer for O_2, CO_2, NO_x, SO_2, CO, and THC analyses. These lines are heated in order to prevent condensation. Condensate could clog sample lines or provide a medium for the flue gas sample to react and change composition.

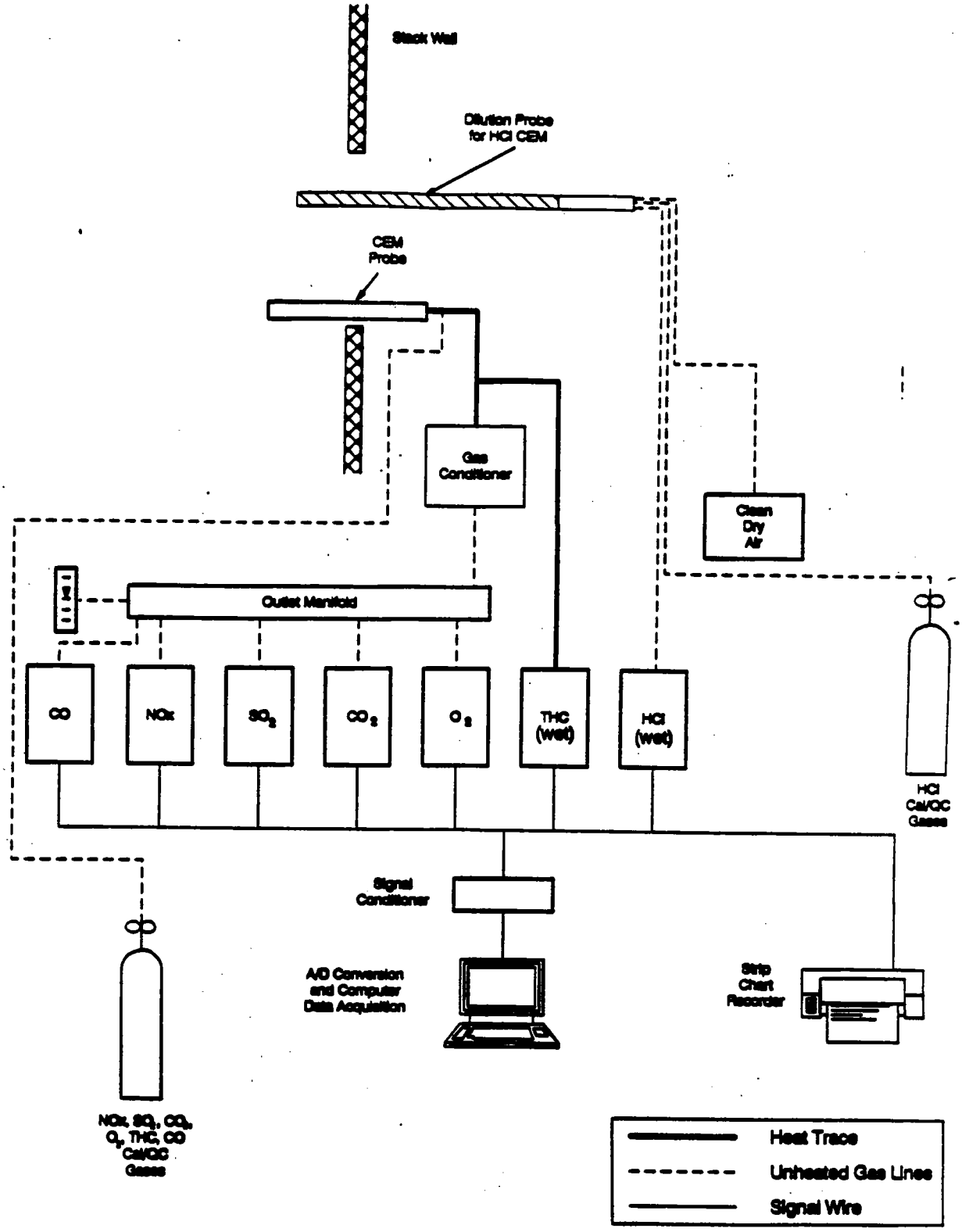


Figure 5-18. Scematic of CEM System

All heat trace lines contain three 3/8 inch Teflon® tubes. One tube carries the sample, one tube is used for calibration and QC gases, and the other is available as a backup. These gases can then be directed up to the sampling probe and through the entire sampling/conditioning system.

5.6.1.3 Gas Conditioning. Exemplar PEL 3 and PEL 4-Special gas conditioners are used to reduce the moisture content of the flue gas. The Exemplar systems use thermoelectric cooling plates to lower the temperature of the gas and condense any moisture in the sample. Condensate is immediately removed from the sample path by a dried sample slipstream that blows across the plates, greatly reducing the potential for sample bias. Additionally, the systems operate under positive pressure eliminating the possibility of a leak. The gas conditioner may be located in the CEM trailer or at the sampling location depending on site conditions.

5.6.1.4 HCl CEM Sample System. The HCl flue gas concentrations are monitored using a CEM analyzer as well as by manual test runs. The HCl CEM sampling system uses a GMD Model 797 dilution probe. This probe cannot be used at the expected flue gas temperature ranges (approximately 1600-1900°F). Therefore, a slip-stream of flue gas is extracted from the stack and allowed to cool to approximately 400 to 500°F as it passes through a length of smaller pipe (i.e., 1 inch ID). The dilution probe is placed in a sampling well in the slipstream pipe for HCl CEM gas extraction. A thermocouple is located adjacent to the probe to monitor gas temperatures (see Figure 5-16). A nominal dilution ratio of 200:1 is used.

5.6.2 CEM Principles of Operation

5.6.2.1 SO_2 Analysis. The Western 721A SO_2 analyzer is essentially a continuous spectrophotometer in the ultraviolet (UV) range. The SO_2 selectively absorbs UV light at a wavelength of 202.5 nm. To take advantage of this property of SO_2, the analyzer emits UV light at 202.5 nm and measures the absorbance (A) of the radiation through the sample cell by the decrease in intensity. Beer's law, $A = abc$, is used to convert the absorbance into SO_2 concentration (A = absorbance, a = absorbitivity, b = path length, c = concentration). The SO_2 measurements are performed using EPA Method 6C.

5.6.2.2 NO_x Analysis. The principle of operation of this instrument is a chemiluminescent reaction in which ozone (O_3) reacts with nitric oxide (NO) to form

oxygen (O_2) and nitrogen dioxide (NO_2). During this reaction, a photon is emitted which is detected by a photomultiplier tube. The instrument is capable of analyzing total oxides of nitrogen ($NO + NO_2$) by thermally converting NO_2 to NO in a separate reaction chamber prior to the photomultiplier tube, if desired. The NO_x measurements are performed using EPA Method 7E.

5.6.2.3 O_2 Analysis. Oxygen analysis is completed using one of the instruments discussed below.

The Thermox WDG III measures O_2 using an electrochemical cell. Porous platinum electrodes are attached to the inside and outside of the cell which provide the instrument voltage response. Zirconium oxide contained in the cell conducts electrons when it is hot due to the mobility of O_2 ions in its crystal structure. A difference in O_2 concentration between the sample side of the cell and the reference (outside) side of the cell produces a voltage. This response voltage is proportional to the logarithm of the O_2 concentration ratio. A linearizer circuit board is used to make the response linear. Reference gas is ambient air at 20.9 percent O_2 by volume.

The Beckman 755 O_2 analyzer uses electron paramagnetic resonance to detect O_2 molecules. Unlike most substances, O_2 has a triplet electron ground state which leaves one electron unpaired, making it a paramagnetic molecule. This electron may have one of two spin quantum states ($m_s = \pm 1/2$). By applying an alternating electromagnetic field of the proper frequency, the Beckman 755 O_2 analyzer induces resonance between the two spin quantum states. In effect, the O_2 analyzer measures the electromagnetic energy absorbed by O_2 molecules at the resonant frequency. Oxygen measurements are performed using EPA Method 3A.

5.6.2.4 CO_2 Analysis. Non-dispersive infrared (NDIR) CO_2 analyzers emit a specific wavelength of infrared (IR) radiation through the sample cell which is selectively absorbed by CO_2 molecules. The intensity of radiation which reaches the end of the sample cell is compared to the intensity of radiation through a CO_2-free reference cell. A reference cell is used to determine background absorbance which is subtracted from the sample absorbance. The detector uses two chambers filled with CO_2 which are connected by a deflective metallic diaphragm. One side receives radiation from the sample cell and the other side receives radiation from the reference cell. Since more

radiation is absorbed in the sample cell than in the reference cell, less radiation reaches the sample side of the detector. This causes a deflection of the diaphragm due to increased heat from radiation absorption on the reference side. Deflection of the diaphragm creates an electrical potential which is proportional to absorbance. Absorbance is directly proportional to CO_2 concentration in the gas. Carbon dioxide measurements are performed using EPA Method 3A.

5.6.2.5 CO Analysis. Either a TECO Model 48 or a Model 48H analyzer will be used to monitor CO emissions. Both TECO analyzers measure CO using the same principle of operation as CO_2 analysis. The instruments are identical except that a different wavelength of infrared radiation is used; 5 nm is selective for CO. Carbon monoxide measurements are performed using EPA Method 10.

5.6.2.6 Total Hydrocarbon Analysis. Either a Beckman Model 400, 402 or 404 will be used to monitor Total Hydrocarbon (THC) emissions. By allowing the THC sample stream to bypass the gas conditioners, concentrations will be determined on a wet basis. All analyses employ Flame Ionization Detectors (FID). As the flue gas enters the detector the hydrocarbons are combusted in a hydrogen flame. The ions and electrons formed in the flame enter an electrode gap, decrease the gas resistance, and permit a current flow in an external circuit. The resulting current is proportional to the instantaneous concentration of the total hydrocarbons. This method is not selective between species. EPA Method 25A applies to the continuous measurement of total gaseous organic concentrations of primarily alkanes, alkenes, and/or arenes (aromatic hydrocarbons). The results are reported on a methane basis and methane is used as the calibration gas.

5.6.2.7 HCl CEM Analysis. HCl flue gas concentrations are continuously monitored using an NDIR/GFC instrument manufactured by Thermo Electron Corporation (TECO). Detection of HCl is achieved by alternately passing an infrared (IR) beam between reference HCl gas and reference HCl free gas contained in the filter wheel. The "chopped" beam passes through the sample cell to the detector. The difference in IR beam strength caused by the absorption of the IR beam is proportional to the HCl concentration.

5.6.3 CEM Calibration

All the CEM instruments are calibrated once during the test program (and linearized, if necessary) using a minimum of three certified calibration gases (zero and two upscale points). Radian performs the multipoint calibrations with four general categories of certified gases: zero gas (generally N_2), a low scale gas concentration, a midrange concentration, and a high scale concentration (span gas). The criterion for acceptable linearity is a correlation coefficient (R^2) of greater than or equal to 0.998, where the independent variable is cylinder gas concentration and the dependent variable is instrument response. If an instrument does not meet these requirements, it is linearized by adjusting potentiometers on the linerarity card within the instrument or by other adjustments, if necessary.

The CEM analyzers are calibrated before and after each test run (test day) on a two point basis: zero gas (generally N_2), and a high-range span gas. These calibrations are used to calculate response factors used for sample gas concentration determinations. Instrument drift as a percent of span is also determined using these calibrating for each test run.

After each initial calibration, midrange gases for all instruments are analyzed, with no adjustment permitted, as a quality control (QC) check. If the QC midrange gas concentration observed is within ±2 percent of full scale, the calibration is accepted and the operator may begin sampling. If the QC check does not fulfill this requirement, another calibration is performed and linearization may be performed if deemed necessary. Calibration procedures are further detailed in the daily operating procedure (Section 5.6.5).

Table 5-10 lists the concentration of all calibration and QC gases to be used on this test program.

5.6.4 Data Acquisition

The data acquisition system used for AMI Central Carolina Hospital MWI test program consists of an Omega signal conditioner, a Tecmar A/D converter and a COMPAQ 286 computer. All instrument outputs are connected in parallel to stripchart recorders and the Omega signal conditioner. The stripchart recorders are a back-up system to the computer data acquisition system data. The signal conditioner adjusts the

TABLE 5-10. CEM OPERATING RANGES AND CALIBRATION GASES

Analyte	Gas Concentration
$\underline{CO_2}$	
Instrument	Beckman 865
Range	0-20%
Span Gas Value	18%
Zero Gas	N_2
Midrange QC Gas Value	10%
Low Range QC Gas Value	5%
$\underline{CO}$ - dry	
Instrument	TECO 48H
Range	0-50,000 ppm
Span Gas Value	1000, 9000 or 19,000 ppm[a]
Zero Gas	N_2
Midrange QC Gas Value	1000 or 9000 ppm
Low Range QC Gas Value	2100 ppm
$\underline{CO}$ - wet	
Instrument	TECO 48
Range	0-100, 0-200, 0-5000 ppm
Span Gas Value	1000, 180 or 90 ppm[a]
Zero Gas	N_2
Midrange QC Gas Value	180 ppm
Low Range QC Gas Value	90 ppm
$\underline{O_2}$	
Instrument	Thermox WDG III
Range	0-25%
Span Gas Value	20%
Zero Gas	0.2% O_2
Midrange QC Gas Value	10%
Low Range QC Gas Value	5%
$\underline{SO_2}$	
Instrument	Western 721A
Range	0-500 or 0-5000 ppm
Span Gas Value	200 or 50 ppm
Zero Gas	N_2
Midrange QC Gas	100 ppm
Low Range QC Gas	30 ppm

TABLE 5-10. CEM OPERATING RANGES AND CALIBRATION GASES, continued

Analyte	Gas Concentration
NO_x	
Instrument	TECO 10AR
Range	0-250 ppm
Span Gas Value	200 ppm
Zero Gas	N_2
Midrange QC Gas Value	100 ppm
Low Range QC Gas Value	50 ppm
THC	
Instrument	Beckman 402
Range	0-10, 0-50, 0-100 ppm
Span Gas Value	100 ppm as methane
Zero Gas	N_2
Midrange QC Gas Value	45 ppm as methane
Low Range QC Gas Value	25 ppm as methane
HCl	
Instrument	TECO Model 15
Range	0-2000 ppm
Span Gas Value	1800 ppm
Zero Gas	N_2
Midrange QC Gas Value	900 ppm
Low Range QC Gas Value	100 ppm

[a] Several sets of calibration/QC gases were acquired in order to closely approximate stack gas concentrations.

voltage response range from the output range of the instrument (typically 0-100 mV or 0-10 mV) to 0-5 volts. The A/D converter then digitizes the analog inputs for use by the computer. A Radian computer program translates the digitized voltages into relevant concentrations in engineering units (ppmV, %V, etc.). The computer program has several modes of operation: calibration, data acquisition, data reduction, data view, data edit, and data import. The import function is used to combine other data files for comparison and correlation. On-line color graphics and data manipulation are included in the data acquisition portion of the program so that the operator and on-site engineers may monitor trends in the process.

5.6.5 Daily Operating Procedure

The following is a detailed standard operating procedure for calibrating and operating the CEMS:

1. Turn on COMPAQ computer and EPSON printer, put printer on-line, and load the CEM.EXE program. Be sure that the CEM instruments have been on for at least 20 hours.

2. Synchronize watch with sample location leaders.

3. Turn on strip chart recorders (SCR) and make appropriate notes on charts and in logbook (write down all procedures and observations in logbook and on SCRs as the day progresses).

4. Turn on the gas conditioners and blow back compressor. Blow back the system.

5. Open all calibration gas cylinders so that they may be introduced to the instruments via control panel valves.

6. Perform daily pre-test leak check on CEMs by introducing ultra high purity nitrogen to the system. Zero all instruments except the Thermox O_2 analyzers. Make adjustments to the zero potentiometers as required to zero the instruments. Be sure to check and maintain all flows throughout calibration and operation.

7. Record the zero values in the computer calibration routine.

8. Introduce 0.2 percent O_2 to set the low scale response for the Thermox O_2 analyzers and repeat Step 7 for these instruments.

9. Introduce the mixed span gases for O_2, CO_2, and CO. Make adjustments as required to these instruments.

10. Enter these values in the computer calibration routine.

11. Introduce the NO_x span gas.

12. Make adjustments to the NO_x instruments as required and enter the value into the computer calibration routine.

13. Introduce the SO_2 span gas for the SO_2 analyzer, repeat Step 12 for the SO_2 analyzer. (Note that all calibration gases are passed through the entire sampling system.)

14. Switch the Western SO_2 analyzer range to 0-500 ppm introduce the span gas for this range and repeat Step 12 for this instrument.

15. Introduce the HCl span gas to the HCl dilution probe/CEM analyzer. Repeat Step 12 for this system.

16. Check the calibration table on the computer, and make a hardcopy. Put the computer in the standby mode.

17. Introduce QC gases to instruments in the same sequence as the calibration gases. Record three minutes of data for each, once the responses have stabilized. If the QC gas response is not within ±2 percent of the instrument range the operator should recalibrate the instrument, or perform other corrective actions.

18. Begin sampling routine, with the computer on stand by.

19. Start the data acquisition system when signaled by radio that system is in stack.

20. Carefully check all flows and pressures during the operation of the instruments and watch for apparent problems in any of the instruments, such as unusual readings or unreasonable fluctuations. Check the gas conditioning system periodically and drain the traps.

21. Stop the data acquisition system at the end of the test when signaled.

22. Perform final leakcheck of system.

23. Perform the final calibration (Repeat steps 6-17) except make no adjustments to the system.

24. Check for drift on each channel.

5.7 VISIBLE EMISSIONS

The opacity of emissions are determined visually by a qualified observer following EPA Method 9. The observer is certified within 6 months before the test, as required by the method. Opacity observations are recorded to the nearest 5 percent at 15-second intervals. Twenty-four observations are recorded and averaged per each data set. Observation will continue throughout the 4-hour test run each day.

5.8 PROCESS SAMPLING PROCEDURE

Incinerator ash is composited each test day into a cleaned, 55 gallon plastic drum after initial cooling in 30 gallon cans that are used by the facility. After testing is completed for that day, approximately 1 gallon of ash is taken from the composited sample using a sample thief. This composite is then quartered. The quarters are sent to respective laboratories for analyses of LOI/carbon, metals, and CDD/CDF. The fourth quarter is archived or used as needed.

5.9 PARTICLE SIZE DISTRIBUTION SAMPLING METHODS

Results from the PSD tests characterized particulate mass into ranges separated by the PSD sampler's 50 percent effective cut points (Dp50) for each stage. The Dp50 represents the aerodynamic diameter of a particle that has been collected by that respective PSD stage with 50 percent collection efficiency.

Particle size distribution measurements were obtained with Anderson Mark III in-stack cascade impactor employing a pre-separator. A schematic of the sampling train is shown in Figure 5-19. The impactor consists of eight stages plus a final filter. Each stage has a number of concentric round jets offset on each succeeding stage such that the one plate serves both as jet and impaction surface. The Anderson MK III is operated in the range from 0.3 to 0.7 acfm and the flue gas is sampled isokinetically (100 $\pm$ 20 percent) with a recommended weight gain of 50 mg.

The impactor was prepared by loading the substrates into the impactor and recording the identification number and tare weight. The stage order was checked for correctness as the stages were assembled. The impinger train was prepared according to EPA Method 5. Then, the impactor and preseparator/nozzle were attached to the probe and the probe attached to the impinger train. Once assembled, the sampling train was leak checked at 15 in. Hg. The leakrate had to be below 0.02 cfm.

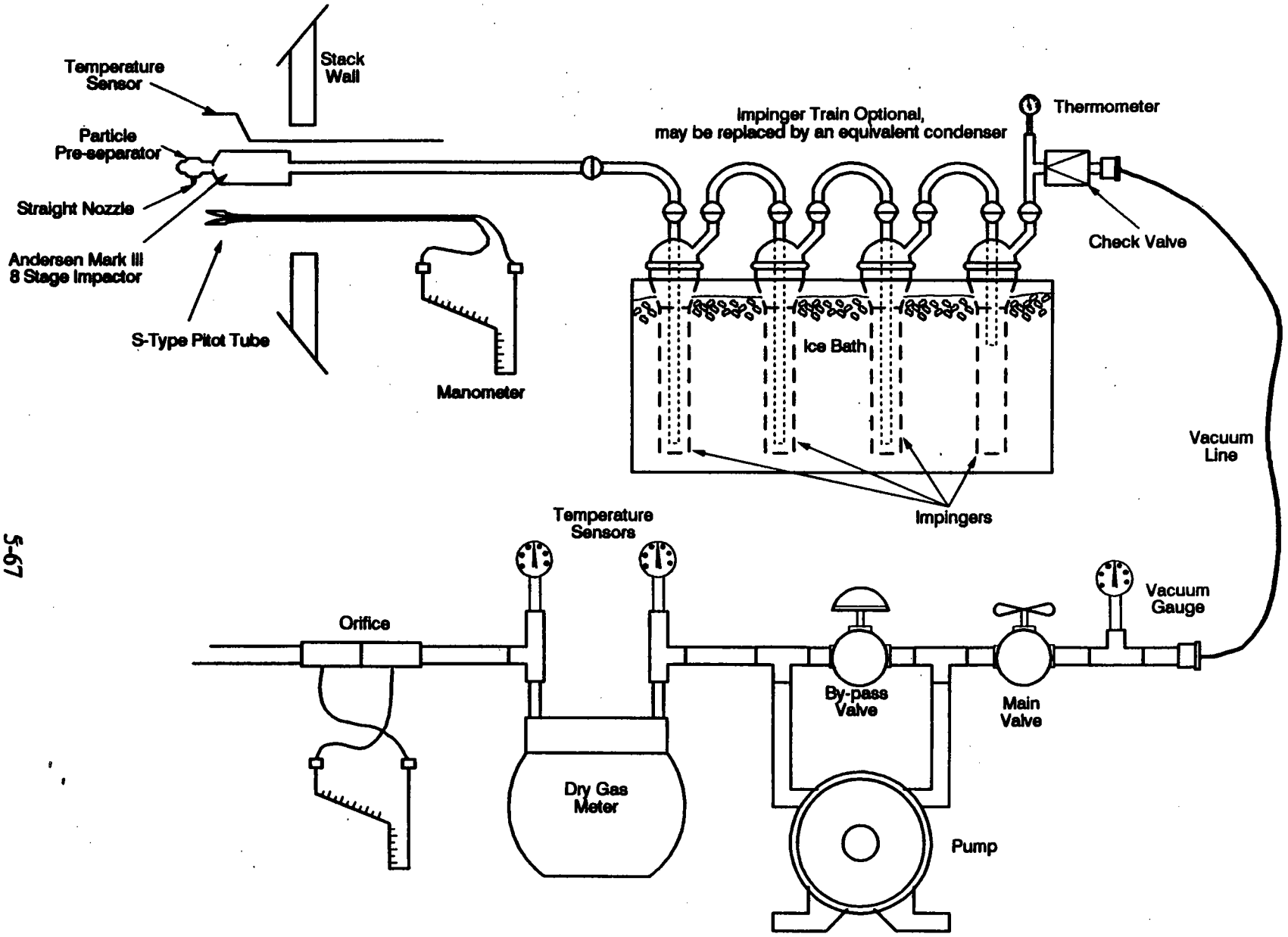


Figure 5-19. Anderson MK III In-Stack Impactor with Particle Pre-Separator Sampling Train

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Prior to sampling, a preliminary velocity tranverse was conducted to determine a point of average velocity. The nozzle was then selected to ensure both isokinetic sampling as well as to give the desired particle separation. The impactor was preheated to approximately stack temperature prior to placing it inside the duct. Sampling was then conducted at a single point of average velocity at a fixed sampling rate. The sampling rate was not adjusted during the run.

After sampling was completed, the impactor was cooled and each stage was carefully recovered. Particles from the nozzle, pre-separator, and rinse were added to the first stage catch. Each substrate was examined for particle bounce, overloading, and re-entrainment. The substrates were weighted to a constant weight as detailed in Section 5.2.

6. QUALITY ASSURANCE/QUALITY CONTROL

Specific Quality Assurance/Quality Control (QA/QC) procedures were strictly adhered to during this test program to ensure the production of useful and valid data throughout the course of the project. A detailed presentation of QC procedures for all manual flue gas sampling, process sample collection, and CEM operations can be found in the Central Carolina Test Plan. This section will report the test program QA parameters so that the degree of data quality may be ascertained.

In summary, a high degree of data quality was maintained throughout the project. All sampling train leak checks met the QC criteria. Isokinetic sampling rates were kept within 10 percent of 100 percent for all the PM/Metals, CDD/CDF, and Microbial emission test runs. Metals analytical QA results revealed good spike recovery data. However, substantial field blank contamination of arsenic and nickel were present. Dioxins analytical procedures for Runs 2, 4, and 8 were modified because of unexpected heavy sample loading. This is further discussed in Section 6.4.1. The CEM data incorporated a variety of QC checks and QA procedures such as QC gas responses, daily drift, and others. The HCl CEM data agreed fairly well with manual HCl data. CEM quality assurance is presented in Section 6.5. Microbial indicator spore analyses were completed using a high number of enumerations per sample. Microbial Survivability Quality Assurance is further discussed in Sections 6.2.3, 6.3, and 6.4.4. Six Particle Size Distributions (PSD) tests were conducted and the following on-site recovery assessment, results from four test runs were reported.

Section 6.1 presents the QA/QC definitions and data quality objectives. Section 6.2 presents manual flue gas sampling and recovery QA parameters. Section 6.3 discusses the QC procedures for ash and pipe sampling and Section 6.4 presents method-specific analytical QA parameters. Section 6.5 discusses the CEM QA parameters. Section 6.6 presents a QA discussion on the PSD tests. Section 6.7 presents a discussion on data variability.

6.1 QA/QC DEFINITIONS AND OBJECTIVES

The overall QA/QC objective is to ensure precision, accuracy, completeness, comparability, and representativeness for each major measurement parameter called for

in this test program. For this test program, quality control and quality assurance can be defined as follows:

- Quality Control: The overall system of activities whose purpose is to provide a quality product or service. QC procedures are routinely followed to ensure high data quality.

- Quality Assurance: A system of activities whose purpose is to provide assurance that the overall quality control is being done effectively. Assessments can be made from QA parameters on what degree of data quality was achieved.

- Data Quality: The characteristics of a product (measurement data) that bear on its ability to satisfy a given purpose. These characteristics are defined as follows:

  - Precision - A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation and in this report will be expressed as the relative standard deviation or coefficient of variation.

  - Accuracy - The degree of agreement of a measurement (or an average of measurements of the same thing), X, with an accepted reference or true value, T, can be expressed as the difference between two values, X-T, the ratio X/T, or the difference as a percentage of the reference or true value, 100 (X-T)/T.

  - Completeness - A measure of the amount of valid data obtained from a measurement system compared with the amount that was expected to be obtained under prescribed test conditions.

  - Comparability - A measure of the confidence with which one data set can be compared with another.

  - Representativeness - The degree to which data accurately and precisely represent a characteristic of a population, variations of a parameter at a sampling point, or an environmental condition.

A summary of the estimated precision, accuracy, and completeness objectives is presented in Table 6-1.

TABLE 6-1. SUMMARY OF PRECISION, ACCURACY, AND COMPLETENESS OBJECTIVES[a]

Parameter	Precision (RSD)	Accuracy[b] (%)	Completeness[c] (%)
Dioxins/Furans Emissions	±40[d]	±50	100
Metals Emissions	±15[d]	±30	100
Particulate Matter Emissions	±12	±10	100
HCl/HBr/HF Concentrations	±10[d]	±15	95
Indicator Spore Emissions	ND	ND	100
CEM Concentrations	±20	±15	95
Velocity/Volumetric Flow Rate	±6	±10	95
Fixed Gases/Molecular Weight	±0.3%V	±0.5%V	100
Flue Gas Moisture	±20	±10	95
Flue Gas Temperature	±2°F	±5°F	100

RSD = Relative Standard Deviation. Uses worst case assumption that variation amongst run results is not due to process variation.
ND = Not Determined at this time.

[a] Precision and accuracy estimated based on results of EPA collaborative tests. All values stated represent worst case values. All values are absolute percentages unless otherwise indicated.
[b] Relative error (%) derived from audit analyses, where:

$$\text{Percent Relative Error} = \frac{\text{Measured Value - Actual Value}}{\text{Actual Value}} \times 100$$

[c] Minimum valid data as a percentage of total tests conducted.
[d] Analytical phase only. Percent difference for duplicate analyses, where:

$$\text{Percent Relative Error} = \frac{\text{First Value - Second Value}}{0.5\ (\text{First + Second Values})} \times 100$$

[e] Minimum requirements of EPA Method 6C, based on percent of full scale.
[f] No measureable bias has been detected in the available literature.

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6.2 MANUAL FLUE GAS SAMPLING AND RECOVERY PARAMETERS

The following section will report method-specific sampling QA parameters so that insight can be gained at the quality of emissions test data produced from manual tests during the test program.

6.2.1 CDD/CDF Sampling Quality Assurance

Table 6-2 lists both the pre-test and post-test leak checks completed on the CDD/CDF sampling trains. The acceptance criterion is that all post-test leak checks must be less than 0.02 cfm or 4 percent of the average sampling rate (whichever is less). All CDD/CDF post-test leak checks met the acceptance criterion.

Table 6-3 presents the isokinetic sampling rates for CDD/CDF, PM/Metals, and Microbial Survivability sampling trains. The acceptance criterion is that the average sampling rate must be within 10 percent of 100 percent isokinetic. All CDD/CDF test runs deviated by no more than 6 percent of 100 percent, thereby meeting the isokinetic criterion.

All dry gas meters are fully calibrated every six months against an EPA approved intermediate standard. The full calibration factor or meter Y is used to correct actual metered sample to true sample volume. To verify the full calibration, a post-test calibration is performed. The full and post-test calibration coefficients must be within 5 percent to meet Radian's internal QA/QC acceptance criterion. As can be seen from Table 6-4, the post-test calibration factor for the meter box used for CDD/CDF was well within the 5 percent criterion of the full calibration factor at -0.08 percent.

Field blanks are collected to verify the absence of any sample contamination. The CDD/CDF sampling train was fully prepared, leakchecked, and then recovered. Table 6-5 compares the CDD/CDF analytical results for the MM5 field blank versus average MM5 catches for the test runs (toluene field blank results are presented in the following section). No 2378 TCDD was detected in the MM5 field blank. The confirmation analysis reported a much lower 2378 TCDF value than the full screen at 0.070 ng versus 0.35 ng. Other CDD/CDF congeners were detected in the MM5 field blank but at much lower amounts than in any of the test runs. Because the amount of contamination was so low and the consistency of contamination throughout the test

TABLE 6-2. LEAK CHECK RESULTS FOR CDD/CDF EMISSIONS TESTS;
CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	PRE-TEST LEAK RATE (acfm)	MAXIMUM VACUUM DURING TEST	AVG. SAMPLE RATE (dscfm)	4% SAMPLE RATE (dscfm) a	ACCEPTABLE LEAK LEVEL (acfm)	MEASUREMENTS POST-TEST LEAK RATE	INCHES FOR SECOND CHECK
09/20/90	1	0.011	6	0.43	0.017	0.017	0.012 b	10 b
09/21/90	2	0.005	6	0.38	0.015	0.015	0.012	10
09/22/90	3	0.009	6	0.42	0.017	0.017	0.004	8
09/23/90	4	0.012	15	0.41	0.016	0.016	0.015	18
09/24/90	5	0.010	4	0.42	0.017	0.017	0.018	9
09/25/90	6	0.012	6	0.44	0.018	0.018	0.008	10
09/26/90	7	0.014	5	0.42	0.017	0.017	0.005	10
09/27/90	8	0.010	8	0.43	0.017	0.017	0.008	12
09/28/90	9	0.012	6	0.44	0.018	0.018	0.008	10
10/02/90	10	0.008	6	0.42	0.017	0.017	0.008	9

a This value is in dry standard cubic feet per minute (dscfm) and may be slightly different than actual cfm (acfm).

b This value represents pre-port change leak change. Final value not recorded.

TABLE 6-3. ISOKINETIC SAMPLING RATES FOR CDD/CDF, METALS, AND MICROORGANISMS TEST RUNS; CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	CDD/CDF ISOKINETIC SAMPLE RATE (%)	TOXIC METALS ISOKINETIC SAMPLE RATE (%)	MICROORGANISMS ISOKINETIC SAMPLE RATE (%)
09/20/90	1A	101	97	95.2
	1B			96.9
09/21/90	2A	96.3	99.1	93.1
	2B			93.6
09/22/90	3A	95.7	98.9	95.1
	3B			96.1
09/23/90	4A	94.3	97.3	94.8
	4B			92.2
09/24/90	5A	95.4	99.1	95
	5B			92.2
09/25/90	6A	96.9	97.9	95
	6B			92.6
09/27/90	8A	97.6	96.3	94.8
	8B			95.2
09/28/90	9A	99.9	97.8	93.8
	9B			95.9
10/02/90	10A	97.2	100	97.9
	10B			100

TABLE 6-4. DRY GAS METER POST-TEST CALIBRATION RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLING TRAIN	METER BOX NUMBER	FULL CALIBRATION FACTOR	POST-TEST CALIBRATION FACTOR	POST-TEST DEVIATION (%) a
CDD/CDF	N-30	0.989	0.9882	-0.08
PM/Metal	N-31	0.9992	0.9900	-0.92
Microorganisms (Runs A)	N-32	1.0002	0.9971	-0.31
Microorganisms (Runs B)	9	1.007	NC	NC
Halogens	V5	1.0104	NC	NC

a $\frac{\text{(Post-Test) - (Full)}}{\text{(Full)}} \times 100$

NC = Not Conducted

TABLE 6-5. CDD/CDF FIELD BLANK RESULTS COMPARED TO AVERAGE RUN RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

FULL SCREEN ANALYSES	MM5 FIELD BLANK (total ng)	MM5 CONDITION 1 AVERAGE (total ng)	MM5 CONDITION 2 AVERAGE (total ng)	MM5 CONDITION 3 AVERAGE (total ng)
DIOXINS				
2378 TCDD	[0.060]	0.2	32.4	1.1
TOTAL TCDD	(0.070)	64.6	707.0	72.2
12378 PCDD	[0.080]	2.4	131.7	2.8
TOTAL PCDD	0.29	57.0	1001.3	57.2
123478 HxCDD	[0.100]	2.3	128.0	1.7
123678 HxCDD	[0.100]	3.9	149.8	2.7
123789 HxCDD	(0.180)	7.1	276.3	4.7
TOTAL HxCDD	0.85	60.9	1702.3	41.3
1234678-HpCDD	0.58	23.6	701.7	14.1
TOTAL HpCDD	0.58	51.9	1461.7	30.5
Octa-CDD	(0.950)	29.8	730.3	18.4
FURANS				
2378 TCDF	0.35	48.1	715.7	35.1
TOTAL TCDF	0.63	241.0	4716.7	237.3
12378 PCDF	0.14	6.1	416.3	6.1
23478 PCDF	0.23	15.1	513.3	9.8
TOTAL PCDF	1.9	189.2	7523.3	129.9
123478 HxCDF	(0.680)	24.1	1328.3	12.7
123678 HxCDF	0.38	10.7	822.7	6.6
234678 HxCDF	(0.460)	21.0	651.3	9.0
123789 HxCDF	[0.100]	0.7	51.5	0.4
TOTAL HxCDF	0.72	127.9	7373.3	69.1
1234678-HpCDF	1.60	38.3	1912.3	19.9
1234789-HpCDF	[0.200]	6.4	243.7	2.8
TOTAL HpCDF	3.00	79.0	3560.0	38.0
Octa-CDF	0.91	41.8	799.0	17.3
CONFIRMATION ANALYSES:				
2378-TCDD	[0.040]	3.4	64.7	4.2
2378-TCDF	(0.070)	4.1	111.5	5.2
TOTAL TCDD	0.05	74.7	769.7	80.4
TOTAL TCDF	0.84	214.9	3286.7	206.0

[ ] = minimum detection limit

( ) = estimated maximum possible concentration

program could not be determined, no field blank corrections were made on the emissions results. Analytical blank results are further discussed in Section 6.4.1.

6.2.1.1 CDD/CDF Toluene Recovery Results. As a newly developed step in EPA CDD/CDF sample recovery protocol, a final toluene rinse was completed on the sample train glassware. Following the test, the nozzle/probe, filter housing, and condenser coil were recovered using methylene chloride. This sample fraction was analyzed along with the filter and XAD trap to determine total CDD/CDF collected in the sample. A final toluene rinse of all the above components was completed and analyzed separately as a part of EPA Method 23 QA protocol. The following discussion and tables present those results.

Tables 6-6, 6-7, and 6-8 compares the toluene recovery amounts of CDD/CDF congeners to the respective MM5 amounts from full screen analyses for each run in Conditions 1, 2, and 3, respectively (all units in picograms). The ratio of the toluene catch to the MM5 expressed as a percentage (T/M x 100), is also given. The results reveal a relatively small amount of CDD/CDF isomers present in the toluene samples. For Condition 1 (Runs 1, 3, and 10), T/M ratios range from 0 to 6.63 percent (Octa-CDF - Run 10). Condition 2 values range from 0 to 0.111 percent. The Condition 2 toluene amounts are similar to Condition 1; however, the MM5 catches for Condition 2 are much higher resulting in overall lower T/M ratios. Condition 3 T/M ratios ranged from 0 to 4.55 percent (Octa-CDD - Run 6).

The confirmation toluene analytical results are compared to the confirmation MM5 values in Table 6-9. The T/M ratios presented here are also very low. T/M values ranged from 0 to 1.03 percent (Run 10).

The toluene field blank analytical results are compared to the toluene test run analytical results in Table 6-10. The field blank appears to have higher concentrations of all congeners than the average run catches. The laboratory method blank results listed in Section 6.4 did not show any contamination. Therefore, the toluene test results may have been even lower than shown in the previous tables if this sample prep/recovery contamination as revealed by the field blank was consistent throughout the test program.

TABLE 6-6. CDD/CDF TOLUENE RINSE FULL SCREEN ANALYTICAL RESULTS COMPARED TO MM5 ANALYTICAL RESULTS FOR CONDITION 1 (total pg); CENTRAL CAROLINA HOSPITAL (1990)

	RUN 1			RUN 3			RUN 10			AVERAGE		
CONGENER	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	630	[10.90]	0.000	(1200.)	[7.900]	0.000	(370.0)	[24.30]	0.000	733	[14.367]	0.000
Other TCDD	17,870	[10.90]	0.000	156,000	235.0	0.151	19,200	97.1	0.506	64,357	166.1	0.258
12378 PCDD	1,500	[11.10]	0.000	4,600	(9.700)	0.211	1,200	[48.30]	0.000	2,433	9.7	0.399
Other PCDD	15,800	11.3	0.072	128,400	247.0	0.192	19,400	123.0	0.634	54,533	127.1	0.233
123478 HxCDD	980	[13.30]	0.000	4,500	(9.400)	0.209	1,400	(45.40)	3.243	2,293	27.4	1.195
123678 HxCDD	1,500	7.80	0.520	7,300	(19.70)	0.270	2,800	(79.00)	2.821	3,867	35.5	0.918
123789 HxCDD	3,200	[14.70]	0.000	14,000	25.0	0.179	4,200	(85.40)	2.033	7,133	55.2	0.774
Other HxCDD	14,820	0.40	0.003	101,200	193.0	0.191	26,800	295.0	1.101	47,607	162.8	0.342
1234678-HpCDD	8,500	87.2	1.026	41,700	155.0	0.372	20,700	506.0	2.444	23,633	249.4	1.055
Other HpCDD	10,200	88.8	0.871	51,300	189.0	0.368	23,300	453.0	1.944	28,267	243.6	0.862
Octa-CDD	10,000	304.0	3.040	53,400	376.0	0.704	25,900	(1130.)	4.363	29,767	603.3	2.027
Total CDD	**85,000**	**500**	**0.588**	**563,600**	**1,459**	**0.259**	**145,270**	**2,814**	**1.937**	**264,623**	**1591**	**0.601**
FURANS												
2378 TCDF	18,500	14.5	0.078	104,000	267.0	0.257	21,700	209.0	0.963	48,067	163.5	0.340
Other TCDF	89,500	11.7	0.013	388,000	594.0	0.153	101,300	540.0	0.533	192,933	381.9	0.198
12378 PCDF	3,200	[9.800]	0.000	11,300	28.0	0.248	3,900	51.1	1.310	6,133	39.6	0.645
23478 PCDF	6,100	9.50	0.156	29,700	71.0	0.239	9,400	138.0	1.468	15,067	72.8	0.483
Other PCDF	68,100	24.5	0.036	358,000	659.0	0.184	77,800	860.9	1.107	167,967	514.8	0.306
123478 HxCDF	7,500	13.3	0.177	52,000	122.0	0.235	12,900	271.0	2.101	24,133	135.4	0.561
123678 HxCDF	3,900	[9.300]	0.000	21,600	(55.50)	0.257	6,600	128.0	1.939	10,700	91.8	0.857
234678 HxCDF	4,800	[12.80]	0.000	44,800	104.0	0.232	13,300	252.0	1.895	20,967	178.0	0.849
123789 HxCDF	180	[16.30]	0.000	1,300	(25.10)	1.931	560	[76.40]	0.000	680	25.1	3.690
Other HxCDF	23,120	17.5	0.076	147,300	204.0	0.138	43,740	659.0	1.507	71,387	293.5	0.411
1234678-HpCDF	9,600	27.2	0.283	81,300	241.0	0.296	24,100	(685.0)	2.842	38,333	317.7	0.829
1234789-HpCDF	1,200	[25.50]	0.000	12,600	24.7	0.196	5,300	(169.0)	3.189	6,367	96.9	1.521
Other HpCDF	6,900	23.1	0.335	71,100	207.3	0.292	25,000	510.0	2.040	34,333	246.8	0.719
Octa-CDF	5,800	[71.10]	0.000	83,000	203.0	0.245	36,500	2420.0	6.630	41,767	1311.5	3.140
Total CDF	**248,400**	**141**	**0.057**	**1,406,000**	**2806**	**0.200**	**382,100**	**6,969**	**1.824**	**678,833**	**3,305**	**0.487**
Total CDD+CDF	**333,400**	**641**	**0.192**	**1,969,600**	**4264**	**0.217**	**527,370**	**9,783**	**1.855**	**943,457**	**4,896**	**0.519**

[ ] = minimum detection limit (not used in the averages or summations)

( ) = estimated maximum possible concentration (included in averages and summations)

TABLE 6-7. CDD/CDF TOLUENE RINSE FULL SCREEN ANALYTICAL RESULTS COMPARED TO MM5 ANALYTICAL RESULTS FOR CONDITION 2 (total pg); CENTRAL CAROLINA HOSPITAL (1990)

	RUN 2			RUN 4			RUN 8			AVERAGE		
CONGENER	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	19,000	[9.100]	0.000	53,100	4.6	0.009	25,200	18.6	0.074	32,433	11.6	0.036
Other TCDD	446,000	19.9	0.004	996,000	0.0	0.000	660,000	497.4	0.075	700,667	258.7	0.037
12378 PCDD	59,000	16.4	0.028	208,000	(22.30)	0.011	128,000	67.8	0.053	131,667	35.5	0.027
Other PCDD	391,000	20.1	0.005	1,392,000	52.6	0.004	826,000	312.2	0.038	869,667	128.3	0.015
123478 HxCDD	56,100	16.4	0.029	179,000	25.5	0.014	149,000	54.9	0.037	128,033	32.3	0.025
123678 HxCDD	66,300	24.8	0.037	228,000	26.4	0.012	155,000	68.0	0.044	149,767	39.7	0.027
123789 HxCDD	118,000	40.6	0.034	433,000	49.4	0.011	278,000	125.0	0.045	276,333	71.7	0.026
Other HxCDD	546,600	122.2	0.022	1,700,000	149.7	0.009	1,198,000	457.1	0.038	1,148,200	243.0	0.021
1234678-HpCDD	315,000	(233.0)	0.074	928,000	210.0	0.023	862,000	398.0	0.046	701,667	280.3	0.040
Other HpCDD	330,000	195.0	0.059	1,012,000	162.0	0.016	938,000	391.0	0.042	760,000	249.3	0.033
Octa-CDD	409,000	454.0	0.111	702,000	216.0	0.031	1,080,000	574.0	0.053	730,333	414.7	0.057
Total CDD	**2,756,000**	**1142**	**0.041**	**7,778,000**	**919**	**0.012**	**6,274,000**	**2964**	**0.047**	**5,602,667**	**1675.0**	**0.030**
FURANS												
2378 TCDF	409,000	57.7	0.014	1,130,000	107.0	0.009	608,000	491.0	0.081	715,667	218.6	0.031
Other TCDF	2,171,000	185.3	0.009	6,810,000	386.0	0.006	3,022,000	2349.0	0.078	4,001,000	973.4	0.024
12378 PCDF	166,000	36.5	0.022	798,000	90.7	0.011	285,000	222.0	0.078	416,333	116.4	0.028
23478 PCDF	231,000	45.3	0.020	945,000	101.0	0.011	364,000	310.0	0.085	513,333	152.1	0.030
Other PCDF	2,653,000	188.2	0.007	12,727,000	808.3	0.006	4,401,000	2528.0	0.057	6,593,667	1174.8	0.018
123478 HxCDF	495,000	134.0	0.027	2,300,000	251.0	0.011	1,190,000	571.0	0.048	1,328,333	318.7	0.024
123678 HxCDF	297,000	76.3	0.026	1,450,000	164.0	0.011	721,000	352.0	0.049	822,667	197.4	0.024
234678 HxCDF	291,000	82.5	0.028	1,030,000	130.0	0.013	633,000	267.0	0.042	651,333	159.8	0.025
123789 HxCDF	20,600	[13.40]	0.000	90,100	(24.00)	0.027	43,700	25.0	0.057	51,467	24.5	0.048
Other HxCDF	1,696,400	219.2	0.013	7,779,900	615.0	0.008	4,082,300	1555.0	0.038	4,519,533	796.4	0.018
1234678-HpCDF	787,000	360.0	0.046	2,930,000	442.0	0.015	2,020,000	962.0	0.048	1,912,333	588.0	0.031
1234789-HpCDF	119,000	48.7	0.041	354,000	50.4	0.014	258,000	146.0	0.057	243,667	81.7	0.034
Other HpCDF	634,000	186.3	0.029	2,056,000	308.6	0.015	1,522,000	502.0	0.033	1,404,000	332.3	0.024
Octa-CDF	549,000	315.0	0.057	898,000	155.0	0.017	950,000	489.0	0.051	799,000	319.7	0.040
Total CDF	**10,519,000**	**1,935**	**0.018**	**41,298,000**	**3,633**	**0.009**	**20,100,000**	**10,769**	**0.054**	**23,972,333**	**5,446**	**0.023**
Total CDD+CDF	**13,275,000**	**3,077**	**0.023**	**49,076,000**	**4,552**	**0.009**	**26,374,000**	**13,733**	**0.052**	**29,575,000**	**7,121**	**0.024**

[ ] = minimum detection limit (not used in the averages or summations)

( ) = estimated maximum possible concentration (included in averages and summations)

TABLE 6-8. CDD/CDF TOLUENE RINSE FULL SCREEN ANALYTICAL RESULTS COMPARED TO MM5 ANALYTICAL RESULTS FOR CONDITION 3 (total pg); CENTRAL CAROLINA HOSPITAL (1990)

	RUN 5			RUN 6			RUN 9			AVERAGE		
CONGENER	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	720	[24.30]	0.000	(220.0)	[5.900]	0.000	2,500	(3.800)	0.152	1,147	3.80	0.331
Other TCDD	56,680	[24.30]	0.000	11,200	[5.900]	0.000	148,000	[21.6]	0.000	71,960	[17.3]	0.000
12378 PCDD	1,900	[23.70]	0.000	690	[7.200]	0.000	5,800	8.5	0.147	2,797	8.50	0.304
Other PCDD	35,600	(28.70)	0.081	11,510	(22.70)	0.197	116,200	47.3	0.041	54,437	32.9	0.060
123478 HxCDD	1,200	[20.80]	0.000	570	[6.100]	0.000	3,400	(8.200)	0.241	1,723	8.20	0.476
123678 HxCDD	1,800	[20.30]	0.000	960	[6.000]	0.000	5,200	10.2	0.196	2,653	10.2	0.384
123789 HxCDD	3,700	[23.10]	0.000	1,800	[6.800]	0.000	8,600	19.7	0.229	4,700	19.7	0.419
Other HxCDD	23,700	[21.30]	0.000	11,670	[6.300]	0.000	61,400	77.1	0.126	32,257	77.1	0.239
1234678-HpCDD	12,400	[75.60]	0.000	6,300	29.0	0.460	23,600	[70.30]	0.000	14,100	29.0	0.206
Other HpCDD	13,400	[75.60]	0.000	7,400	0.0	0.000	28,400	68.5	0.241	16,400	68.5	0.418
Octa-CDD	17,200	[280.0]	0.000	7,600	346.0	4.553	30,500	143.0	0.469	18,433	245	1.326
Total CDD	**168,300**	**28.7**	**0.017**	**59,920**	**398**	**0.664**	**431,100**	**386**	**0.900**	**219,773**	**271**	**0.123**
FURANS												
2378 TCDF	28,000	20.9	0.075	8,000	(7.300)	0.091	69,200	106.0	0.153	35,067	44.7	0.128
Other TCDF	162,000	0.0	0.000	35,800	(7.300)	0.020	408,800	337.0	0.082	202,200	172.2	0.085
12378 PCDF	4,100	[21.20]	0.000	1,600	[6.500]	0.000	12,500	(34.30)	0.274	6,067	34.3	0.565
23478 PCDF	7,000	[22.00]	0.000	2,800	[6.700]	0.000	19,500	51.2	0.263	9,767	51.2	0.524
Other PCDF	63,500	(25.10)	0.040	24,700	9.8	0.040	254,000	457.8	0.180	114,067	164.2	0.144
123478 HxCDF	9,100	[12.70]	0.000	4,800	6.7	0.140	24,200	66.3	0.274	12,700	36.5	0.287
123678 HxCDF	4,700	[12.20]	0.000	2,400	[4.000]	0.000	12,700	40.3	0.317	6,600	40.3	0.611
234678 HxCDF	6,500	[16.80]	0.000	3,800	[5.500]	0.000	16,800	42.9	0.255	9,033	42.9	0.475
123789 HxCDF	330	[21.50]	0.000	180	[7.000]	0.000	820	[4.000]	0.000	443	[10.833]	0.000
Other HxCDF	26,670	(27.20)	0.102	13,720	1.3	0.009	80,480	130.5	0.162	40,290	53.0	0.132
1234678-HpCDF	17,800	32.9	0.185	8,500	15.4	0.181	33,500	95.3	0.284	19,933	47.9	0.240
1234789-HpCDF	2,300	[31.50]	0.000	1,700	[9.500]	0.000	4,400	13.7	0.311	2,800	13.7	0.489
Other HpCDF	13,300	8.2	0.062	6,900	3.8	0.055	25,700	71.0	0.276	15,300	27.7	0.181
Octa-CDF	12,000	[237.0]	0.000	13,400	(39.20)	0.293	26,500	75.3	0.284	17,300	57.3	0.331
Total CDF	**357,300**	**114**	**0.032**	**128,300**	**90.8**	**0.071**	**989,100**	**1522**	**0.154**	**491,567**	**576**	**0.117**
Total CDD+CDF	**525,600**	**143**	**0.027**	**188,220**	**489**	**0.260**	**1,420,200**	**1908**	**0.134**	**711,340**	**846**	**0.119**

[ ] = minimum detection limit (not used in the averages or summations)

( ) = estimated maximum possible concentration (included in averages and summations)

TABLE 6-9. CDD/CDF TOLUENE RINSE CONFIRMATION ANALYTICAL RESULTS COMPARED TO MM5 ANALYTICAL RESULTS FOR ALL CONDITIONS; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	RUN 1			RUN 3			RUN 10			AVERAGE		
	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	1,600	[24.40]	0.000	7,500	9.0	0.120	1,100	[6.300]	0.000	3,400	9.0	0.265
Other TCDD	18,600	[24.40]	0.000	176,500	211.0	0.120	18,800	97.1	0.516	71,300	154.1	0.216
FURANS												
2378 TCDF	2,100	[9.100]	0.000	7,800	(16.40)	0.210	2,400	24.8	1.033	4,100	20.6	0.502
Other TCDF	71,500	14.5	0.020	473,200	904.0	0.191	87,600	819.2	0.935	210,767	579.2	0.275

CONGENER	RUN 2			RUN 4			RUN 8			AVERAGE		
	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	32,700	[20.80]	0.000	105,000	15.0	0.014	56,300	(47.10)	0.084	64,667	31.1	0.048
Other TCDD	449,300	(97.70)	0.022	1,005,000	13.4	0.001	660,700	294.0	0.044	705,000	135.0	0.019
FURANS												
2378 TCDF	57,800	13.4	0.023	196,000	(23.10)	0.012	80,800	(90.30)	0.112	111,533	42.3	0.038
Other TCDF	1,722,200	233.6	0.014	5,514,000	393.0	0.007	2,289,200	2750.0	0.120	3,175,133	1125.5	0.035

CONGENER	RUN 5			RUN 6			RUN 9			AVERAGE		
	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)	MM5 (pg)	TOLUENE (pg)	TOL/MM5 (%)
DIOXINS												
2378 TCDD	2,900	28.8	0.993	720	[9.700]	0	9,100	[21.60]	0	4,240	28.8	0.679
Other TCDD	56,300	0	0.000	11,280	[9.700]	0	160,900	[21.60]	0	76,160	[15.7]	0.000
FURANS												
2378 TCDF	3,400	17.9	0.526	860	[5.300]	0	11,400	(20.20)	0.177	5,220	19.1	0.365
Other TCDF	128,600	0	0.000	29,040	[5.300]	0	444,600	340	0.076	200,747	340	0.169

[ ] = minimum detection limit. (not used in the averages or summations)

( ) = estimated maximum possible concentration (included in averages and summations)

TABLE 6-10. CDD/CDF TOLUENE FIELD BLANK RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

FULL SCREEN ANALYSES	TOLUENE FIELD BLANK (total pg)	TOLUENE COND 1 AVG (total pg)	TOLUENE COND 2 AVG (total pg)	TOLUENE COND 3 AVG (total pg)
DIOXINS				
2378 TCDD	10.0	0.0	7.7	1.3
TOTAL TCDD	245.0	102.2	180.2	5.7
12378 PCDD	53.0	3.2	35.5	2.8
TOTAL PCDD	360.0	127.1	156.4	35.7
123478 HxCDD	60.0	18.3	32.3	2.7
123678 HxCDD	82.2	35.5	39.7	3.4
123789 HxCDD	175.0	36.8	71.7	6.6
TOTAL HxCDD	895.0	173.7	386.7	35.7
1234678-HpCDD	618.0	249.4	280.3	9.7
TOTAL HpCDD	1140.0	493.0	452.0	32.5
Octa-CDD	887.0	603.3	414.7	163.0
FURANS				
2378 TCDF	337.0	163.5	218.6	44.7
TOTAL TCDF	1430.0	545.4	1192.0	157.1
12378 PCDF	149.0	26.4	116.4	11.4
23478 PCDF	289.0	72.8	152.1	17.1
TOTAL PCDF	2550.0	614.0	1443.3	172.9
123478 HxCDF	544.0	135.4	318.7	24.3
123678 HxCDF	317.0	61.2	197.4	13.4
234678 HxCDF	366.0	118.7	159.8	14.3
123789 HxCDF	27.2	33.8	16.3	0.0
TOTAL HxCDF	2450.0	590.3	1480.7	105.1
1234678-HpCDF	1210.0	317.7	588.0	47.9
1234789-HpCDF	(219.0)	64.6	81.7	4.6
TOTAL HpCDF	2160.0	344.4	1002.0	80.1
Octa-CDF	1380.0	874.3	319.7	38.2
CONFIRMATION ANALYSES:				
2378-TCDD	(24.10)	4.5	20.7	0.0
2378-TCDF	46.20	8.2	42.3	10.1
TOTAL TCDD	165.00	110.0	140.0	0.0
TOTAL TCDF	1080.00	459.3	1130.0	170.0

[ ] = minimum detection limit

( ) = estimated maximum possible concentration

6.2.2 PM/Metals Sampling Quality Assurance

Table 6-11 presents the leak check results for the PM/Metals. All post-test leak checks met the "0.02 cfm or 4 percent of the sample rate" acceptance criterion.

The isokinetic sampling rates for the PM/Metals trains are listed in Table 6-3. All isokinetic values were within 4 percent of 100 percent, thereby meeting the ±10 percent criterion.

The post-test dry gas meter calibration check for box number N-31 used for PM/Metals sampling is shown in Table 6-4. The results of -0.92 percent deviation from the full calibration value is well within the 5 percent acceptance criterion.

Table 6-12 presents the results from the metals field blank analysis compared to the average values from the test runs. No metals were detected in the back half fractions (impingers 1,2 and impingers 3,4) except for chromium. Front half field blank results show detections of arsenic, barium, cadmium, chromium, lead, and nickel. Only nickel, chromium, and arsenic field blank amounts are greater than ~4 percent of any of the average run amounts. Arsenic field blank results show the highest relative contamination at 11.4 μg which ranges from 21 to 50 percent of the front half run catches. No arsenic was detected in the field blank back half fraction.

6.2.3 Microbial Survivability in Emissions Quality Assurance

Table 6-13 presents the leak check results for the Microbial Survivability in emissions test runs. All leak checks met the "0.02 cfm or 4 percent of sample rate" acceptance criterion.

Microbial emission testing isokinetic results are presented in Table 6-3. All 18 test runs met the isokinetic criterion of ±10 percent of 100 percent.

The microbial emissions field blank results are shown in Table 38a. No spores were detected in the 18 enumeration repetitions.

The post-test dry gas meter calibration check for the microbial emissions dry gas meter is shown in Table 6-4. Post-test calibration factors for the "A" runs were within the 5 percent acceptance criterion at -0.31 percent. No post-test calibration was performed on meter box 9 which was used for the "B" runs.

TABLE 6-11. LEAK CHECK RESULTS FOR TOXIC METALS;
CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	PRELIMINARY LEAK RATE (acfm)	MAXIMUM VACUUM DURING TEST	AVG. SAMPLE RATE (dscfm) a	4% SAMPLE RATE (acfm)	ACCEPTABLE LEAK LEVEL (acfm)	MEASUREMENT POST-TEST LEAK RATE	INCHES FOR SEC. CHK.
09/20/90	1	0.009	4	0.42	0.017	0.017	0.005	9
09/21/90	2	0.011	4	0.39	0.016	0.016	0.010	10
09/22/90	3	0.008	2	0.39	0.016	0.016	0.006	10
09/23/90	4	0.006	13	0.41	0.016	0.016	0.018	17
09/24/90	5	0.004	4	0.43	0.017	0.017	0.006	10
09/25/90	6	0.004	2	0.41	0.016	0.016	0.003	8
09/26/90	7	0.006	4	0.41	0.016	0.016	0.003	7
09/27/90	8	0.010	5	0.42	0.017	0.017	0.004	10
09/28/90	9	0.005	4	0.45	0.018	0.018	0.006	11
10/02/90	10	0.004	3	0.40	0.016	0.016	0.006	7

a This value is in dry standard cubic feet per minute (dscfm) and may be slightly different than actual cfm (acfm).

TABLE 6-12. METALS FIELD BLANK RESULTS COMPARED TO AVERAGE AMOUNTS COLLECTED DURING THE TEST RUNS; CENTRAL CAROLINA HOSPITAL (1990)

METAL	FIELD BLANK (ug)			CONDITION 1 (ug)			CONDITION 2 (ug)			CONDITION 3 (ug)		
	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4 c	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4 c	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4 c	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4 c
Antimony	(59.5) a	[7.3] b		1520.33	2254.67		1323.33	3160.00		1420.67	2287.33	
Arsenic	11.7	[0.46]		29.17	4.78		55.93	15.04		23.37	11.83	
Barium	22.5	[0.23]		695.67	33.57		1643.33	69.27		581.33	31.23	
Beryllium	[0.50]	[0.23]		0.00	0.00		0.00	0.00		0.92	0.00	
Cadmium	17.0	[0.57]		833.67	0.00		1082.67	0.00		1196.67	0.00	
Chromium	16.0 c	(1.25)		92.27	5.79		87.67	7.22		50.27	5.93	
Lead	32.0	[3.4]		13946.67	1.26		17833.33	1.53		10670.00	0.63	
Mercury	[2.4]	[6.1]	[0.67]	19.40	507.00	1.47	62.13	1214.00	5.59	369.33	4469.00	695.65
Nickel	44.0	[2.3]		41.43	1.03		21.43	0.00		18.43	0.78	
Silver	[8.2]	[3.8]		0.00	23.64		0.00	48.00		0.00	21.70	
Thallium	[14]	[6.2]		338.33	0.00		339.00	5.33		779.33	0.00	

a Values enclosed in parenthesis represent estimates as they are less than five times the detection limit.

b Values enclosed in brackets represent minimum detection limits for elements not detected in the samples.

c Impingers 3 and 4 only sample fractions analyzed for mercury content.

TABLE 6-13. LEAK CHECK RESULTS FOR MICROBIAL SURVIVABILITY IN EMISSIONS SAMPLING RUNS; CENTRAL CAROLINA HOSPITAL (1990)

DATE	RUN NUMBER	PRE-TEST LEAK RATE (acfm)	MAXIMUM VACUUM DURING TEST	AVG. SAMPLE RATE (dscfm)	4% SAMPLE RATE (dscfm) a	ACCEPTABLE LEAK LEVEL (acfm)	MEASUREMENT POST-TEST LEAK RATE	INCHES FOR SEC. CHK.
09/20/90	1A	0.002	2.7	0.59	0.024	0.02	0.003	5
	1B	0.008	3	0.60	0.024	0.02	0.003	6
09/21/90	2A	0.004	19	0.59	0.024	0.02	0.008	28
	2B	0.006	6	0.54	0.022	0.02	0.006	10
09/22/90	3A	0.004	4.5	0.59	0.024	0.02	0.001	6
	3B	0.005	2	0.60	0.024	0.02	0.003	6
09/23/90	4A	0.004	9	0.55	0.022	0.02	0.005	8
	4B	0.006	5	0.57	0.023	0.02	NR	7
09/24/90	5A	0.006	4.5	0.58	0.023	0.02	0.005	9
	5B	0.006	3	0.50	0.02	0.02	0.005	9
09/25/90	6A	0.003	5	0.65	0.026	0.02	0.003	8
	6B	0.004	3	0.62	0.025	0.02	0.008	9
09/27/90	8A	0.001	11.5	0.56	0.022	0.02	0.006	15
	8B	0.008	14	0.56	0.022	0.02	0.01	18
09/28/90	9A	0.003	4	0.61	0.024	0.02	0.006	9
	9B	0.008	1	0.59	0.024	0.02	0.008	5
10/02/90	10A	0.012	4.5	0.61	0.024	0.02	0.014	7
	10B	0.004	1	0.59	0.024	0.02	0.008	3

a This value is in dry standard cubic feet per minute (dscfm) and may be slightly different than actual cfm (acfm).
NR = Data Not Recorded

6.2.4 Halogen Flue Gas Sampling Quality Assurance

Halogen flue gas concentration tests did not use an isokinetic sampling method. A constant flow of flue gas was extracted from the stack through a heated 3 foot quartz probe. The sample stream was bubbled through a series of impinger collection solutions and sent to the laboratory for analysis of Cl^-, F^-, and Br^-. A slight modification to the method (EPA Method 26) was incorporated into the test scheme by placing a small amount of quartz wool into the upstream side of the HCl filter housing.

Leak checks were completed before and after each halogen test run. They were conducted by establishing approximately 10 inches of vacuum on the train, plugging the end of the probe, turning off the flow, and checking for any detectable vacuum loss over a 30-second period. If a leak was observed in the system, the run was invalidated. (There was no quantitation of leak rate.) All halogen test results had sample trains which met the post-test leak check criterion.

Halogen field blank results are shown in Table 6-14. A small amount of HCl was detected in the field blanks (0.245 and 0.25 mg for FB-A and FB-B). These amounts only represent a maximum of 3 percent of the lowest run average amount.

6.3 QC PROCEDURES FOR ASH AND PIPE SAMPLING

As stated in Section 5.3, the incinerator waste charges were spiked with B. stearothermophilus in both wet and dry forms. Solutions of B. stearothermophilus (wet spores) were spiked to the incinerator to coincide with simultaneous emissions testing and daily ash sampling. Assessments of B. stearothermophilus survivability could then be made. A pre-aliquoted stock solution of wet spores of approximately 500 ml was deposited onto paper waste material and placed in a new, clean plastic garbage bags for each spike. This package was then added to the normal waste loads at precise spiking times. Freeze-dried quantities of B. steareothermophilus (dry spores) were placed in sealed pipes (See Figure 5-12) to determine the viability of "thermally shaded" microbial matter. Two pipes (one large and one small) were placed into the charging bin three times daily.

For both wet and dry spore spiking procedures, only pre-cleaned/disinfected materials were used for handling, application, and transport. The wet spore aliquots were divided and sealed at the manufacturer. This prevented any losses of material

TABLE 6-14. HALOGEN FIELD BLANK RESULTS COMPARED TO RUN RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

ANALYTE	FIELD BLANK A (total mg)	FIELD BLANK B (total mg)	CONDITION 1 AVERAGE (total mg)	CONDITION 2 AVERAGE (total mg)	CONDITION 3 AVERAGE (total mg)
HCl	0.245	0.250	7.31	105	7.85
HF	[0.042]	[0.042]	0.19	0.88	0.13
HBr	(0.0637)	[0.013]	0.08	0.21	0.07

a Values enclosed in brackes represent minimum detection limits for compounds not detected in the samples.

( ) Denotes estimate as value is less than 5 times detection limit.

during shipment or upon application. (The empty solution container was also placed in the spiked waste charge.) The spiked charge was tied closed and deposited upright into the incinerator. Personnel handling the spiking material used disposable plastic gloves to prevent any cross-contamination.

The inner containers for the pipe samples were acid washed and alcohol disinfected. These were then placed in clean baggies awaiting the dry spore charge. The dry spore was loaded into the pipe container on the same day as it was spiked. The dry spore material was received from the manufacturer in seal, glass vials. This allowed for easy and complete transfer of all the spore material to the inner container.

In conjunction with the wet spore/microbial survivability tests, incinerator ash was collected before each test day (from the previous test run). The ash was also analyzed for metals, CDD/CDF, carbon, loss on ignition, moisture content, as well as indicator spores. All of the ash was completely removed from the incinerator bed every morning, passed through a 1-inch mesh stainless steel (SS) sieve and placed in a large 55-gallon drum. Using a sample "thief", four approximately 500 gram samples were taken and placed in pre-cleaned, amber glass bottles. All material used for sampling, sample compositing, and sample aliquoting was cleaned to prevent any sample contamination.

During the ash removal process, the pipe samples were also recovered. The outer containers were allowed to cool and then opened. The inner container was removed and placed in a clean, dry Ziplock baggie, labeled and kept in a clean environment prior to shipment to the laboratory. Further Microbial QA information is presented in Section 6.4.4.

6.4 ANALYTICAL QUALITY ASSURANCE

The following section reports QA parameters for the CDD/CDF, Metals, Halogen, and Microbial Survivability analytical results.

6.4.1 CDD/CDF Analytical Quality Assurance

6.4.1.1 Flue Gas (MM5) Analytical Procedure. There were two samples generated for each flue gas (MM5) test run. One sample consisted of the pooled MM5 sample which received both the full screen and confirmation analyses. The second sample was the post-recovery, toluene rinse, which also received a full screen and confirmation analysis. The full screen analyses were conducted using a DB-5 GC column

which allows for the separation of each class of chlorination (i.e., tetras, petra, etc.) and fully resolves 2378 TCDD from the other TCDD isomers. The confirmation analysis, performed on a DB-225 GC column, is needed to fully resolve the 2378 TCDF from the other TCDF isomers. The 2378 TCDD and total TCDD isomers are also reported on the confirmation analysis. The final results for 2378 TCDF and other TCDF emission parameters were taken from the confirmation analysis. All other CDD/CDF results were taken from the full screen analysis. (Toluene Runs 9 and 10,2378 TCDD, Total TCDD were taken from confirmation analyses - see Section 6.4.1.2.)

A component of the CDD/CDF analytical laboratory's QA/QC program is adding isotopically labeled standards to each sample during various stages of analysis to determine recovery efficiencies and to aid in the quantitation of "native" CDD/CDF species. Four different type standards are added. Surrogate standards are usually spiked on the XAD absorbent trap prior to the sampling session. (Toluene surrogates are added to the sample prior to extraction.) Recovery of these compounds allows for the evaluation of overall sample collection efficiency and analytical matrix effects. Internal standards are spiked after the sampling session but prior to extraction. Alternate standards are also spiked at this stage. Recovery percentage of internal standards are used in quantifying the flue gas native CDD/CDF isomers. Recovery of alternate standards allows for extraction/fractionation efficiencies to be determined. Finally, recovery standards are added after fractionation, just prior to the HRGC/HRMS analysis. Internal standards recovery are determined relative to recovery standards recovery. Recovery standards recovery efficiencies are not typically reported with the analytical results.

Poor recovery percentage of the various standards can reveal poor data quality. In some cases, if an analysis with a poor recovery is also accompanied by a suitable QA/QC "flag", the sample result can be validated. A full discussion of the analytical QA/QC program can not be presented in this summary report, but can be found in Triangle's CDD/CDF Data User Manual.

6.4.1.2 CDD/CDF MM5 Analytical Protocol Changes. Based on previous Hospital MWI test programs, high levels of organics were expected to be found in the

CDD/CDF MM5 samples. Therefore a different analytical protocol was developed for the analysis. One percent of the MM5 extract was used for Runs 2, 4, and 8 (Condition 2) instead of the typical 50 percent. This resulted in a diluted fraction which did not saturate the MS detector. However, surrogate (pre-sample) spike recoveries could not be determined. Additional standards were added at higher than normal amounts to allow full quantitation of the CDD/CDF congeners for Runs 2, 4 and 8.

A slight modification to the CDD/CDF data reduction protocol was also incorporated into the toluene flue gas samples. Values for Runs 9 and 10,2378 TCDD and Total TCDD (Other) were taken from the confirmation analysis as designated by Triangle Laboratories. This is further explained in the TLI Project No. 16653T Case Narrative shown in Appendix E3.

6.4.1.3 CDD/CDF MM5 Blank Results. Both method blanks and field blanks were analyzed for CDD/CDF isomers. Modified Method 5 samples as well as the toluene rinses were submitted. Table 6-15 presents these results. The MM5 method blanks had no CDD/CDF isomers except for a small amount of O_{ctu}-TCDF (0.18 ng). The toluene Field Blank had relatively high quantities of all isomers when compared to the run results (picograms). The toluene method blanks were clean.

6.4.1.4 CDD/CDF Standard Recoveries. Tables 6-16 and 6-17, and Tables 6-18 and 6-19 present the standard recovery values for the MM5 flue gas and toluene flue gas samples, respectively. Both full screen (FS) and confirmation (C) values are presented. The analytical acceptance criterion for internal standard recoveries is 40 percent to 130 percent for tetra- through hexa-chlorinated compounds, while the range is 25 percent to 130 percent for hepta- and octa-chlorinated compounds. Recoveries outside of these limits may still be acceptable if other identification criteria are met.

As stated before, surrogate recoveries for MM5 Samples 2, 4, and 8 could not be determined because of the modified analytical routine. All other MM5 surrogate recoveries were within ±30 percent.

Internal standard recoveries for MM5 Runs 1-10 FS and C all met the acceptable criteria. All toluene internal standards recoveries were within the acceptance criteria except for Run 1 13C12-HxCDD 678 and several Run 5 isomers. The Run 5 toluene sample had no native hexa-substituted isomers present in hence high standards recoveries

TABLE 6-15. METHOD BLANK AND FIELD BLANK RESULTS FOR THE MM5 AND TOLUENE FLUE GAS SAMPLES; CENTRAL CAROLINA HOSPITAL HOSPTIAL (1990)

FULL-SCREEN ANALYSIS	MM5 TLI-METHOD BLANK (total ng)	MM5 TLI-METHOD BLANK (1/2 OM-50%) (total ng)	MM5 FIELD BLANK (total ng)	TOL TLI-METHOD BLANK (total pg)	TOL FIELD BLANK (total pg)
DIOXINS					
2378 TCDD	[6.500]	[0.050]	[0.060]	[25.50]	10.0
TOTAL TCDD	[6.500]	[0.050]	(0.070)	[25.50]	245.0
12378 PCDD	[8.600]	[0.060]	[0.080]	[31.20]	53.0
TOTAL PCDD	[8.600]	[0.060]	0.29	(34.40)	360.0
123478 HxCDD	[8.500]	[0.050]	[0.100]	[44.40]	60.0
123678 HxCDD	[8.300]	[0.050]	[0.100]	[43.40]	82.2
123789 HxCDD	[9.500]	[0.050]	(0.180)	[49.30]	175.0
TOTAL HxCDD	[8.700]	[0.050]	0.85	[45.60]	895.0
1234678-HpCDD	[14.50]	[0.080]	0.58	[160.0]	618.0
TOTAL HpCDD	[14.50]	[0.080]	0.58	[160.0]	1140.0
Octa-CDD	[26.50]	0.18	(0.950)	[453.0]	887.0
FURANS					
2378 TCDF	[4.500]	[0.040]	0.35	[19.20]	337.0
TOTAL TCDF	[4.500]	[0.040]	0.63	[19.20]	1430.0
12378 PCDF	[6.300]	[0.050]	0.14	[25.50]	149.0
23478 PCDF	[6.600]	[0.050]	0.23	[26.60]	289.0
TOTAL PCDF	[6.400]	[0.050]	1.9	[26.00]	2550.0
123478 HxCDF	[5.000]	[0.030]	(0.680)	[27.30]	544.0
123678 HxCDF	[4.800]	[0.030]	0.38	[26.20]	317.0
234678 HxCDF	[6.600]	[0.040]	(0.460)	[36.20]	366.0
123789 HxCDF	[8.400]	[0.050]	[0.100]	[46.20]	27.2
TOTAL HxCDF	[5.900]	[0.030]	0.72	[32.30]	2450.0
1234678-HpCDF	[6.000]	[0.030]	1.60	[48.50]	1210.0
1234789-HpCDF	[10.10]	[0.060]	[0.200]	[80.70]	(219.0)
TOTAL HpCDF	[7.500]	[0.040]	3.00	[60.60]	2160.0
Octa-CDF	[22.40]	[0.100]	0.91	[383.0]	1380.0

[ ] = minimum detection limit

( ) = estimated maximum possible concentration

TABLE 6-16. STANDARDS RECOVERY RESULTS FOR CDD/CDF ANALYSES, TEST RUN SAMPLES; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	MM5-RUN 1	MM5-RUN 2	MM5-RUN 3	MM5-RUN 4	MM5-RUN 5	MM5-RUN 6	MM5-RUN 8	MM5-RUN 9	MM5-RUN 10
FULL SCREEN ANALYSES									
SURROGATE STANDARDS RECOVERY (%)									
37Cl-TCDD	86.7		94.9		91.7	91.0		90.2	89.9
13C12-PeCDF 234	107.0		99.7		97.1	100.0		88.0	97.4
13C12-HxCDF 478	90.5		98.5		94.1	94.3		95.0	93.0
13C12-HxCDD 478	86.3		86.1		86.4	71.6		90.6	86.8
13C12-HpCDF 789	78.1		81.7		82.5	87.7		76.2	75.9
ALTERNATE STANDARDS RECOVERY									
13C12-HxCDF 789	81.8	84.7	81.1	91.0	86.2	86.5	82.3	89.6	85.2
13C12-HxCDF 234	102.0	104.0	101.0	105.0	101.0	97.4	107.0	108.0	109.0
INTERNAL STANDARDS RECOVERY									
13C12-2378-TCDF	63.0	78.3	79.7	81.7	75.5	78.6	82.7	87.2	67.4
13C12-2378-TCDD	74.6	84.3	81.7	89.1	81.9	85.1	79.6	82.6	71.4
13C12-PeCDF 123	76.7	96.1	89.1	97.9	82.3	92.2	106.0	99.8	79.1
13C12-PeCDD 123	81.4	120.0	91.5	128.0	77.7	124.0	115.0	98.9	87.6
13C12-HxCDF 678	115.0	105.0	109.0	103.0	115.0	97.5	99.4	113.0	119.0
13C12-HxCDD 678	122.0	106.0	113.0	102.0	119.0	129.0	103.0	119.0	125.0
13C12-HpCDF 678	83.2	84.1	80.3	90.9	81.9	77.5	81.7	81.6	93.7
13C12-HpCDD 678	77.0	75.3	74.9	78.1	77.8	78.3	70.9	74.1	86.1
13C12-OCDD	52.1	55.4	54.0	62.2	55.3	58.4	53.4	54.4	70.8
CONFIRMATION DATA									
SURROGATE STANDARD RECOVERY %									
37Cl-TCDD	98.2		96.5		100.0	101.0		97.2	96.9
INTERNAL STANDARDS RECOVERY %									
13C12-2378-TCDF	76.2	91.3	87.6	98.7	90.9	90.8	93.9	87.5	85.0
13C12-2378-TCDD	78.6	91.6	91.1	98.0	94.7	93.8	95.4	96.2	82.6

TABLE 6-17. STANDARDS RECOVERY RESULTS FOR CDD/CDF ANALYSES BLANK SAMPLES; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	MM5-FIELD BLANK	MM5-TLI BLANK
FULL SCREEN ANALYSES	(1/2 10 OM)	
SURROGATE STANDARDS RECOVERY (%)		
37Cl-TCDD	90.4	
13C12-PeCDF 234	78.1	
13C12-HxCDF 478	91.6	
13C12-HxCDD 478	86.1	
13C12-HpCDF 789	65.8	
ALTERNATE STANDARDS RECOVERY		
13C12-HxCDF 789	65.1	76.3
13C12-HxCDF 234	87.0	98.8
INTERNAL STANDARDS RECOVERY		
13C12-2378-TCDF	66.2	69.1
13C12-2378-TCDD	73.8	72.0
13C12-PeCDF 123	102.0	83.4
13C12-PeCDD 123	98.4	101.0
13C12-HxCDF 678	104.0	80.1
13C12-HxCDD 678	116.0	83.2
13C12-HpCDF 678	59.9	68.8
13C12-HpCDD 678	49.7	65.9
13C12-OCDD	32.8	53.6
CONFIRMATION DATA		
SURROGATE STANDARD RECOVERY %		
37Cl-TCDD	100.0	
INTERNAL STANDARDS RECOVERY %		
13C12-2378-TCDF	79.8	
13C12-2378-TCDD	75.8	

TABLE 6-18. STANDARDS RECOVERY RESULTS FOR CDD/CDF TOLUENE ANALYSES, TEST RUN SAMPLES CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	TOL-RUN 1	TOL-RUN 2	TOL-RUN 3	TOL-RUN 4	TOL-RUN 5	TOL-RUN 6	TOL-RUN 8	TOL-RUN 9	TOL-RUN 10
FULL SCREEN ANALYSIS									
SURROGATE STANDARDS RECOVERY (%)									
37Cl-TCDD	47.8	53.3	31.6	49.1	31.9	51.8	54.7	69.0	50.9
13C12-PeCDF 234	63.4	75.6	52.4	75.6	48.3	61.8	69.4	79.6	52.8
13C12-HxCDF 478	88.8	76.4	86.0	63.1	170.0	71.1	80.2	77.2	88.7
13C12-HxCDD 478	105.0	93.8	111.0	81.2	171.0	95.0	100.0	110.0	101.0
13C12-HpCDF 789	43.0	44.6	41.2	45.7	71.0	45.8	55.1	56.4	32.4
ALTERNATE STANDARDS RECOVERY									
13C12-HxCDF 789	54.6	54.3	47.6	55.1	78.1	56.4	67.9	68.5	53.9
13C12-HxCDF 234	85.3	82.8	83.9	79.7	128.0	70.2	76.5	87.6	77.8
INTERNAL STANDARDS RECOVERY									
13C12-2378-TCDF	44.9	49.8	30.2	44.8	33.8	53.0	51.9	70.4	50.4
13C12-2378-TCDD	52.8	58.7	35.3	56.3	33.5	56.7	59.2	72.6	61.3
13C12-PeCDF 123	65.9	74.6	53.9	74.3	43.2	58.3	65.5	74.4	59.7
13C12-PeCDD 123	96.5	103.0	74.3	110.0	63.6	86.0	106.0	106.0	57.1
13C12-HxCDF 678	103.0	81.0	95.7	73.7	180.0	77.2	77.6	77.8	89.6
13C12-HxCDD 678	149.0	118.0	142.0	110.0	218.0	104.0	103.0	111.0	105.0
13C12-HpCDF 678	67.5	61.0	64.3	59.1	126.0	58.5	63.7	63.2	52.0
13C12-HpCDD 678	60.9	58.9	52.5	63.4	72.2	62.2	70.1	71.0	47.7
13C12-OCDD	42.1	47.4	34.4	57.7	28.9	43.8	49.4	51.3	33.1
CONFIRMATION DATA									
SURROGATE STANDARD RECOVERY (%)									
37Cl-TCDD	50.4	59.1	40.3	54.2	43.0	59.5	56.2	67.1	61.5
INTERNAL STANDARDS RECOVERY (%)									
13C12-2378-TCDF	60.9	69.1	33.9	48.6	39.4	49.8	53.7	59.3	54.4
13C12-2378-TCDD	48.8	56.4	40.3	56.4	49.1	58.8	60.2	72.5	68.0

TABLE 6-19. STANDARDS RECOVERY RESULTS FOR CDD/CDF TOLUENE ANALYSES, BLANK SAMPLES; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	TOL-TLI BLANK	TOL-FIELD BLANK
FULL SCREEN ANALYSIS		
SURROGATE STANDARDS RECOVERY (%)		
37Cl-TCDD	31.3	58.1
13C12-PeCDF 234	37.0	73.5
13C12-HxCDF 478	73.1	84.9
13C12-HxCDD 478	83.7	103.0
13C12-HpCDF 789	24.7	53.2
ALTERNATE STANDARDS RECOVERY		
13C12-HxCDF 789	35.6	71.9
13C12-HxCDF 234	61.8	80.8
INTERNAL STANDARDS RECOVERY		
13C12-2378-TCDF	30.0	54.6
13C12-2378-TCDD	34.4	59.8
13C12-PeCDF 123	38.6	67.4
13C12-PeCDD 123	52.2	90.5
13C12-HxCDF 678	78.2	86.3
13C12-HxCDD 678	95.5	112.0
13C12-HpCDF 678	45.8	63.4
13C12-HpCDD 678	31.9	64.0
13C12-OCDD	16.7	30.6
CONFIRMATION DATA		
SURROGATE STANDARD RECOVERY (%)		
37Cl-TCDD		63.7
INTERNAL STANDARDS RECOVERY (%)		
13C12-2378-TCDF		58.8
13C12-2378-TCDD		62.9

these compounds do not present a problem. All CDD/CDF data was inspected and released as valid by the Triangle Laboratory QA officer.

Table 6-20 present the recovery standards for the ash samples. All recoveries were within acceptable limits. Further information on standards recoveries can be found in Appendix E.1.

6.4.2 Metals Analytical Quality Assurance

The analytical methods used for the flue gas samples, the ash samples, and the metals samples are fully discussed in Section 5. The following paragraph will briefly report to metals analytical QA parameters.

Table 6-21 present the method blank metals results for both the ash and flue gas samples. Only barium was detected in the ash blank. Barium was also detected in the flue gas method blank. Relatively high amounts of arsenic, chromium, and nickel were found in the field blank. This was more fully discussed in Section 6.2.2.

Table 6-22 presents the method spike results for the metals analyses. All spiked recoveries were within the QA allowance of ±20 percent of 100 percent except for the back half fraction of mercury. This does not appear to be significant enough to affect the overall quality of the final results. At this point, no front half method spike duplicate values have been determined.

6.4.3 Halogen Analytical Quality Assessment

The analysis for Cl^-, F^-, and Br^- incorporate stringent QA/QC guidelines. Table 6-23 presents the method blank results for the IC analysis. None of the target halogen ions were detected in any of the method blanks, laboratory proof blanks, or the reagent blank. The field blank revealed very low amounts of HCl but only represented 3 percent of the average run amounts.

The matrix spike recoveries are also shown in Table 6-23. Results for all 3 ions were within the 20 percent criteria.

6.4.4 Microbial Survivability Quality Assurance

The stock wet spore solution, that were used for spiking the incinerator was analyzed. These results are listed in Table 6-24. Two pre-aliquoted wet spore bags were

TABLE 6-20. STANDARDS RECOVERY RESULTS FOR CDD/CDF ASH ANALYSES; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	ASH CONDITION 1	ASH CONDITION 2	ASH CONDITION 3	ASH-TLI BLANK
FULL SCREEN ANALYSIS				
SURROGATE STANDARDS RECOVERY (%)				
37Cl-TCDD	73.3	77.3	68.0	37.0
13C12-PeCDF 234	88.8	94.1	88.5	55.6
13C12-HxCDF 478	121.0	108.0	93.2	58.8
13C12-HxCDD 478	119.0	114.0	107.0	80.9
13C12-HpCDF 789	74.4	68.4	59.0	52.1
ALTERNATE STANDARDS RECOVERY				
13C12-HxCDF 789	81.3	86.2	67.4	55.3
13C12-HxCDF 234	112.0	109.0	92.7	78.2
INTERNAL STANDARDS RECOVERY				
13C12-2378-TCDF	98.0	99.5	95.2	33.7
13C12-2378-TCDD	74.0	77.8	69.3	41.6
13C12-PeCDF 123	83.9	84.7	77.7	46.9
13C12-PeCDD 123	73.6	72.1	66.7	77.7
13C12-HxCDF 678	98.1	90.5	79.5	64.3
13C12-HxCDD 678	92.1	94.2	85.7	94.1
13C12-HpCDF 678	89.6	81.4	71.8	58.0
13C12-HpCDD 678	73.0	75.8	63.3	61.6
13C12-OCDD	48.8	57.5	37.6	58.8
CONFIRMATION DATA				
SURROGATE STANDARD RECOVERY (%)				
37Cl-TCDD	77.3	88.0	71.8	
INTERNAL STANDARDS RECOVERY (%)				
13C12-2378-TCDF	67.2	79.0	61.5	
13C12-2378-TCDD	75.9	84.9	70.6	

TABLE 6-21. METALS ASH AND FLUE GAS METHOD BLANK RESULTS; CENTRAL CAROLINA HOSPITAL (1990)

METAL	ASH METHOD BLANK (mg/kg)	FLUE GAS METHOD BLANK			FIELD BLANK		
		FRONT HALF (total ug)	IMPINGERS 1,2 (total ug)	IMPINGERS 3,4 a (total ug)	FRONT HALF (total ug)	IMPINGERS 1,2 (total ug)	IMPINGERS 3,4 a (total ug)
Antimony	[6.4]	[16]	[7.0]		(59.5)	[7.3]	
Arsenic	[4.0]	[1.0]	[0.44]		11.7	[0.46]	
Barium	2.30	6.75	[0.22]		22.5	[0.23]	
Beryllium	[0.20]	[0.50]	[0.22]		[0.50]	[0.23]	
Cadmium	[0.50]	[1.2]	(0.978)		17.0	[0.57]	
Chromium	[1.0]	[2.5]	[1.1]		16.0	(1.25)	
Lead	[3.0]	[0.75]	[3.3]		32.0	[3.4]	
Mercury	[0.039]	[2.4]	[4.0]	[0.37]	[2.4]	[6.1]	[0.67]
Nickel	[2.0]	[5.0]	[2.2]		44.0	[2.3]	
Silver	[3.3]	[8.2]	[3.6]		[8.2]	[3.8]	
Thallium	[5.4]	[14]	[5.9]		[14]	[6.2]	

a Impingers 3 and 4 sample fractions analyzed for mercury content only.

NOTE:

-- Values enclosed in brackets represent minimum detection limits for elements not detected in the samples.

-- Values enclosed in parenthesis represent estimates as they are less than five times the detection limit.

TABLE 6-22. METALS METHOD BLANK SPIKE RESULTS;
CENTRAL CAROLINA HOSPITAL (1990)

METAL	METHOD SPIKE			METHOD SPIKE DUPLICATE		
	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4	FRONT HALF	IMPINGERS 1,2	IMPINGERS 3,4
Antimony	104	95.2		NC	81.0	
Arsenic	98.0	96.2		NC	94.4	
Barium	97.6	96.6		NC	96.0	
Beryllium	99.6	96.0		NC	94.4	
Cadmium	102	101		NC	101	
Chromium	104	99.6		NC	98.2	
Lead	100	95.2		NC	92.8	
Mercury	115	109	64.1	NC	101	80.1
Nickel	92.2	89.6		NC	90.0	
Silver	113	NC		NC	NC	
Thallium	83.4	89.2		NC	85.8	

NC = Analysis not completed

TABLE 6-23. HALOGEN METHOD BLANK, LAB PROOF BLANK, REAGENT BLANK AND MATRIX SPIKE RECOVERY; CENTRAL CAROLINA HOSPITAL (1990)

ANALYTE	METHOD BLANK 1 (total mg)	LAB PROOF BLANK SET 1 (total mg)	LAB PROOF BLANK SET 2 (total mg)	REAGENT BLANK H2SO4 (total mg)	FIELD BLANK A (total mg)	FIELD BLANK B (total mg)	ANALYTE	MATRIX SPIKE RECOVERY (%)	MATRIX SPIKE DUPLICATE RECOVERY (%)
HCl	[0.011]	[0.011]	[0.011]	[0.0099]	0.245	0.250	HCl	97.20	106
HF	[0.042]	[0.043]	[0.043]	[0.037]	[0.042]	[0.042]	HF	96.20	96.80
HBr	[0.013]	[0.013]	[0.013]	[0.011]	(0.064)	[0.013]	HBr	106.0	96.20

NOTE:

[ ] = Minimum Detection Limit

( ) = Denotes estimated value as number is less than 5 times detection limit.

TABLE 6-24. WET SPORE SPIKE SOLUTION CONIRMATION ANALYSIS; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	MANUFACTURER'S COUNT (spore/ml)	CONFIRMATION AVERAGE (viable spores/ml)	CONFIRMATION COUNT STANDARD DEVIATION (viable spores/ml)
Spike Aliquot Spore Susp.-1	6.72E+08	3.0E+09	1.0E+09
Spike Aliquot Spore Susp.-2	7.88E+08	3.0E+09	2.0E+09

NOTE: All Values were taken from the average of the 10 ml - 48-hour counts
Spike Aliquot Spore Susp.-1 was labelled 3.68E+11 spores/bag at 500 ml/bag.
Spike Aliquot Spore Susp.-2 was labelled 3.94E+11 spores/bag at 500 ml/bag.

submitted for confirmation analysis. The confirmation counts of 3 x 10^9 and 3 x 10^9 spores/ml were higher than the manufacturer's respective count of 6.72 x 10^8 and 7.88 x 10^8 spores/ml. However, because the final analyses were also completed by the same laboratory conducting confirmation anlayses, the confirmation results were used to calculate Overall Microbial Survivability.

A dry spore sample was also sent in for QA analysis. These results are shown in Table 6-25. The sample was sent to the laboratory as it was received from the manufacturer (in a glass vial). The confirmation count exceeded the manufacturer count at 5.2 x 10^6 versus 3.45 x 10^5, respectively.

Two empty pipe samples (blanks) that were not charged to the incinerator were also submitted to the laboratory for analysis. These results are listed on Page 2 in Appendix E.3 (CCH-298, CCH-299). One large and one small pipe field blank were submitted. The results were 10 and >200 spores, respectively. Therefore, either the sample recovery procedures or the analytical methods appear to have contaminated both pipe field blanks.

Two pipes which were loaded with spores and not charged to the incinerator (ambient pipes) were also submitted for analysis (see Apppendix E.3-CCH-300, CCH-301). The results show that the large pipe sample has 10 spores detected and the small pipe sample had >200 spores found. The number of spores detected probably does not represent the total spores present. This is because all pipe samples were rinsed and filtered without any dilutions. Henceforth quantitation of higher numbers of spores (pipes were loaded with 5.2 x 10^6 spores) was not feasible without performing serial dilutions.

6.5 CEM QUALITY ASSURANCES

Flue gas was analyzed for carbon monoxide (CO), oxygen (O_2), carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxides (NO_x), and total hydrocarbons (THC), using EPA Methods 10, 3A, 6C, 7E, and 25A, respectively. An additional CEM analyzer was also employed for real time HCl gas concentrations.

TABLE 6-25. DRY SPORE SPIKE SOLUTION CONFIRMATION ANALYSIS; CENTRAL CAROLINA HOSPITAL (1990)

SAMPLE ID	MANUFACTURER'S COUNT (spores/vial)	CONFIRMATION AVERAGE (viable spores/vial)	CONFIRMATION COUNT STANDARD DEVIATION (viable spores/vial)
Dry Spore Glass Vial	3.45E+05	5.2E+06 a	1.0E+06

NOTE: All Values were taken from the average of the 10 ml - 48-hour counts

6.5.1 CEM Data Overview

CEM sampling system and instruments were operated performing daily QA/QC procedures. These included QC gas challenges, sample systems blow back, probe maintenance, filter replacement, conditioner inspection and maintenance, calibration drift checks and others. The aim was to ensure a quality data product. Details of the CEM QC procedures are fully outlined in this test program's test plan.

Table 6-26 presents the CEM internal QA/QC checks along with their respective acceptance criteria which were conducted at the Central Carolina tests.

6.5.2 Calibration Drift Checks

All CEM analyzers were calibrated daily with a zero gas (generally nitrogen), and a high-range span gas. Calibrations were performed prior to and at the completion of each test run. By comparing the post-test calibration to the pre-test calibration, the calibration drift was determined (zero drift and span drift). Post-test calibrations were not completed for 4 out of the 9 HCl CEM test runs. This was because HCl calibrations had to be completed at stack gas temperatures and the incinerator would go into a "burndown" mode (lower temperature) before the post-test calibration could be performed.

Daily drift requirements between calibrations for both zero and span was ±3 percent of full scale as required by EPA Methods 6C and 3A. Although Method 10 for CO allows ±10 percent of full scale drift, the CO drift requirements were ±3 percent for this test program, to ensure the quality of data produced.

Table 6-27 lists the zero and span calibration drift results for each CEM analyzer on each test day. All drifts met QC allowances except HCl-Runs 1 and 9, and THC-Runs 7 and 9. The HCl data for the above runs were drift corrected. The THC CEM data for Run 7 were not included in the final results. No drift corrections were made on the THC-Run 9 data.

6.5.3 Daily QC Gas Challenges

After initial calibration, mid-range QC gases for all instruments were analyzed with no adjustment, as a quality control check of daily calibrations and to provide day-to-day precision estimates for each instrument. The calibration was considered

TABLE 6-26. CEM INTERNAL QA/QC CHECKS

Check	Frequency	Criteria
Initial Leak Check	Once/Site	< 4% of Total flow while under vacuum
Daily Leak Checks	Before Each Test Run	< 0.5% O_2 with 0.2% O_2 gas
Calibration Drift	Daily	< ±3% Span zero and upscale gas (can use ±10 ppm limit for HCl if less restrictive)
Multipoint Linearity Check (Calibration Error)	Every 3rd Day 3 point for O_2, CO_2, NO_x, SO_2, HCl 4 point for CO, THC	r = 0.998
Sample System Bias	Every 3rd Day Zero and Span	< 5% Span
Response Time	Once/Site	85% of time for stable SO_2 measurements
NO_x Convertor	Once/Site	> 90% conversion efficiency
Stratification Test	Once/Site	Within 10% of average

TABLE 6-27. DAILY CALIBRATION DRIFTS; CENTRAL CAROLINA HOSPITAL (1990)

PARAMETER: O2
ZERO CALIBRATION GAS: 0.2% O2
FULL SCALE: 25

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	0.0100	-0.5900
09/21/90	2	0.0200	-0.1000
09/22/90	3	0.0100	-0.3300
09/23/90	4	0.0500	-0.3200
09/24/90	5	0.1600	-0.5000
09/25/90	6	0.0200	-0.3100
09/26/90	7	0.1900	-0.6100
09/28/90	9	0.0500	-0.6500
10/02/90	10	-0.0400	-0.4400

PARAMETER: CO
ZERO CALIBRATION GAS: N2
FULL SCALE: 5000

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	-0.0500	-0.2000
09/21/90	2	0.0000	-0.0400
09/22/90	3	0.0800	-0.2000
09/23/90	4	0.0000	-0.2000
09/24/90	5	-0.0200	-0.0400
09/25/90	6	-0.0100	-0.0900
09/26/90	7	0.0900	-0.1000
09/28/90	9	-0.0500	-0.0900
10/02/90	10	-0.0200	-0.1100

PARAMETER: CO2
ZERO CALIBRATION GAS: N2
FULL SCALE: 20

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	0.0600	-1.4700
09/21/90	2	0.0200	0.0700
09/22/90	3	0.0700	0.6200
09/23/90	4	-0.0200	0.0300
09/24/90	5	0.0300	0.0400
09/25/90	6	0.0500	0.0100
09/26/90	7	-0.0400	0.2000
09/28/90	9	-0.1700	-0.0400
10/02/90	10	-0.0200	0.0000

TABLE 6-27. DAILY CALIBRATION DRIFTS; (continued)
CENTRAL CAROLINA HOSPITAL (1990)

PARAMETER: HCl
ZERO CALIBRATION GAS: N2
FULL SCALE: 2000

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	0.3700	-20.0100
09/21/90	2	0.6100	-0.1300
09/22/90	3	no final cal	no final cal
09/23/90	4	-0.1200	-0.5400
09/24/90	5	-0.2600	-0.6900
09/25/90	6	no final cal	no final cal
09/26/90	7	no final cal	no final cal
09/28/90	9	1.4500	9.5500
10/02/90	10	no final cal	no final cal

PARAMETER: SO2
ZERO CALIBRATION GAS: N2
FULL SCALE: 500

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	-0.0200	-0.1900
09/21/90	2	-0.0100	0.0000
09/22/90	3	0.0500	0.0800
09/23/90	4	-0.0300	-0.1400
09/24/90	5	0.0400	-0.0100
09/25/90	6	-0.0200	-0.1600
09/26/90	7	0.0000	-0.0500
09/28/90	9	-0.0300	-0.0800
10/02/90	10	-0.0200	-0.0700

PARAMETER: NOX
ZERO CALIBRATION GAS: N2
FULL SCALE: 250

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	0.0200	-2.0900
09/21/90	2	-0.1200	-1.0500
09/22/90	3	-0.3800	-2.0000
09/23/90	4	no final cal	no final cal
09/24/90	5	-0.0700	-1.9300
09/25/90	6	0.0900	0.5700
09/26/90	7	-0.2900	-0.8200
09/28/90	9	0.1000	0.0500
10/02/90	10	0.4500	1.3200

TABLE 6-27. DAILY CALIBRATION DRIFTS; (continued)
CENTRAL CAROLINA HOSPITAL (1990)

PARAMETER: THC
ZERO CALIBRATION GAS: N2
FULL SCALE: 100

DATE	RUN	ZERO INSTRUMENT DRIFT (% of Span)	SPAN INSTRUMENT DRIFT (% of Span)
09/20/90	1	0.8900	-0.8800
09/21/90	2	3.9500	0.8700
09/22/90	3	-1.8700	0.9300
09/23/90	4	-1.7100	0.3700
09/24/90	5	-1.1600	-0.9700
09/25/90	6	-1.5100	-1.2500
09/26/90	7	-4.2700	-4.2400
09/28/90	9	-1.4200	-4.7800
10/02/90	10	-1.9600	-1.0600

acceptable if the difference between the measured response and the certified concentration was within ±2 percent of full scale of the analyzer full range.

Table 6-28 presents the results of the daily QC gas challenges. Several QC gas responses exceeded the QC criterion. However, other QC challenges were made for these instruments with acceptable results.

6.5.4 Multipoint Linearity Check

During the test program, the multipoint linearity was determined for each CEM analyzer. This is important because flue gas concentrations are determined from a two point linear regression analysis (zero calibration and span calibration gas). Multipoint calibrations are performed with either three or four certified gases depending on the instrument: a zero gas, a low scale gas concentration, a mid-range concentration, and a high scale concentration (span gas). The QC criterion for acceptable linearity will be a correlation coefficient (r) of greater than or equal to .998, where the independent variable is the cylinder gas concentration and the dependent variable is the instrument response.

Table 6-29 presents the results of CEM linearity checks. All linearity checks met the acceptance criteria, except for one CO_2 and one SO_2 check. Other CO_2 and SO_2 linearity checks met the acceptance criteria.

6.5.4 Sample Bias

All calibrations and linearity checks were performed through the entire sampling system. Therefore, any system bias which may have existed was compensated for in the calibrations.

6.6 PSD QUALITY ASSURANCE

The most important QC procedure performed on a PSD test is inspecting the quality of particulate loadings on every impactor stage. Assesments can then be made on the validity of the test run. All PSD test runs were inspected during the Central Carolina Hospital MWI test program and observations were noted on the field data sheets (see Appendix A.6). Only those runs with discrete "particulate piles", showing no evidence of overloading, were accepted. The PSD Runs 1 and 2 were overloaded and underloaded, respectively, and were, therefore, not accepted as valid test runs. Runs 3

TABLE 6-28. QC GAS RESPONSES;
CENTRAL CAROLINA HOSPITAL (1990)

DATE	PARAMETER	TRUE CONCENTRATION	MEASURED CONCENTRATION	PERCENT DIFFERENCE a
09/20/90	O2 b	10.1	10.1	0.00%
		5.0	4.9	-0.40%
09/21/90		10.1	10.1	0.00%
09/22/90		10.1	10.1	0.00%
09/23/90		10.1	10.1	0.00%
09/24/90		10.1	12.3	8.80%
09/25/90		20.2	20.4	0.80%
		10.1	10.1	0.00%
		5.00	5.00	0.00%
09/26/90		10.1	10.1	0.00%
09/27/90		10.1	10.2	0.40%
09/28/90		10.1	11.0	3.60%
		5.0	5.0	0.00%
		20.0	20.0	0.00%
		20.2	20.2	0.00%
10/02/90		5.0	4.9	-0.40%
09/20/90	CO(dry) c	198.0	189.3	-0.17%
		50.0	41.8	-0.16%
09/21/90		198.0	186.7	-0.23%
09/22/90		198.0	182.5	-0.31%
09/23/90		198.0	188.9	-0.18%
09/24/90		198.0	188.4	-0.19%
09/25/90		198.0	188.4	-0.19%
		50.0	44.2	-0.12%
		198.0	192.3	-0.11%
09/27/90		198.0	187.0	-0.22%
09/28/90		198.0	221.0	0.46%
		50.0	48.8	-0.02%
		400.0	402.1	0.04%
10/02/90		50.0	48.6	-0.03%

NOTE:

a percent difference = 100 * (measured value - true value)/span

b in units of percent

c in units of ppm

TABLE 6-28. QC GAS RESPONSES (continued);
CENTRAL CAROLINA HOSPITAL (1990)

DATE	PARAMETER	TRUE CONCENTRATION	MEASURED CONCENTRATION	PERCENT DIFFERENCE a
09/20/90	CO2 b	9.03	8.7	-1.65%
		5.03	4.9	-0.65%
09/21/90		9.03	9.0	-0.15%
09/22/90		9.03	9.0	-0.15%
09/23/90		9.03	9.0	-0.15%
09/24/90		9.03	7.9	-5.65%
09/25/90		17.97	18.0	0.15%
		9.03	9.2	0.85%
		5.03	5.1	0.35%
09/26/90		9.03	9.1	0.35%
09/27/90		9.03	9.0	-0.15%
09/28/90		9.03	7.7	-6.65%
		5.03	5.1	0.35%
		17.97	18.0	0.15%
		17.97	18.0	0.15%
10/02/90		5.03	5.1	0.35%
09/20/90	SO2 c	99.9	103.5	0.72%
		50.4	51.5	0.22%
09/21/90		99.9	99.1	-0.16%
09/22/90		99.9	100.1	0.04%
09/23/90		99.9	98.5	-0.28%
09/24/90		99.9	98.5	-0.28%
09/25/90		99.9	100.3	0.08%
		50.4	50.2	-0.04%
		25.2	26.3	0.22%
09/26/90		99.9	97.6	-0.46%
09/27/90		99.9	96.9	-0.60%
09/28/90		99.9	91.5	-1.68%
		50.4	52.8	0.48%
		25.2	25.7	0.10%
10/02/90		99.9	101.6	0.34%
		50.4	50.4	0.00%
		25.2	25.8	0.12%

NOTE:

a percent difference = 100 * (measured value - true value)/span

b in units of percent

c in units of ppm

TABLE 6-28. QC GAS RESPONSES (continued);
CENTRAL CAROLINA HOSPITAL (1990)

DATE	PARAMETER	TRUE CONCENTRATION	MEASURED CONCENTRATION	PERCENT DIFFERENCE [a]
09/20/90	NOX c	102.0	101.7	-0.15%
		51.7	51.5	
09/21/90		51.7	51.5	-0.10%
09/22/90		102.0	102.4	0.20%
09/23/90		102.0	102.0	0.00%
09/24/90		102.0	103.7	0.85%
09/25/90		102.0	104.1	1.05%
		51.7	52.0	0.15%
		250.0	253.2	1.60%
09/26/90		102.0	103.5	0.75%
09/27/90		102.0	104.4	1.20%
09/28/90		102.0	102.8	0.40%
		51.7	52.3	0.30%
10/02/90		102.0	104.2	1.10%
		51.7	52.0	0.15%
09/20/90	THC (wet) c	91.6	91.0	-0.60%
		15.0	15.5	0.50%
09/22/90		91.6	83.7	-7.90%
09/23/90		91.6	88.2	-3.40%
09/24/90		91.6	91.9	0.30%
09/25/90		91.6	89.9	-1.70%
		15.0	14.5	-0.50%
09/26/90		91.6	89.5	-2.10%
09/27/90		91.6	95.2	3.60%
09/28/90		15.0	19.6	4.60%
		240.0	230.8	-9.20%
10/02/90		15.0	15.3	0.30%
09/20/90	HCL (wet) c	1826.8	1845.0	0.91%

NOTE:

a percent difference = 100 * (measured value - true value)/span

b in units of percent

c in units of ppm

TABLE 6-29. LINEARITY RESULTS;
CENTRAL CAROLINA HOSPITAL (1990)

PARAMETER	DATE	TRUE CONCENTRATION	MEASURED CONCENTRATION	CORRELATION (R)
02 *	9/25/90	0.20	0.2	0.99980
		5.00	5.0	
		10.10	10.1	
		20.20	20.4	
02 *	9/28/90	0.20	0.2	0.99865
		5.00	5.0	
		10.10	11.0	
		20.20	20.2	
CO **	9/28/90	0.00	0.0	0.99815
		50.00	48.8	
		198.00	221.0	
		400.00	402.1	
CO2 *	9/25/90	0.00	0.0	0.99995
		5.03	5.1	
		9.03	9.2	
		17.97	18.0	
		450.00	475.8	
C02 *	9/28/90	0.00	0.0	0.99596
		5.03	5.1	
		9.03	7.7	
		17.97	18.0	
SO2 **	9/25/90	0.00	0.0	0.99991
		25.20	26.3	
		50.40	50.2	
		99.90	100.3	
SO2 **	9/28/90	0.00	0.00	0.99674
		25.20	25.70	
		50.40	52.80	
		99.90	91.50	
SO2 **	10/02/90	0.00	0.00	0.99994
		25.20	25.80	
		50.40	50.40	
		99.90	101.60	

* in units of percent

** in units of ppm

*** as methane in units of ppm

TABLE 6-29. LINEARITY RESULTS; (continued)
CENTRAL CAROLINA HOSPITAL (1990)

PARAMETER	DATE	TRUE CONCENTRATION	MEASURED CONCENTRATION	CORRELATION (R)
NOx **	9/25/90	0.00	0.0	0.99999
		51.70	52.0	
		102.00	104.1	
		250.00	253.2	
HCl(wet) **	9/28/90	0.00	0.0	0.99982
		101.20	120.2	
		965.90	964.1	
THC ***	9/25/90	0.00	0.00	1.00000
		15.00	14.50	
THC ***	9/28/90	0	0	0.99978
		15	19.6	
		240	230.8	
		91.60	89.90	

* in units of percent
** in units of ppm
*** as methane in units of ppm

through 6 were validated by the recovery technician and the results are reported in Section 2.9.

All PSD sample trains were carefully configured and a pre-test leak check was completed on the system. In order to prevent sample particulate matter from being disturbed, post-test leak checks can not be completed on a PSD sample train. All pre-test PSD leak checks met the acceptable criterion of less than 0.02 cfm at 0 inches Hg vacuum.

6.7 DATA VARIABILITY

6.7.1 Overview

Coefficients of Variation (CV) were calculated for all the final stack gas pollutant concentrations. The CV or relative standard deviation (RSD) is calculated by dividing the standard deviation by the mean and expressed as a percentage. CVs from several distinct groups of data can be combined into a "Pooled CV". The pooled CV is calculated as follows:

$$CV = \frac{S}{M} \times 100$$

Where:

CV = Coefficient of variation

S = Standard deviation (calculated using LOTUS 123™ which uses n and not n-1 where n = number of data points.)

M = mean

$$CV_p = \sqrt{\frac{\Sigma (CV_i)^2 n_i}{\Sigma n_i}}$$

CV_p = pooled coefficient of Variation

CV_i = Coefficient of variation for a simple sample set i.

n_i = Number of data points in that sample set.

The CV values expressed in the following tables are not intended to represent sampling/analytical precision. They are more a reflection of the variability of the data as a whole, including process caused emission variability.

6.7.2 CDD/CDF Data Variation

Table 6-30 presents the CVs for the CDD/CDF flue gas concentrations. Values are listed for each congener for each triplicate run as well as a pooled CV for the entire nine runs. Pooled CVs are also compiled for all of the congeners and for the entire test program (overall). The overall pooled CV for the CDD/CDF flue gas concentrations was 64.4 percent.

Table 6-31 presents CVs for the metal flue gas concentrations. The overall pooled CV for the metals flue gas concentrations is 65.0 percent.

The Halogen gas test CVs are listed in Table 6-32. Values were calculated for each run as each run consisted of multiple "sub-runs" (1A, 1B, 1C, etc). The overall pooled CV for all three halogen flue gas concentrations is 29.8 percent.

Table 6-33 presents the CV values for the CEM 30 second averages. It should be noted in comparing these numbers to the manual test CVs, that the CEM data reflect real time, almost instantaneous changes in concentrations. The manual tests are all integrated tests which by sampling over an extended period of time, result in a "smoothed" average concentration for that time period. The overall pooled CV for the CEM data 159 percent. Results from the triplicate manual tests did not fluctuate nearly as much as the 30 second CEM readings, therefore had much lower CVs.

TABLE 6-30. COEFFICIENTS OF VARIATIONS FOR THE CDD/CDF FLUE GAS CONCENTRATIONS; CENTRAL CAROLINA HOSPITAL (1990)

CONGENER	CV:1,3,10 (%)	CV:2,4,8 (%)	CV:5,6,9 (%)	POOLED CV (%)
DIOXINS				
2378 TCDD	47.4	45.8	83.8	61.5
Other TCDD	100.7	29.7	76.8	75.1
12378 PCDD	63.3	46.0	76.3	63.1
Other PCDD	95.8	46.9	80.6	77.2
123478 HxCDD	68.5	39.5	68.7	60.5
123678 HxCDD	64.3	43.6	67.4	59.4
123789 HxCDD	68.4	46.2	59.3	58.7
Other HxCDD	80.2	40.4	64.0	63.7
1234678-HpCDD	58.1	37.2	49.3	48.9
Other HpCDD	60.7	38.3	52.2	51.2
Octa-CDD	60.3	33.1	49.6	48.9
FURANS				
2378 TCDF	64.0	87.6	84.5	79.4
Other TCDF	88.1	83.1	86.7	86.0
12378 PCDF	59.8	66.3	75.2	67.4
23478 PCDF	69.3	60.7	71.0	67.1
Other PCDF	80.1	67.1	86.3	78.2
123478 HxCDF	82.1	56.2	63.8	68.3
123678 HxCDF	72.8	58.2	65.2	65.7
234678 HxCDF	82.0	46.1	60.3	64.5
123789 HxCDF	68.4	56.4	60.0	61.8
Other HxCDF	76.1	55.6	70.1	67.8
1234678-HpCDF	80.7	45.4	50.3	60.8
1234789-HpCDF	74.0	38.7	39.7	53.4
Other HpCDF	78.6	40.9	49.5	58.6
Octa-CDF	75.9	18.7	35.9	49.6
Pooled CV	73.8	51.4	66.6	
Overall Pooled CV	64.4			

TABLE 6-31. COEFFICIENTS OF VARIATION OF THE FLUE GAS METALS CONCENTRATIONS; CENTRAL CAROLINA HOSPITAL (1990)

FLOW RATE (dacmm)	CONDITION 1 CV (%)	CONDITION 2 CV (%)	CONDITION 3 CV (%)	POOLED CV
Antimony	69.7	21.9	8.62	42.4
Arsenic	121	36.6	123	102
Barium	77.1	14.6	16.1	46.3
Beryllium	ND	1.1	ND	1.1
Cadmium	93.4	16.0	25.4	50.2
Chromium	93.2	11.2	116	86.2
Lead	19.2	22.8	28.2	24.2
Mercury	92.9	30.5	ND	69.1
Nickel	ND	66.4	113.1	92.7
Silver	ND	28.8	ND	28.8
Thallium	ND	ND	ND	ND
Pooled CV	87.6	30.8	78.6	
Overall Pooled CV	65.0			

ND = Not Detected

TABLE 6-32. COEFFICIENTS OF VARIATION FOR HALOGEN FLUE GAS CONCENTRATIONS; CENTRAL CAROLINA HOSPITAL (1990)

TEST RUN NUMBER	HCl (%)	HF (%)	HBr (%)
CV-1	28.8	25.8	4.40
CV-3	2.33	29.5	5.89
CV-10	48.2	60.0	12.6
Pooled Condition 1	34.4	42.6	8.67
CV-2	8.71	46.3	46.6
CV-4	47.2	36.7	31.3
CV-8	34.3	30.5	8.61
Pooled Condition 2	36.0	37.3	30.6
CV-5	20.1	21.7	ND
CV-6	6.28	15.2	ND
CV-9	26.8	16.5	9.36
Pooled Condition 3	19.7	18.0	9.36
Pooled Analyte	30.6	33.8	21.4
Total Pooled Halogen		29.8	

TABLE 6-33. COEFFICIENTS OF VARIATION OF CEM GAS CONCENTRATIONS; CENTRAL CAROLINA HOSPITAL (1990)

RUN NUMBER	DATE	COEFFICIENTS OF VARIATION (percent)							POOLED CV BY DAY
		O2	CO2	CO	NOx	SO2	HCl	THC	
1	9/20/90	6.09	23.6	325	51.3	58.8	172	174	157
2	9/21/90	10.7	33.5	248	49.7	122	44.8	259	146
3	9/22/90	7.67	28.7	235	71.2	55.8	91.5	177	122
4	9/23/90	9.76	31.1	201	68.7	88.7	62.5	398	176
5	9/24/90	6.15	27.8	252	46.9	43.3	32.9	447	196
6	9/25/90	5.76	24.0	254	49.0	41.0	36.7	323	158
8	9/27/90	10.0	32.6	283	46.6	133	56.2	130	131
9	9/28/90	7.73	28.5	296	44.8	42.6	43.8	411	194
10	10/02/90	8.78	32.2	228	61.3	57.4	39.5	251	133
Pooled Compound		8.26	29.3	260	55.2	78.6	76.6	306	
Overall Pooled		159							

7.0 REFERENCES

1. North Atlantic Treaty Organization, Committee on the Challenges of Modern Society. Pilot Study on International Information Exchange on Dioxins and Related Compounds: International Toxicity Equivalency Factor (I-TEF) Methods of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Report No. 176, August 1988.

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

EMB Report 90-MWI-5
Volume II
December 1990

Air

EPA

Medical Waste Incineration Emission Test Report

AMI Central Carolina Hospital
Sanford, North Carolina



DCN: 90-275-026-26-03

MEDICAL WASTE INCINERATION

EMISSION TEST REPORT

VOLUME II
APPENDICES A & B

Central Carolina Hospital
Sanford, North Carolina

EMB Project No. 90-MWI-05
Work Assignment 26
Contract No. 68-D-90054

Prepared for:

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December 1991

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Run No. 01

Plant CCH-SANFORD

Pollutant CCD/CDF

Date 9-2040

Plant Location SANFORD NC

Recorded by CAD

Checked by flg

QA Checklist

Impingers in correct order ☑

Pre-test leakcheck of pitots ☑

Double Check K-Factor 14 ✓

Filter loaded with rough side to the front ☑

Zero manometer ☑

Post-test leakcheck of pitots ( )

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start Test/Initial Leak .011 at 17 "Hg ~~Orifice ... Hg~~	B1	1400	1405	15
Restart test / END Port	B1	1425	1610	~~205~~ 105/120 Total
Restart	Port A1	1618	1818	~~240~~ 120/≥40 Total
END TEST		1818		

Broken Probe

RADIAN

11816631R

MODIFIED METHOD 5
FIELD DATA

RUN 01
PAGE 1 OF 3

PLANT	CCH-SANFORD	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-20-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin - Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)		
RUN NUMBER	01	Yd	.9890	MOISTURE METHOD		
OPERATOR	CAD	K FACTOR		MOISTURE DATA		
AMBIENT TEMPERATURE	.81	PROBE HEATER SETTING	250	O2/CO2 METHOD		
BAROMETRIC PRESSURE		HEATER BOX SETTING	250	O2	~~11.5~~ 11.5	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	02	CO2	8	
INITIAL LEAKCHECK	.011 at 17" Hg	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)
	0	1400	55.844									
B2	5	1405	58.0	.055	430	.066	230	66	86	86	68	4
2	10	1410	60.5	.065	~~479~~	~~.74~~ .74	235	64	86	87	57	5
2	15	1415	63.087	.063	469	.73	230	64	87	86	54	5
Restart	15	1425	63.50		broken	probe		Leak ✓ = .018 at 16" Hg				
B1	20	1430	65.6	.055	569	~~.56~~ .57	234	66	89	91	65	4
B1	25	1435	67.5	.055	648	.53	237	64	89	91	61	4
B1	30	1440	69.1	.055	685	.52	237	66	92	90	58	4
B3	35	1445	71.9	~~.05~~ .077	681	.73	243	64	93	90	57	5
B3	40	1450	74.5	.085	693	.80	252	66	94	91	56	5
B3	45	1455	77.0	.08	743	.72	~~26~~5	62	94	91	57	5
B4	50	1500	79.5	.10	745	.90	263	66	96	92	59	5
B4	55	1505	82.2	.085	747	.77	267	65	94	90	60	5
B4	60	1510	84.9	.092	745	.83	265	63	98	93	58	5
B4	65	1515	87.5	.094	729	.86	262	64	98	95	59	5
B4	70	1520	90.1	.087	719	.80	259	64	95	95	58	5
B4	75	1525	92.6	.101	762	.90	256	62	98	95	57	5
B3	80	1530	95.3	.095	751	.85	~~25~~7	60	96	94	56	5
B3	85	1535	97.8	.080	740	.72	~~25~~2	58	95	93	56	5
B3	90	1540	100.30	.105	838	.88	258	63	99	96	59	5

COMMENTS: STARTED Test at Point #2, Broke the probe, did point #1 then #3. CAD

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 01
PAGE 2 OF 3

PLANT	CCH - SANFORD
DATE	9-20-90
SAMPLING LOCATION	Incin. Stack
SAMPLE TYPE	MM5
RUN NUMBER	01
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
B2	95	1545	102.6	.07	776	.61	258	965	100	97	59	4
B2	100	1550	105.0	.075	760	.67	248	65	101	98	61	4
B2	105	1555	107.3	.065	745	.59	249	62	101	98	60	5
B1	110	1600	109.6	.065	739	.59	247	66	103	99	62	5
B1	115	1605	111.9	.065	741	.59	247	67	103	99	66	5
B1	120	1610	114.093	.063	810	.54	246	67	100	98	66	4
			STOP - Port Change			0.012 @ 10"						
	120	1618	114.298									
A1	125	1623	116.4	.06	846	.51	246	65	101	99	61	4
1	130	1628	118.4	.053	802	.46	232	62	97	97	62	4
1	135	1633	120.3	.053	800	.46	234	63	99	97	62	4
A2	140	1638	122.5	.055	791	.57	239	64	98	97	61	4
2	145	1643	124.7	.057	807	.56	240	63	97	97	60	4
2	150	1648	126.6	.05	707	.47	249	63	97	99	64	4
A3	155	1653	128.5	.06	950	.47	247	65	98	97	65	4
3	160	1658	130.6	.065	887	.53	251	65	96	96	65	4
3	165	1703	132.8	.055	709	.51	252	63	97	95	56	4
A4	170	1708	134.6	.0552	814	.42	252	64	97	96	52	4
4	175	1713	137.1	.01	905	.79	253	64	97	95	57	4

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 01
PAGE 3 OF 3

PLANT	CCH-SANFORD
DATE	9-20-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	01
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
A4	180	1718	139.3	.06	686	.52	260	64	96	94	59	5
4	185	1723	141.7	.10	900	.80	258	62	96	94	59	5
4	190	1728	144.3	.10	895	.80	269	61	95	94	59	5
A 4	195	1733	146.8	.095	852	.79	267	63	97	95	62	6
A 3	200	1738	149.1	.08	954	.61	269	63	93	92	60	5
3	205	1743	151.3	.075	911	.59	261	61	92	91	62	5
3	210	1748	153.6	.065	898	.52	268	64	92	92	63	5
A2	215	1753	155.7	.06	750	.54	251	64	92	91	65	5
2	220	1758	157.8	.05	647	.49	248	66	93	92	66	5
2	225	1803	159.9	.055	740	.50	242	66	93	91	60	5
A1	230	1808	161.6	.035	650	.34	242	64	92	91	56	4
1	235	1813	163.4	.045	784	.39	263	64	92	91	59	4
1	240	1818	165.041	.035	702	.33	260	65	90	91	58	4
			END TEST									

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Carolina Central Hospital Sample Identification Code: _____

Date 9/20/90

Sampling location Stack

Sample type M23 CDD/CDF

Run number 01

Sample box number _____ XAD-02

Clean-up person BWN

Solvent rinses 3 x Acetone 3 x $MeCl_2$

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams)		
				Final	Initial	Weight Gain
1	MT	—	KO	632.0	437.9	194.1
2	HPLC H_2O		MGS	610.7	504.9 608.7	2.0
3	HPLC H_2O		GS	598.0	488.4 596.6	1.4
4	MT	—	MGS	453.0	450.5	2.5
5	Silica Gel	≈ 200g	MGS	846.9	821.2	25.7
6						
7						

Total Weight Gain (grams) 225.7

Run No. 02
Plant CCH-SANFORD
Pollutant CCD-CDF

Date 9-21-90
Plant Location SANFORD, NC.
Recorded by CAD
Checked by

QA Checklist
Impingers in correct order ☒
Filter loaded with rough side to the front ☒
Pre-test leakcheck of pitots ☒
Zero manometer ☒
Double Check K-Factor ☒
Post-test leakcheck of pitots ☒

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start Test in Port A	A	945	1145	120
Start Test in Port B	B	1157	1357	120/240 total

11816638

MODIFIED METHOD 5
FIELD DATA

RUN 02
PAGE 1 OF _____

PLANT	CCH-SANFORD	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-21-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin. Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	mm5	METER ΔH@	1.89	ASSUMED MOISTURE (%)	13	
RUN NUMBER	02	Yd	.9890	MOISTURE METHOD		
OPERATOR	CAD	K FACTOR		MOISTURE DATA		
AMBIENT TEMPERATURE	70	PROBE HEATER SETTING	250	O2/CO2 METHOD		
BAROMETRIC PRESSURE	29.9	HEATER BOX SETTING	250	O2		
STATIC PRESSURE (Ps)	-.12	XAD TRAP	03	CO2		
INITIAL LEAKCHECK	.005 at 17" Hg	HEIGHT OF LOCATION (ft)	206'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
	0	9:45	68.846									
A1	5	9:50	70.5	.03	415	.38	235	55	72	71	60	2
1	10	955	72.2	.045	745	.39	236	61	72	72	60	2
1	15	1000	73.8	.035	775	.30	237	60	72	71	59	2
A2	20	1005	75.5	.05	747	.43	237	59	72	71	57	2
2	25	1010	77.3	.055	889	.39	244	58	72	71	54	3
2	30	1015	79.2	.05	797	.42	250	56	72	74	58	3
A3	35	1020	81.2	.065	747	.56	257	59	75	73	56	3
3	40	1025	83.1	.065	862	.51	267	54	76	73	55	3
3	45	1030	85.1	.065	847	.51	264	59	77	74	57	3
A4	50	1035	87.5	.09	819	.74	259	59	76	73	55	4
4	55	1040	89.8	.11	1137	.72	272	59	76	76	55	4
4	60	1045	92.0	.085	1012	.60	268	60	76	74	56	4
4	65	1050	94.2	.08	818	.65	257	61	79	76	58	4
4	70	1055	96.4	.08	948	.59	264	63	80	77	59	4
4	75	1100	98.8	.085	884	.67	257	62	79	~~79~~ 75	~~65~~ 58	4
A3	80	1105	100.8	.068	832	.55	250	60	79	76	58	4
3	85	1110	102.9	.085	1226	.53	258	62	80	77	61	4
3	90	1115	105.0	.075	1067	.53	255	63	81	78	62	~~4~~ 3
A2	95	1120	107.0	.055	860	.44	245	61	80	78	61	3

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 02
PAGE 2 OF ____

PLANT	CCH-SANFORD
DATE	9-28-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	02
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
2	100	1125	108.9	.08	1056	.56	242	61	78	76	60	4
2	105	1130	110.9	.07	939	.53	242	61	79	76	61	4
A1	110	1135	112.6	.045	825	.37	235	63	79	77	62	3
1	115	1140	114.2	.035	716	.31	239	63	78	77	62	3
1	120	1145	115.771	.035	711	.31	240	63	78	77	62	3
			STOP -	Port	Change	Leak	✓ =	0.003	@ 10" Hg			
B	120	1157	116.022									
B1	125	1202	117.5	.03	917	.23	250	63	78	77	62	3
1	130	1207	118.9	.025	658	.24	229	64	78	77	60	3
1	135	1212	120.5	.035	711	.31	230	63	79	78	59	3
B2	140	1217	122.4	.045	631	.43	223	62	78	77	58	3
2	145	1222	124.4	.055	647	.52	231	63	79	78	58	3
2	150	1227	126.2	.045	682	.41	236	62	78	77	56	3
B3	155	1232	128.4	.055	671	~~.05~~ .6	235	63	78	77	58	4
3	160	1237	130.5	.04	970	.59	248	64	78	77	58	4
3	165	1242	132.7	.07	832	.57	252	64	79	77	59	4
B4	170	1247	134.9	.07	700	.63	247	64	79	77	59	4
4	175	1252	137.2	.09	879	.71	252	64	79	78	59	5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 02
PAGE 3 OF _____

PLANT	XH-Sanford
DATE	9-21-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	mm5
RUN NUMBER	02
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
4	180	1257	139.6	.07	709	.63	256	65	81	79	61	5
4	185	1302	141.6	.06	700	.54	251	64	79	77	60	4
4	190	1307	144.3	.105	732	.93	243	63	79	77	61	6
4	195	1312	146.4	.07	718	.63	254	63	79	77	61	5
B3	200	1317	148.5	.07	672	.60	250	64	80	78	63	5
3	205	1322	150.9	.10	1130	.66	258	64	80	78	63	5
3	210	1327	153.0	.075	806	.62	260	63	80	78	64	5
B2	215	1332	154.8	.045	698	.41	257	66	83	80	66	4
2	220	1337	156.7	.055	887	.43	243	66	78	80	65	5
2	225	1342	158.7	.055	800	.46	246	67	80	78	67	4
B1	230	1347	160.5	.05	683	.46	241	63	79	78	64	5
1	235	1352	162.4	.05	781	.42	248	65	81	79	63	5
1	240	1357	164.036	.04	733	.35	251	63	82	79	63	
			END TEST									
						leak	✓	.012	@ 10"			

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant CENTRAL CAROLINA HOSPITAL Sample Identification Code: _____

Date 9/21/90

Sampling location STACK

Sample type M23

Run number 02

Sample box number _____ XAD-3

Clean-up person BWN

Solvent rinses 3× ACE, $MECl_2$, TOL

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT		KO	578.5	440.0	138.5
2	HPLC H_2O		MGS	617.4	506.1 617.2	0.2
3	HPLC H_2O		GS	595.2	490.4 598.6	-3.4
4	MT		MGS	454.2	453.0	1.2
5	SILICA GEL	≈ 200	MGS	845.3	820.7	24.6
6						
7						

Total Weight Gain (grams) 161.1

Run No. 03
Plant CCH-SANFORD
Pollutant CCD/CDF

Date 9-22-90
Plant Location SANFORD, NC
Recorded by CAD
Checked by [illegible]

QA Checklist
Impingers in correct order ☒
Pre-test leakcheck of pitots ☒
Double Check K-Factor ☒
Filter loaded with rough side to the front ☒
Zero manometer ☒
Post-test leakcheck of pitots ✓

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start test - Leak ✓ = .009 at 16" Hg	B	9:45	1145	120
Start Port B A	A	1200	1400	120/240

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RADIAN

MODIFIED METHOD 5
FIELD DATA

RUN 03
PAGE 1 OF _____

PLANT	CCH-SANFORD	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-22-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	13	
RUN NUMBER	03	Yd	.9890	MOISTURE METHOD		
OPERATOR	CAD	K FACTOR	~8.0	MOISTURE DATA		
AMBIENT TEMPERATURE	71	PROBE HEATER SETTING	250	O2/CO2 METHOD	~~Lab~~ CEMS	
BAROMETRIC PRESSURE	~~29.90~~ 29.6	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	04	CO2	4	
INITIAL LEAKCHECK	.009 @ 16"	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
	0	9:45	164.401									
B1	5	950	166.1	.035	430	.41	275	57	71	70	65	3
1	10	955	167.8	.04	654	.38	244	54	73	71	60	3
1	15	1000	169.7	.045	646	.42	237	61	73	71	59	3
B2	20	1005	171.8	.07	632	.67	235	61	75	73	60	5
2	25	1010	173.8	.055	637	.52	240	62	76	73	58	5
2	30	1015	175.9	.06	708	.54	241	61	77	74	60	4
B3	35	1020	178.3	.075	660	.70	239	60	78	74	59	5
3	40	1025	180.7	.085	682	.78	246	62	79	75	59	5
3	45	1030	183.2	.08	673	.74	248	62	81	76	55	5
B4	50	1035	185.6	.085	663	.79	249	61	82	78	54	5
4	55	1040	188.0	.085	659	.80	250	63	83	78	54	5
4	60	1045	190.6	.105	835	.85	262	61	83	79	55	5
B4	65	1050	193.3	.108	786	.98	264	64	83	79	55	5
4	70	1055	195.9	.10	743	.88	262	62	84	80	55	5
4	75	1100	198.5	.10	731	.86	263	62	85	81	56	6
B3	80	1105	200.9	.09	707	.81	260	65	86	82	57	6
3	85	1110	203.5	.10	813	.93	265	65	86	82	58	5
3	90	1115	206.1	.095	771	.82	264	65	87	83	59	5
B2	95	1120	208.0	.05	696	.46	258	64	87	83	60	5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 03
PAGE 2 OF _____

PLANT	CCH-SANFORD
DATE	9-22-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	mm5
RUN NUMBER	03
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)	
									Dry Gas Meter		Impinger Exit		
									Inlet (Tm in)	Outlet (Tm out)			
2	100	1125	210.1	.07	772	.60	250	65	88	84	64	4	.265
2	105	1130	212.4	.065	757	.57	250	66	88	84	64	5	.255
B1	110	1135	214.5	.055	632	.54	248	67	87	84	65	5	.255
1	115	1140	216.6	.075	879	.60	249	65	87	85	64	5	.274
1	120	1145	218.610	.06	824	.50	246	64	87	84	65	4	.245
			STOP - Port Change			Leak ✓	= .01	out	10" Hg				
	120	1200	219.232										
A1	125	1205	221.1	.045	630	.44	250	60	83	~~77~~ 82	66	4	
1	130	1210	223.1	.10	842	.82	238	57	87	83	59	4	
1	135	1215	225.7	.095	722	.86	236	60	84	83	58	6	
A2	140	1220	228.8	.135	729	1.13	254	58	85	83	58	6	
2	145	1225	230.7	.075	914	.58	273	61	86	84	60	5	
2	150	1230	232.9	.065	860	.52	263	61	87	84	63	4	
A3	155	1235	234.8	.05	687	.46	259	58	87	85	58	4	
3	160	1240	237.2	.08	746	.71	255	59	87	85	58	5	
3	165	1245	239.4	.075	790	.64	261	60	87	85	58	5	
A4	170	1250	241.2	.05	698	.46	260	58	88	86	60	4	
4	175	1255	243.7	.11	629	1.08	253	61	88	85	59	6	

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 03
PAGE 3 OF 3

PLANT	CCH-SANFORD
DATE	9-22-90
SAMPLING LOCATION	Inc. N Stack
SAMPLE TYPE	MM5
RUN NUMBER	03
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
4	180	1300	245.8	.06	679	.56	265	58	88	86	59	4
4	185	1305	248.1	.07	761	.61	257	61	85	87	58	5
4	190	1310	250.4	.10	940	.76	267	61	87	86	58	5
4	195	1315	252.8	.095	921	.73	274	60	88	86	61	6
A3	200	1320	255.0	.075	841	.61	264	60	88	86	62	5
3	205	1325	256.6	.045	825	.37	253	60	87	86	63	4
3	210	1330	258.5	.04	630	.39	239	60	87	86	66	4
A2	205	1335	260.5	.055	722	.5	236	62	87	88	66	4
2	210	1340	262.8	.085	914	.66	242	61	87	86	65	4
2	215	1345	265.2	.078	756	.68	243	60	87	83	63	5
A1	220	1350	266.9	.035	648	.34	240	59	88	86	63	4
A1	225	1355	268.8	.05	700	.46	230	58	88	86	65	5
1	230	1400	270.873	.055	663	.52	227	59	88	86	64	5
			END TEST									
					leak	✓ .004 @		8"				

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Central Carolina Hospital Sample Identification Code: _____

Date 9/22/90

Sampling location Stack

Sample type M23

Run number 03

Sample box number _____

Clean-up person BWD

Solvent rinses 3x Acet, MeCl, ~~Tol~~

XAD # 4

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT	—	KO	636.6	440.2	196.4
2	HPLC H_2O		MGS	609.8	508.0 610.3	-0.5
3	HPLC H_2O		GS	606.8	497.1 607.5	-0.7
4	MT	—	MGS	565.3	~~498.8~~ 566.6	-1.3
5	Silica Gel	≈200	MGS	823.0	798.7	24.3
6						
7						

Total Weight Gain (grams) 218.2

Run No. 04
Plant CCH
Pollutant CCD/CDF

Date 9-23-90
Plant Location SANFORD, NC
Recorded by CAD
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☒
Double Check K-Factor ☒
Filter loaded with rough side to the front ☒
Zero manometer ☒
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start Test	A	1140	1340	120
Start B Port	B	1347	1547	140

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MODIFIED METHOD 5
FIELD DATA

RUN 4
PAGE 1 OF _____

PLANT	CCH - SANFORD	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-23-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Exit in Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	13	
RUN NUMBER	04	Yd	.9890	MOISTURE METHOD	Previous Run	
OPERATOR	CAD	K FACTOR	~8	MOISTURE DATA	—	
AMBIENT TEMPERATURE	70	PROBE HEATER SETTING	250	O2/CO2 METHOD	CEM	
BAROMETRIC PRESSURE	29.65	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	05	CO2	4	
INITIAL LEAKCHECK	.012 at 15" Hg	HEIGHT OF LOCATION (ft)	20'	FINAL LEAKCHECK	.015 at 18" Hg	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
	0	1140	271.700									
A1	5	1145	273.5	.035	500	.39	256	66	75	75	65	2
1	10	1150	275.6	.055	~~868~~	~~.60~~ .40	235	61	76	76	55	4
1	15	1155	277.5	.058	830	.42	240	60	77	76	56	4
A2	20	1200	279.5	.07	768	.53	246	62	79	77	57	3
2	25	1205	281.6	.08	931	.53	256	63	80	77	58	3
2	30	1210	283.8	.07	878	~~.59~~ .55	257	62	81	78	57	4
A3	35	1215	285.7	.055	748	.48	253	64	82	79	58	3
3	40	1220	287.8	~~.07~~ .07	723	.62	249	62	80	79	55	4
3	45	1225	289.9	.065	757	.56	256	62	81	79	50	4
A4	50	1230	292.2	.075	630	.73	256	61	82	80	51	5
4	55	1235	294.7	.075	591	.75	258	61	83	80	51	5
4	60	1240	297.1	.08	830	.65	272	61	83	81	53	5
4	65	1245	298.9	.065	659	.61	270	62	84	81	54	5
4	70	1250	301.0	.055	609	.55	260	64	84	82	56	4
4	75	1255	302.4	.075	731	.67	262	62	84	82	57	5
A3	80	1300	305.5	.055	676	.51	258	62	84	82	56	5
3	85	1305	307.4	.055	644	.53	248	63	83	82	57	5
3	90	1310	309.6	.07	789	.59	248	62	83	82	60	5
A2	95	1315	311.2	.03 ~~.05~~	710	.27	250	63	83	81	64	4

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 04
PAGE 2 OF 3

PLANT	CCH
DATE	4-25-90
SAMPLING LOCATION	Coal Stack
SAMPLE TYPE	M5
RUN NUMBER	04
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
2	100	1320	313.1	.05	674	.47	235	66	82	81	66	5
2	105	1325	315.1	.065	864	.52	243	62	81	81	65	5
A1	110	1330	317.2	.065	741	.57	247	64	82	81	64	6
1	115	1335	319.1	.055	665	.52	248	63	82	81	64	6
1	120	1340	321.241	.07	830	.57	256	63	83	82	65	6
			STOP - Port Change 0.006 @10"									
	120	1347	321.526									
B1	125	1352	323.5	.065	750	.57	259	67	80	81	67	6
1	130	1357	325.7	.075	716	.67	246	66	81	81	60	6
1	135	1402	327.9	.06	662	.57	254	62	81	81	60	8
B2	140	1407	330.1	.07	734	.62	256	60	83	82	57	8
2	145	1412	332.1	.06	708	.54	260	58	83	82	57	8
2	150	1417	334.1	.055	702	.50	261	59	82	81	58	8
B3	155	1422	336.5	.10	869	.80	265	60	84	82	60	10
3	160	1427	339.0	.10	914	.77	270	58	83	82	59	11
3	165	1432	341.[illegible]	.09	743	.79	268	58	84	82	60	12
B4	170	1437	343.7	.095	1009	.68	267	60	83	81	61	12
B4	175	1442	346.0	.09	861	.72	259	57	83	81	61	12
B4	180	1447	348.2	.075	723	.67	245	61	82	81	62	12.5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 04
PAGE 3 OF 3

PLANT	CCH-SANFORD
DATE	9-23-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
[illegible]MBER	04
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
B4	185	1452	350.8	.10	~~243~~ 879	.79	243	62	83	82	64	13
4	190	1457	353.1	.085	725	.76	242	61	82	81	63	13
4	195	1502	355.5	.07	700	.64	240	61	83	81	63	13
B3	200	1507	357.8	.10	900	.78	238	63	83	82	66	13.5
3	205	1512	360.1	.08	810	.67	246	61	83	81	60	14
3	210	1517	362.5	.09	761	.78	236	59	82	81	58	15
B2	215	1522	364.5	.075	1057	.52	253	63	83	82	60	14
2	220	1527	366.5	.05	740	.44	249	63	84	82	60	13
2	225	1532	368.4	.055	737	.46	241	63	83	82	60	13
B1	230	1537	370.3	.07	1139	.48	244	62	83	83	62	13
1	235	1542	372.3	.065	890	.51	246	63	84	83	63	13.5
1	240	1547	374.155	.05	724	.45	242	63	85	83	63	15
			END - TEST									
				Leak @ .015 @ 18"								

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Carolina Central Hospital Sample Identification Code: _____

Date 9/23/90

Sampling location Stack

Sample type M23

Run number 04

Sample box number _____

Clean-up person BMN

Solvent rinses 3× Ace, MeCl2

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams)		
				Final	Initial	Weight Gain
1	MT		KO	568.7	439.5	129.2
2	HDLC H_2O		MGS	565.8	453.6 566.5	-0.7
3	HDLC H_2O		GS	603.5	498.7 607.1	-3.6
4	MT		MGS	511.1	509.1	2.0
5	Silica Gel		MGS	835.8	808.4	27.4
6						
7						

Total Weight Gain (grams) 154.3

Run No. 05
Plant CCH
Pollutant CCD/CDF

Date 9-24-90
Plant Location SANFORD, NC
Recorded by CHD
Checked by

QA Checklist
Impingers in correct order ☒
Filter loaded with rough side to the front ☒
Pre-test leakcheck of pitots ☒
Zero manometer ☒
Double Check K-Factor ☒
Post-test leakcheck of pitots ☒

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start Test	B	1145	1345	120
Start A Port	A	1352	1552	120/24

RADIAN

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MODIFIED METHOD 5
FIELD DATA

RUN 5
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-24-90	NOZZLE I.D. (In)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	13	
RUN NUMBER	05	Yd	.9890	MOISTURE METHOD	Previous Run	
OPERATOR	CAD	K FACTOR	~8	MOISTURE DATA		
AMBIENT TEMPERATURE	67	PROBE HEATER SETTING	250	O2/CO2 METHOD	CEMS	
BAROMETRIC PRESSURE	29.90	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	06	CO2	4	
INITIAL LEAKCHECK	.010 at 16" Hg	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Temperature (deg. F) Dry Gas Meter Outlet (Tm out)	Temperature (deg. F) Impinger Exit	Pump Vacuum (in. Hg)
	0	1145	78,616									
B1	5	1150	80.4	.04	600	.39	259	55	68	67	68	2
1	10	1155	82.3	.05	648	.48	231	53	69	68	54	2
1	15	1200	84.3	.05	557	.51	233	52	70	69	52	2
B2	20	1205	86.2	.05	560	.51	237	51	71	68	50	3
2	25	1210	88.5	.065	648	.66	246	57	72	69	52	3
2	30	1215	90.5	.055	640	.51	252	58	73	70	52	3
B3	35	1220	92.8	.073	663	.67	253	57	75	71	53	3
3	40	1225	95.3	.08	670	.73	258	56	76	72	53	4
3	45	1230	97.6	.08	717	.70	268	57	77	73	52	3
B4	50	1235	100.2	.095	698	.85	269	58	79	74	54	3
4	55	1240	102.6	.093	698	.84	270	59	79	74	52	3
4	60	1245	105.1	.09	683	.82	267	57	79	75	53	4
4	65	1250	107.7	.105	806	.87	274	53	79	75	56	4
4	70	1255	110.2	.10	753	.86	270	58	80	76	54	4
4	75	1300	112.7	.10	745	.86	265	60	81	77	55	4
B3	80	1305	115.2	.110	745	.87	261	61	82	78	57	4
3	85	1310	117.7	.10	843	.80	263	59	81	77	57	4
3	90	1315	120.2	.096	787	.81	257	61	82	79	59	4
B2	95	1320	122.5	.07	735	.61	252	58	81	78	60	4

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 05
PAGE 2 OF 3

PLANT	CCH
DATE	9-24-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	mm5
RUN NUMBER	05
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
2	100	1325	124.8	.08	797	.67	247	57	82	79	59	3
2	105	1330	127.9	.07	788	.59	249	54	83	80	55	3
B1	110	1335	129.4	.09	800	.75	245	54	83	80	54	4
1	115	1340	131.4	.06	821	.49	245	50	82	79	52	3
1	120	1345	128.400	.065	781	.55	233	51	81	79	53	3
			STOP - Port Change			Leak ✓ = .01 at 10" Hg						
	120	~~1355~~ 1352	133.9									
B1	125	1357	135.9	.05	615	.49	234	53	80	79	58	3
1	130	~~1402~~	~~138~~.0	.065	817	.54	232	54	79	79	54	3
1	135	1407	140.0	.07	988	.51	243	55	81	79	54	3
B2	140	1412	141.9	.06	798	.50	243	57	80	79	54	3
2	145	1417	143.8	.055	783	.47	247	55	80	79	54	3
2	150	1422	145.9	.065	824	.53	246	58	80	79	56	3
A3	155	1427	148.1	.08	~~794~~ 774	.70	249	55	80	79	57	3
3	160	1432	150.2	.075	843	.61	258	57	90	79	55	3
3	165	1437	152.6	.075	822	.62	255	54	81	79	56	3
A4	170	1442	155.0	.09	718	.72	254	57	82	80	59	4
4	175	1447	157.3	.095	915	.73	259	58	81	79	57	4
4	180	1452	59.6	.08	917	.66	264	57	82	79	56	4

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 05
PAGE 3 OF 3

PLANT	CCH
DATE	9-24-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	mm5
RUN NUMBER	05
OPERATOR	CAD

Traverse Point Number	Sampling (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
B4	185	1457	~~157.6~~ 161.9	.085	781	.72	261	56	82	80	56	4
4	190	1502	164.2	.078	770	.67	259	60	83	81	59	4
4	195	1507	166.1	.055	668	.51	254	57	85	82	59	3
B3	200	1512	167.9	.045	663	.42	247	60	83	81	59	3
3	205	1517	170.3	.090	918	.69	242	56	84	82	60	4
3	210	1522	172.5	.077	834	.63	249	60	84	82	59	4
B2	215	1527	174.3	.045	644	.43	258	59	85	83	61	3
2	220	1532	176.3	.06	861	.48	243	62	84	82	61	3
2	225	1537	178.3	.057	815	.47	248	62	85	83	63	3
B1	230	1542	180.3	.065	798	.54	246	64	86	84	65	3
1	235	1547	182.0	.04	626	.39	245	63	87	85	65	3
1	240	1552	~~183.7~~ 183.78	.04	619	.39	240	65	87	85	65	3
			END Test		.018	at 9" Hg						

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/24/90
RUN NUMBER 05
SAMPLING LOCATION Stack
SAMPLING TYPE M23
SAMPLING BOX NUMBER
CLEAN-UP PERSON BWN
SOLVENT RINSES 3x Ace, MeCl2
SAMPLE IDENTIFICATION CODE
XAD TRAP NUMBER XAD # 6

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	—	KO	597.6	439.5	158.1
2	HPLC H_2O	≈ 100	MGS	561.8	567.1	-5.3
3	HPLC H_2O	≈ 100	GS	610.2	615.2	-5.0
4	MT	—	MGS	506.1	505.9	0.2
5	Silica Gel	≈ 200	MGS	810.9	781.9	29.0

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 177.0

RADIAN CORPORATION

Run No. 06
Plant ACH
Pollutant CCD/CDF

Date 9-25-90
Plant Location SANFORD, NC
Recorded by CAD
Checked by

QA Checklist
Impingers in correct order ☒
Filter loaded with rough side to the front ☒
Pre-test leakcheck of pitots ☒
Zero manometer ☒
Double Check K-Factor ☒
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start test Port A.	A	1010	1210	120
Start B Port	B	1215	1415	120/240

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METHOD 5
FIELD DATA

RUN 6
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	56" Quartz	HEIGHT OF LOCATION (ft)	30'
DATE	9-25-90	NOZZLE I.D. (in)	.383	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Incin Stack	METER BOX NUMBER	N-30	FILTER NUMBER	
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	13
RUN NUMBER	06	Yd	.9890	MOISTURE METHOD	Previous Run
OPERATOR	CAD	K FACTOR	~8.0	MOISTURE DATA	-
AMBIENT TEMPERATURE	65	PROBE HEATER SETTING	-	O2/CO2 METHOD	CEM's
BAROMETRIC PRESSURE		HEATER BOX SETTING	250	O2	16
STATIC PRESSURE (Ps)	-.12			CO2	4
INITIAL LEAKCHECK	.012 at 18"			FINAL LEAKCHECK	.008 at 10" Hg

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)	XAD
	0	1010	84.337									
A1	5	1015	86.00	.035	500	.038	237	67	67	56	2	57
1	10	1020	87.9	.035	549	.036	240	69	67	54	2	52
1	15	1025	89.5	.035	547	.036	235	71	68	53	2	52
A2	20	1030	91.2	.035	561	.03	237	74	70	57	2	53
2	25	1035	92.9	.04	572	.04	245	76	71	56	2	54
2	30	1040	94.7	.04	565	.04	254	78	73	56	2	55
A3	35	1045	96.8	.065	700	.59	263	80	74	56	2	55
3	40	1050	98.9	.06	672	.55	264	80	75	56	3	55
3	45	1055	101.2	.065	677	.60	263	82	76	55	3	54
A4	50	1100	103.4	.065	639	.62	262	82	77	56	3	55
4	55	1105	105.6	.06	621	.55	258	83	78	58	3	55
4	60	1110	107.7	.07	681	.64	258	84	79	57	3	57
4	65	1115	110.3	.095	706	.86	259	85	80	56	4	57
4	70	1120	112.6	.065	670	.60	263	86	81	56	3	53
4	75	1125	114.9	.075	779	.64	263	85	81	54	3	57
A3	80	1130	117.1	.075	782	.64	263	86	82	57	3	54
3	85	1135	119.3	.075	781	.64	263	86	82	59	3	56
3	90	1140	121.5	.07	758	.60	262	87	83	57	3	59
A2	95	1145	123.5	.06	773	.52	262	87	83	58	3	59

COMMENTS:

MODIFIED METHOD 5
FIELD DATA

RUN 06
PAGE 2 OF 3

PLANT	CCH
DATE	9-25-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	mm5
[illegible] NUMBER	06
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
			125.8 ↓									
2	100	1150	~~[illegible]~~	.055	730	.49	252	58	84	82	57	3
2	105	1155	128.0	.06	739	.54	255	60	87	84	60	3
A1	110	1200	129.8	.05	766	.43	258	59	87	84	61	3
1	115	1205	131.7	.05	759	.44	253	60	89	85	63	3
1	120	1210	133.513	.048	746	.42	251	62	89	86	64	3
		stop leak	✓0.004 @ 7"									
	120	1215	133.870									
B1	125	1220	137.1	.14	580	1.43	252	66	85	84	64	6
1	130	1225	140.4	.17	753	1.49	256	57	87	85	56	6
1	135	1230	142.6	.07	746	.62	268	57	90	86	53	3
B2	140	1235	144.8	.065	760	.57	256	56	91	87	57	3
2	145	1240	146.9	.065	809	.55	254	58	92	87	58	3
2	150	1245	149.1	.06	754	.53	254	57	91	87	57	3
B3	155	1250	151.7	.105	840	.87	253	56	90	87	58	4
3	160	1255	154.2	.09	808	.76	258	61	88	86	54	4
3	165	1300	156.6	.085	811	.72	253	60	87	86	55	4
B4	170	1305	159.2	.095	809	.80	253	59	87	86	56	4
4	175	1310	161.8	.115	870	.93	260	58	91	88	58	5
4	180	1315	164.5	.10	813	.84	266	60	91	88	58	5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 06
PAGE 3 OF 3

PLANT	CCH
DATE	9-25-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	06
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
4	185	1320	167.4	.115	860	1.10	260	62	90	87	58	6
4	190	1325	170.2	.135	949	1.03	265	59	92	88	58	6
4	195	1330	172.9	.112	853	.91	267	62	88	86	57	5
B 3	200	~~1340~~ 1335	175.4	.097	825	.81	254	63	89	87	59	5
3	205	~~1345~~ 1340	177.9	.101	821	.84	245	61	92	88	60	5
3	210	1345	180.5	.094	811	.79	238	64	91	88	60	5
B 2	215	1350	182.9	.048	627	.47	225	63	86	85	54	4
2	220	1355	184.5	.065	829	.54	230	61	87	86	56	4
2	225	1400	186.5	.055	773	.48	230	61	89	88	57	3
B 1	230	1405	189.0	.09	686	.84	223	61	89	87	58	5
1	235	1410	191.2	.065	802	.55	245	62	89	87	57	4
1	240	1415	193.154	.05	618	.50	237	64	88	86	58	4
			END TEST									
				Leak ✓ 0.006		@ 10"						

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital

DATE 9/24/90

RUN NUMBER 06

SAMPLING LOCATION Stack

SAMPLING TYPE M23

SAMPLING BOX NUMBER

CLEAN-UP PERSON BWN

SOLVENT RINSES 3x Ace, MeCl2

SAMPLE IDENTIFICATION CODE

XAD TRAP NUMBER XAD # 7

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		KO	614.0	438.9	
2	HPLC H_2O		MGS	570.2	453.6 573.6	
3	HPLC H_2O		GS	603.0	499.8 604.5	
4	MT		MGS	506.5	505.9	
5	Silica Gel		MGS	808.5	783.8	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 07
Plant CCH
Pollutant CDD/CDF

Date 9-25-90
Plant Location SANFORD, NC
Recorded by CAD
Checked by

QA Checklist
Impingers in correct order ☒
Pre-test leakcheck of pitots ☒
Double Check K-Factor ☒
Filter loaded with rough side to the front ☒
Zero manometer ☒
Post-test leakcheck of pitots ☒

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start test .014 at 16" Hg	B	1000	1200	120
~~Start~~ Start A Port	A	1206	1406	120/240

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MODIFIED METHOD 5
FIELD DATA

RUN 07
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-25-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	1	
RUN NUMBER	07	Yd	.9890	MOISTURE METHOD	Previous Run	
OPERATOR	CAD	K FACTOR	~8.0	MOISTURE DATA		
AMBIENT TEMPERATURE	70	PROBE HEATER SETTING	—	O2/CO2 METHOD		
BAROMETRIC PRESSURE	29.90	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	08	CO2	4	
INITIAL LEAKCHECK	.014 at 16"	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
	0	1000	94.526									
B1	5	1005	96.5	.045	500	.50	248	67	72	72	65	2
1	10	1010	98.7	.075	930	.58	250	64	74	71	61	3
1	15	1015	100.9	.08	807	.66	260	64	76	72	59	3
B2	20	1020	103.0	.07	751	.60	252	66	78	73	59	3
2	25	1025	105.3	.085	948	.63	259	66	80	75	61	3
2	30	1030	107.6	.08	810	.66	256	67	81	75	61	3
B3	35	1035	109.8	.05	731	.44	253	66	81	76	61	3
3	40	1040	112.5	.115	1047	.81	250	63	83	78	60	4
3	45	1045	115.0	.10	900	.78	258	59	85	80	60	3
B4	50	1050	117.5	.10	824	.82	257	59	86	80	61	4
4	55	1055	120.1	.13	1110	.88	264	60	86	81	61	4
4	60	1100	122.9	.11	870	.88	260	59	87	82	60	4
4	65	1105	125.3	.10	820	.83	251	61	88	82	59	4
4	70	1110	127.9	.15	1257	.93	255	60	87	83	62	4
4	~~75~~ 75	~~1115~~ 1115	130.6	.14	1172	.91	264	59	88	84	63	5
B3	80	1120	133.3	.13	1042	.92	263	62	90	85	64	4
3	85	1125	135.8	.14	1255	.86	261	63	91	86	67	4
3	90	1130	138.4	.125	1114	.84	265	60	93	87	62	4
B2	95	1135	140.5	.06	665	.56	255	59	92	88	59	4

COMMENTS:

Revision: 6/90

MODIFIED METHOD 5
FIELD DATA

RUN 07
PAGE 2 OF 3

PLANT	CCH
DATE	9/25/90
SAMPLING LOCATION	STACK
SAMPLE TYPE	M23
RUN NUMBER	07
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
2	100	1140	142.6	.06	720	.54	239	58	92	88	60	3
2	105	1145	144.7	.055	698	.51	232	58	90	87	59	3
B 1	110	1150	147.2	.08	643	.78	230	59	90	87	60	5
1	115	1155	149.2	.06	703	.55	235	58	90	88	57	3
1	120	1200	151.165	.05	650	.48	236	60	90	88	61	3
			STOP - Port	Change	.012	cut 10" Hg						
	120	1206	151.555									
A1	125	1211	153.5	.04	490	.45	246	60	88	87	72	3
1	130	1216	155.3	.045	683	.42	238	56	90	89	62	3
1	135	1221	157.3	.045	697	.42	239	56	91	89	62	3
A2	140	1226	159.4	.06	731	.54	245	56	90	88	61	3
2	145	1231	161.4	.055	748	.49	251	57	91	89	61	3
2	150	1236	163.5	.06	803	.51	251	57	92	89	62	3
A3	155	1241	165.6	.06	714	.55	255	57	93	90	62	3
3	160	1246	167.7	.06	725	.55	258	57	93	90	62	3
3	165	1251	169.9	.07	752	.62	255	59	93	90	63	4
A4	170	1256	172.0	.065	815	.55	263	60	94	91	62	3
4	175	1301	174.1	.06	704	.55	260	59	93	91	64	3
4	180	1306	176.5	.08	844	.66	264	58	94	91	65	5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 07
PAGE 3 OF 3

PLANT	CCH
DATE	9-25-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	07
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
A4	185	1311	178.6	.06	690	.56	259	65	95	92	65	4
4	190	1316	180.9	.07	722	.64	249	58	94	91	66	4
4	195	1321	183.3	.08	695	.74	244	56	95	92	65	4
A3	200	1326	185.4	.06	764	.53	246	56	95	92	64	4
3	205	1331	187.6	.07	724	.64	245	59	96	93	65	4
3	210	1336	190.0	.09	830	.70	245	56	96	93	57	5
A2	215	1341	192.0	.055	731	.50	248	57	96	93	54	4
2	220	1346	194.1	.058	749	.52	244	59	96	94	55	4
2	225	1351	196.4	.07	779	.61	238	59	95	93	57	5
A1	230	1356	198.2	.045	769	.39	226	56	94	92	56	3
1	235	1401	200.0	.04	736	.36	230	61	94	93	61	3
1	240	1406	201.828	.05	779	.43	241	62	94	92	63	3
			END TEST		Leak ✓	.005 at	10" Hg	at	Filter			

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/26/90
RUN NUMBER 07
SAMPLING LOCATION Stack
SAMPLING TYPE M23
SAMPLING BOX NUMBER
CLEAN-UP PERSON BWN
SOLVENT RINSES 3 x Ace, $MeCl_2$
SAMPLE IDENTIFICATION CODE
XAD TRAP NUMBER XAD #8

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		MGS	567.2	439.1	128.1
2	HPLC H_2O		MGS	566.5	453.9 570.2	-3.7
3	HPLC H_2O		GS	607.6	500.6 612.4	-4.8
4	MT		MGS	507.1	507.1	0
5	Silica Gel		MGS	780.5	769.4	11.1

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 130.7

MODIFIED METHOD 5
FIELD DATA

RUN 08
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	
DATE	9-27-90	NOZZLE I.D. (in)	.364	FILTER TYPE		
SAMPLING LOCATION	Incin Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	~~15~~	11%
RUN NUMBER	08	Yd	.9890	MOISTURE METHOD		
OPERATOR	CAD	K FACTOR	~8	MOISTURE DATA		
AMBIENT TEMPERATURE	80	PROBE HEATER SETTING	—	O2/CO2 METHOD	CEM's	
BAROMETRIC PRESSURE	29.92	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	09	CO2	4	
INITIAL LEAKCHECK	.01 at 16" Hg	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)
	0	1345	2.37									
A1	5	1350	4.5	.035	520	.38	260	60	~~85~~	~~86~~	65	2
1	10	1355	7.0	.08	662	.77	235	64	86	85	68	~~3~~ 4
1	15	1400	~~9.6~~ 9.5	.07	559	.74	249	61	86	85	59	5
A2	20	1405	12.0	.08	658	.77	254	61	88	86	58	5
2	25	1405	14.4	.11	1088	.76	277	64	89	86	59	5
2	30	1410	16.9	.085	862	.69	271	62	90	87	59	5
A3	35	1415	19.2	.08	810	.67	255	62	91	88	59	5
3	40	1420	21.5	.09	1095	.62	255	60	91	87	59	5
3	45	1425	23.7	.075	890	.59	249	60	90	87	58	4
A4	50	1430	26.2	.08	627	.79	231	60	91	88	61	5
4	55	1435	28.7	.115	1178	.77	264	61	87	87	59	5
4	60	1440	30.6	.06	900	.47	266	64	92	89	62	4
4	65	1445	33.2	.09	~~565~~ 656	.87	238	65	94	90	64	6
4	70	1450	35.3	.06	774	.52	248	63	92	89	59	4
4	75	1455	37.3	.05	704	.46	234	64	93	90	63	4
A3	80	1500	39.7	.08	640	.78	~~330~~	65	96	90	64	5
3	85	1505	41.7	.06	846	.49	253	65	98	94	63	4
3	90	1510	43.7	.05	740	.45	236	67	98	95	65	4
A2	95	1515	46.0	.07	719	.64	231	63	97	94	63	5

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 08
PAGE 2 OF 3

PLANT	CCH
DATE	9-27-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	08
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Temperature (deg. F) Dry Gas Meter Outlet (Tm out)	Temperature (deg. F) Impinger Exit	Pump Vacuum (in. Hg)
2	100	1525	48.3	.07	727	.68	244	66	99	96	62	5
2	105	1530	50.5	.07	702	.68	243	61	97	95	59	5
A 1	110	1535	52.6	.052	660	.52	243	60	96	98	58	4
1	115	1540	54.8	.07	644	.60	255	62	100	98	63	5
1	120	1545	56.910	.055	723	.53	260	65	101	99	63	5
			STOP - Port Change			Leak √=	.008	at 12"	Hg			
	120	1550	57.151									
B1	125	1555	59.8	.08	626	.85	260	61	100	99	62	6
1	130	1600	61.9	.055	612	.59	259	62	101	99	60	5
1	135	1605	64.6	.07	603	.76	260	63	102	100	62	5
B2	140	1610	66.9	.07	646	.73	271	67	103	101	61	6
2	145	1615	69.3	.08	759	.76	262	64	103	101	62	6
2	150	1620	71.8	.07	739	.68	263	64	102	100	62	6
B3	155	1625	73.8	.05	740	.48	259	63	101	100	62	5
3	160	1630	76.1	.07	702	.70	240	66	102	101	65	5
3	165	1635	78.3	.06	654	.62	238	60	101	100	60	5
B4	170	1640	80.8	.08	817	.73	249	67	103	101	60	6
4	175	1645	83.3	.08	740	.77	247	50	100	99	57	6
4	180	1650	85.6	.075	735	.72	249	49	102	100	59	6

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 08
PAGE 3 OF 3

PLANT	CCH
DATE	9-27-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	08
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
4	185	1655	88.0	.075	793	.69	255	57	102	100	59	6
4	190	1700	90.4	.075	744	.72	253	56	102	100	59	6
4	195	1705	92.8	.07	726	.68	256	58	103	101	60	6
B 3	200	1710	95.1	.07	824	.63	250	55	98	97	58	6
3	205	1715	97.4	.073	760	.69	247	56	97	97	60	6
3	210	1720	99.7	.07	725	.68	246	55	97	97	59	7
B 2	215	1725	102.2	.09	919	.76	256	55	99	98	62	8
2	220	1730	104.5	.073	790	.68	257	56	98	97	61	7
2	225	1735	106.9	.07	683	.71	245	56	95	95	60	7
B 1	230	1740	109.2	.07	880	.61	256	58	99	98	63	7
1	235	1745	111.3	.05	642	.53	251	58	100	98	64	7
1	240	1750	~~113.960~~	.045	560	.51	244	60	100	98	65	6
			END TEST		.008	at 12" Hg						
			~~113.960~~ 113.378									

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/26/90
RUN NUMBER 08
SAMPLING LOCATION Stack
SAMPLING TYPE Metals
SAMPLING BOX NUMBER
CLEAN-UP PERSON Brad
SOLVENT RINSES 3 x 0.1 N HNO_3
SAMPLE IDENTIFICATION CODE
~~XAD TRAP NUMBER~~ Filter MP-43

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	—	MGS	600.5	506.1	94.4
2	5% HNO_3 10% H_2O_2		MGS	610.4	465.5 575.0	35.4
3	5% HNO_3 10% H_2O_2		GS	622.0	514.2 621.7	0.3
4	MT	—	MGS	472.3	469.7	2.6
5	Acidic $KMnO_4$		MGS	573.1	465.0 569.6	3.5
6	Acidic $KMnO_4$		MGS	598.6	491.2 596.0	2.6
7	Silica Gel	≈ 200	MGS	833.0	812.8	20.2

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 159.0

Run No. 09
Plant CCH
Pollutant CCD/CDF

Date 9-28-90
Plant Location Sanford NC
Recorded by CAD
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☑
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Start test .012 at 16" Hg	B	1100	1300	120
Start A port .012 at 10" Hg	A	1305	1505	120/140

RADIAN

1181663R

MODIFIED METHOD 5
FIELD DATA

RUN 09
PAGE 1 OF 3

PLANT	CCM	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	78"	
DATE	9-28-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin. Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ΔH@	1.89	ASSUMED MOISTURE (%)	10	
RUN NUMBER	09	Yd	.9890	MOISTURE METHOD		
OPERATOR	CAD	K FACTOR	~8.0	MOISTURE DATA		
AMBIENT TEMPERATURE	75	PROBE HEATER SETTING	—	O2/CO2 METHOD	CEM	
BAROMETRIC PRESSURE	29.97	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	90	CO2	4	
INITIAL LEAKCHECK	.012 at 16"	HEIGHT OF LOCATION (ft)	30	FINAL LEAKCHECK		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
	0	1100	15.954									
B1	5	1105	17.9	.045	500	.52	263	66	80	80	66	2
1	10	1110	20.1	.05	457	.61	235	66	81	80	57	3
1	15	1115	22.0	.04	515	.46	237	65	82	80	54	3
B2	20	1120	24.7	.075	400	.97	237	67	82	81	54	5
2	25	1125	26.9	.07	652	.65	262	62	83	81	54	4
2	30	1130	29.2	.065	640	.66	271	63	84	81	56	4
B3	35	1135	31.3	.05	633	.51	261	62	85	82	57	3
3	40	1140	33.6	.085	855	.72	265	64	87	83	59	4
3	45	1145	36.0	.075	785	.68	274	67	88	84	59	4
B4	50	1150	38.3	.075	759	.69	269	61	89	85	59	4
4	55	1155	40.6	.085	903	.70	272	60	90	86	60	4
4	60	1200	43.0	.08	858	.68	267	61	91	86	61	4
4	65	1205	45.5	.085	824	.75	259	61	92	87	62	5
4	70	1210	48.0	.09	857	.77	265	62	93	88	64	5
4	75	1215	50.4	.085	829	.75	257	62	94	89	64	5
3	60	1220	52.9	.085	814	.76	250	62	94	90	64	4
3	65	1225	55.4	.09	874	.77	252	62	95	90	65	5
3	90	1230	57.8	.086	841	.75	247	66	95	91	68	5
2	95	1235	60.1	.07	790	.64	245	61	95	91	64	4

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 09
PAGE 2 OF 3

PLANT	CCH
DATE	9-28-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	09
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Temperature (deg. F) Dry Gas Meter Outlet (Tm out)	Temperature (deg. F) Impinger Exit	Pump Vacuum (in. Hg)
2	100	1240	62.5	.078	825	.69	240	60	96	92	64	4
2	105	1245	64.8	.075	793	.68	236	60	96	92	62	4
B 1	110	1250	67.0	.065	778	.60	234	60	96	94	62	4
1	115	1255	69.2	.055	628	.58	240	59	92	91	60	4
1	120	1300	71.504	.06	642	.62	230	60	91	91	61	4
			STOP Port Change			.012	set 10" Hg					
	120	1305	71.73									
A 1	125	1310	74.7	.095	800	1.13	229	64	92	91	67	6
1	130	1315	77.2	.08	721	.77	230	63	95	93	60	5
1	135	1320	79.6	.07	694	.69	252	61	94	92	59	5
A 2	140	1325	81.9	.065	719	.63	252	60	94	92	58	5
2	145	1330	84.3	.08	756	.75	250	59	92	91	56	5
2	150	1335	86.6	.07	757	.66	252	60	89	88	56	5
A 3	155	1340	89.0	.07	783	.64	254	60	90	90	58	5
3	160	1345	91.1	.07	817	.63	254	62	92	91	60	5
3	165	1350	93.6	.06	630	.63	251	65	95	93	65	5
A 4	170	1355	95.7	.07	854	.61	258	63	96	93	65	5
4	175	1400	98.0	.09	853	.78	262	63	96	93	61	5
4	180	1405	100.7	.09	698	.89	258	61	93	91	57	6

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 09
PAGE 3 OF 3

PLANT	CCH
DATE	9-28-90
SAMPLING LOCATION	STACK
SAMPLE TYPE	MM5
RUN NUMBER	9
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter			
									Inlet (Tm in)	Outlet (Tm out)	Impinger Exit	
4	185	1410	103.3	.105	957	.85	272	66	96	93	59	5
4	190	1415	105.5	.07	902	.59	270	65	98	94	61	5
4	195	1420	107.9	.08	844	.70	260	66	98	95	63	5
B 3	200	1425	110.2	.08	850	.70	248	68	98	95	63	5
3	205	1430	112.6	.075	860	.65	248	63	97	94	59	5
3	210	1435	114.7	.055	654	.57	239	66	98	95	61	5
B 2	215	1440	117.0	.075	850	.66	240	63	97	95	60	5
B 2	220	1445	119.5	.08	755	.75	234	64	96	94	58	6
2	225	1450	121.8	.065	734	.62	240	55	92	92	55	5
B 1	230	1455	124.1	.10	805	.91	231	66	96	94	60	5
B 1	235	1500	126.4	.05	370	.71	237	67	97	95	64	5
1	240	1505		.035	470	.43	239	65	97	95	61	5
			END TEST		Leak ✓	=.008 at	10"	Hg				

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital

DATE 9/28/90

RUN NUMBER 09

SAMPLING LOCATION Incin. Stack

SAMPLING TYPE MM5

SAMPLING BOX NUMBER

CLEAN-UP PERSON

SOLVENT RINSES 3x Ace, $MeCl_2$

SAMPLE IDENTIFICATION CODE

XAD TRAP NUMBER Xad #10

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	-	KO.	634.4	438.7	195.7
2	HPLC H_2O	~100	MGS	555.6	556.0	-0.4
3	HPLC H_2O	~100	GS	597.1	600.9	-3.8
4	MT	-	MGS	507.7	507.3	0.4
5	Silica Gel	~400	MGS	819.4	792.0	27.4

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 219.3

MODIFIED METHOD 5
FIELD DATA

RUN 10
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	56" Quartz	DUCT DIMENSIONS	18"	Round
DATE	10-3-90	NOZZLE I.D. (in)	.384	FILTER TYPE		
SAMPLING LOCATION	Incin. Stack	METER BOX NUMBER	N-30	FILTER NUMBER		
SAMPLE TYPE	MM5	METER ▲ H@	1.89	ASSUMED MOISTURE (%)	10%	
RUN NUMBER	10	Yd	.9890	MOISTURE METHOD	Previous Run	
OPERATOR	CAD	K FACTOR	~8.0	MOISTURE DATA		
AMBIENT TEMPERATURE	67	PROBE HEATER SETTING	—	O2/CO2 METHOD		
BAROMETRIC PRESSURE	29.	HEATER BOX SETTING	250	O2	16	
STATIC PRESSURE (Ps)	-.12	XAD TRAP	12	CO2	4	
INITIAL LEAKCHECK	.008 at 16"	HEIGHT OF LOCATION (ft)	30'	FINAL LEAKCHECK	.008 at	9" Hg

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)
	0	1015	28.85									
A1	5	1020	30.9	.045	400	.57	239	61	69	69	60	2
1	10	1025	33.0	.04	460	.48	231	60	75	71	52	3
1	15	1030	34.9	.035	402	.45	237	59	77	73	53	3
A2	20	1035	37.1	.055	509	.62	241	61	79	74	53	3
2	25	1040	39.5	.07	652	.70	244	62	81	75	53	4
2	30	1045	41.9	.07	622	.70	262	60	82	77	54	4
A3	35	1050	43.7	.045	652	.45	261	62	84	79	55	3
3	40	1055	45.5	.05	686	.49	254	65	84	79	57	3
3	45	1100	47.8	.05	679	.49	254	65	86	80	57	3
A4	50	1105	50.0	.07	693	.68	252	65	86	80	57	4
4	55	1110	52.3	.065	729	.61	259	64	87	82	57	3
4	60	1115	54.6	.07	711	.67	258	65	87	83	58	4
4	70 65	1120	56.5	.05	698	.49	258	67	88	84	60	3
4	75 70	1125	58.7	.065	808	.58	257	61	88	85	62	3
4	80 75	1130	61.0	.065	745	.61	260	59	89	85	62	3
A3	85 80	1135	63.1	.05	720	.48	268	60	90	86	62	3
3	90 85	1140	65.2	.055	742	.52	260	60	89	85	63	3
3	95 90	1145	67.2	.05	718	.48	257	59	89	86	64	3
A2	100 95	1150	69.4	.065	704	.63	255	60	90	87	64	3

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 10
PAGE 2 OF 3

PLANT	CCH
DATE	10-3-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	~~10~~ mm5
RUN NUMBER	10
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
2	~~105~~ 100	1155	71.7	.09	836	.85	265	59	91	88	63	4
2	~~110~~ 105	1200	74.1	.08	781	.73	262	59	92	89	64	4
A1	~~115~~ 110	1205	76.5	.08	769	.73	263	62	92	89	64	4
1	~~120~~ 115	1210	78.7	.065	726	.62	269	65	93	90	66	3
1	~~1~~ 120	1215	80.863	.06	627	.62	258	64	93	90	66	4
			STOP - Port CHANGE Leak ✓ .018 cut 17" Hg									
	120	1221	81.444									
B1	125	1226	84.5	.09	460	1.1	242	60	92	91	65	5
1	130	1231	86.5	.04	454	.49	245	61	94	92	65	3
1	135	1236	88.4	.07	505	.83	230	57	92	90	61	3
B2	140	1241	91.0	.065	449	.82	223	59	92	90	60	4
2	145	1246	93.1	.055	643	.57	244	58	91	91	58	3
2	150	1251	95.3	.06	789	.55	238	62	94	92	59	3
B3	155	1256	97.8	.09	677	.77	248	59	95	93	60	4
3	160	1301	100.3	.09	875	.77	260	59	95	92	58	4
3	165	1306	102.7	.085	852	.74	259	62	96	93	58	4
B4	170	1311	105.0	.06	705	.59	260	60	97	94	58	3
4	175	1316	107.5	.08	702	.79	251	65	97	94	61	5
4	180	1321	110.8	.14	725	1.35	255	63	96	93	61	6

COMMENTS:

Revision: 5/90

MODIFIED METHOD 5
FIELD DATA

RUN 10
PAGE 3 OF 3

PLANT	CCH
DATE	10-3-90
SAMPLING LOCATION	Incin Stack
SAMPLE TYPE	MM5
RUN NUMBER	10
OPERATOR	CAD

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Absorbent Trap Inlet	Temperature (deg. F)			Pump Vacuum (in. Hg)
									Dry Gas Meter		Impinger Exit	
									Inlet (Tm in)	Outlet (Tm out)		
4	185	1326	113.3	.095	958	.77	270	62	97	94	61	4
4	190	1331	115.9	.09	789	.82	269	61	98	95	63	5
4	195	1336	118.3	.09	918	.75	256	65	97	94	63	5
B3	200	1341	120.5	.063	771	.59	246	63	97	94	65	4
3	205	1346	122.8	.062	668	.63	230	61	97	94	58	4
3	210	1351	125.0	.08	988	.63	230	61	97	95	55	4
B2	215	1356	127.1	.06	800	.54	235	60	98	95	55	4
2	220	1401	129.0	.04	587	.44	230	62	95	94	55	3
2	225	1406	131.6	.095	922	.79	230	64	94	93	57	4
B1	230	1411	133.7	.056	748	.53	254	62	97	95	58	3
1	235	1416	135.9	.055	663	.56	243	68	98	95	60	4
1	240	1421	137.980	.05	554	.56	241	62	98	95	59	4
			END	THE	TEST!!							
					Final Leak ✓ =		.008 at 9" Hg					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 10/2/90
RUN NUMBER 10
SAMPLING LOCATION Stack
SAMPLING TYPE M23
SAMPLING BOX NUMBER
CLEAN-UP PERSON Brad
SOLVENT RINSES 3 x Acet & MeCl2
SAMPLE IDENTIFICATION CODE
XAD TRAP NUMBER XAD TRAP # 12

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	—	KO	593.5	439.2 ~~452.7~~	154.3
2	HPLC H_2O		MGS	570.7	452.7 573.0	-2.3
3	HPLC H_2O		GS	607.2	499.2 609.6	-2.4
4	MT	—	MGS	506.7	506.4	0.3
5	Silica Gel	≈ 200	MGS	820.8	795.6	25.2

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 175.1

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Central Carolina Hospital Sample Identification Code: _____

Date 9/14/90

Sampling location Lab Proof Blank

Sample type Method 23

Run number N/A

Sample box number N/A

Clean-up person BWN

Solvent rinses _____

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams)		
				Final	Initial	Weight Gain
1	MT	—	KO		437.4	
2	HPLC H_2O		MGS		504.8 610.6	
3	HPLC H_2O		GS		488.2 593.8	
4	MT	—	MGS		450.7	
5	Silica Gel	≈200g	MGS		821.0	
6						
7						

Total Weight Gain (grams) _____

Run No. 1
Plant CCH
Pollutant TM

Date 9/20/90
Plant Location Sanford
Recorded by AKS
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☐
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓.011 @ 11"	A	1400	1420	20
stopped for broken mms probe	A	1430	1610	100
~~start~~ end port A. leak ✓.008 @ 8"				
start port B leak ✓.008 @ 8"	B	1618	1818	120
end run 1 leak ✓.005 @ 9"				

RADIAN

1181663R

METHOD 5
FIELD DATA

RUN 1
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/20/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	13
RUN NUMBER	1	Yd	.9992	MOISTURE METHOD	
OPERATOR	Mg	K FACTOR	2 6.6	MOISTURE DATA	
AMBIENT TEMPERATURE	89	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	3	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.009			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	6.523 Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F) Dry Gas Meter Inlet (Tm in)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)	√ΔP
		1400	~~700.296~~									
A-4	5	5	8.6	.048	470	.59	235	90	91	68	2	.22
4	10	10	10.8	.057	526	.58	239	92	92	63	2	.24
4	15	15	13.2	.055	511	.63	251	92	92	62	2	.23
3	20	1420	15.352	.078	749	.7	250	96	94	63	2	.28
		1430	15.352	broken	mm	5	probe					
3	25	35	17.3	.053	641	.5	251	96	96	67	2	.23
3	30	40	19.4	.06	713	.54	243	97	92	67	2	.24
2	35	45	21.3	.05	660	.45	251	95	96	60	2	.22
2	40	50	23.4	.056	663	.57	248	96	97	58	2	.24
2	45	55	25.3	.048	692	.45	255	92	95	56	2	.22
1	50	1500	27.2	.05	706	.47	253	96	96	59	2	.22
1	55	5	29.2	.05	711	.47	256	98	97	60	2	.22
1	60	10	31.2	.051	672	.48	253	96	96	59	2	.22
1	65	1515	33.1	0.046	687	.43	246	95	96	61	2	.232
1	70	20	35.2	.066	869	.53	247	98	97	62	2	
1	75	25	37.1	.047	694	.44	250	97	96	61	2	
2	80	30	39.1	.048	672	.46	253	97	97	60	2	
2	85	35	41.3	.077	803	.66	247	93	96	62	2	
2	90	40	43.3	.055	772	.48	261	100	99	61	2	

To 643

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 1
PAGE 2 OF 3

PLANT	CCH
DATE	9/20/90
SAMPLING LOCATION	Stack
SAMPLE TYPE	TM
RUN NUMBER	1
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
A 3	95	1545	45.4	.06	731	.55	255	96	98	58	2
3	100	50	47.7	.072	781	.63	253	101	100	59	2
3	105	55	49.7	.065	778	.56	250	102	101	61	2
4	110	1600	52.0	.070	742	.62	257	103	101	62	2
4	115	05	54.2	.07	755	.62	259	103	101	61	2
4	120	1610	56.905	.10	900	1.0	257	95	98	60	2 3
stop		leak ✓	0.008 @ 8"								
	120	1618	57.07		leak	✓ .008 @ 8"					
B 4	125	23	59.8	.122	886	.98	254	101	101	62	3
4	130	28	62.6	.122	881	.98	250	101	101	61	3
4	135	33	65.3	.12	851	1.0	274	97	98	65	3
3	140	38	68.0	.114	845	.93	261	94	96	62	3
3	145	43	70.4	.091	839	.76	257	93	95	63	3
3	150	48	72.6	.071	715	.66	252	93	94	59	3
2	155	53	74.8	.076	912	.61	247	94	94	57	3
2	160	58	77.0	.072	834	.6	251	91	93	56	3
2	165	1703	79.1	.063	747	.56	258	91	92	58	3
1	170	8	81.0	.049	668	.46	253	91	92	59	3
1	175	13	83.3	.081	799	.7	258	91	92	58	3

COMMENTS:

METHOD 5
FIELD DATA

RUN 1
PAGE 3 OF 3

PLANT	CCH
DATE	9/20/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	1
OPERATOR	JLg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
B 1	180	1718	85.2	.048	642	.47	256	90	92	58	3
1	185	23	87.5	.076	790	.65	257	90	92	59	3
1	190	28	89.7	.072	800	.62	255	90	91	59	3
1	195	33	92.0	.08	730	.72	253	91	91	59	3
2	200	38	94.3	.078	890	.62	255	88	89	59	3
2	205	43	96.5	.078	885	.62	257	87	89	61	3
2	210	48	98.7	.075	858	.62	258	88	89	62	3
3	215	53	100.9	.079	800	.68	256	87	88	62	3
3	220	58	103.3	.071	795	.64	258	88	88	62	3
3	225	1803	105.7	.086	775	.75	257	88	88	64	5
4	230	8	108.1	.078	681	.73	254	88	88	62	3
4	235	13	110.9	.085	875	.12	261	88	87	63	4
4	240	1818	113.534	.084	673	.83	264	88	87	58	4
						leak	✓	.005	@ 9"		

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant CAZOLINE CENTRAL HOSPITAL Sample Identification Code: _____

Date 9/20/90

Sampling location STACK

Sample type METALS

Run number 01

Sample box number _____

Clean-up person BWW

Solvent rinses 3 × 0.1 N HNO_3

FILTER MP-88

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT	—	MGS	654.5	503.3	151.2
2	5% HNO_3 10% H_2O_2		MGS	670.9	522.6 626.3	44.6
3	5% HNO_3 10% H_2O_2		GS	623.7	514.3 619.5	4.2
4	MT	—	MGS	472.9	472.0	0.9
5	Acidic $KMnO_4$		MGS	567.6	465.9 567.4	0.2
6	Acidic $KMnO_4$		MGS	597.9	490.8 596.0	1.9
7	Silica Gel	≈ 200	MGS	835.5	815.4	20.1

Total Weight Gain (grams) 223.1

Run No. 2
Plant CCH
Pollutant TM - PM

Date 9/21/90
Plant Location sanford
Recorded by fig
Checked by

QA Checklist
Impingers in correct order ☑
Filter loaded with rough side to the front ☑
Pre-test leakcheck of pitots ☑
Zero manometer ☑
Double Check K-Factor ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓ .011 @ 16"	B	946	1147	121
endport B leak ✓ .01 @ 11"				
start port A leak ✓ .01 @ 15"	A	1158	1357	240

RADIAN CORPORATION

1181663R

METHOD 5
FIELD DATA

RUN 2
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/21/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	12
RUN NUMBER	2	Yd	.9992	MOISTURE METHOD	
OPERATOR	fg	K FACTOR	~181	MOISTURE DATA	
AMBIENT TEMPERATURE	70	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE	29.9	HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK				FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)		Pump Vacuum (in. Hg)
								Dry Gas Meter		
								Inlet (Tm in)	Outlet (Tm out)	Impinger Exit
		946	14.248							
B 4	5	51	16.5	.073	703	.68	249	71	71	66	2
4	10	56	18.9	.096	798	.83	258	71	71	64	2
4	15	1001	21.3	.088	826	.74	261	73	72	62	2
B 3	20	6	24.1	.103	817	.89	251	72	72	61	2
3	25	11	26.4	.083	887	.86	253	73	72	60	2
3	30	16	28.8	.087	909	.75	241	73	72	56	2
B 2	35	21	30.9	.046	815	.40	236	74	72	57	2
2	40	26	32.5	.056	783	.48	230	74	73	58	2
2	45	31	34.5	.056	785	.48	244	73	73	56	2
B 1	50	36	36.3	.049	738	.44	252	73	72	56	2
1	55	41	38.2	.060	967	.48	256	73	72	58	2
1	60	46	40.0	.054	875	.43	257	72	72	57	2
B 1	65	51	42.1	.058	750	.52	262	74	73	58	2
1	70	56	43.8	.055	860	.46	272	76	74	59	2
1	75	1101	45.6	.046	770	.41	237	74	73	59	2
B 2	80	6	47.6	.058	800	.50	248	75	74	59	2
2	86	12	49.8	.065	1108	.46	259	76	75	61	2
2	90	17	51.9	.067	925	.54	246	75	74	60	2
3	96	22	54.4	.132	1234	.87	243	76	75	61	2

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 2
PAGE 2 OF 3

PLANT	CCH
DATE	9/21/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	2
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter			
								Inlet (Tm in)	Outlet (Tm out)	Impinger Exit	
B 3	100	1127	56.7	.1	1117	.7	261	75	74	61	2
3	105	32	58.9	.086	940	.66	248	74	74	62	2
4	110	37	61.1	.077	888	.62	243	75	74	62	2
4	115	42	63.2	.066	733	.6	251	75	72	63	2
4	120	1147	65.477	.072	725	.66	249	75	75	60	2
			STOP- Leak ✓		.01 at 11" Hg		leak ✓ .01 @ 15"				
	120	1158	65.995								
A4	125	1203	68.0	.055	900	.48	241	73	74	64	2
A4	130	1208	70.0	.055	711	.51	235	74	74	49	2
A4	135	1213	71.8	.05	760	.45	244	74	74	47	2
A3	140	1218	73.65	.05	715	.41	227	74	74	47	2
A3	145	1223	75.65	.055	824	.49	236	75	75	48	2
A3	150	1227	77.7	.05	750	.44	235	74	74	48	2 * 4 min
A2	155	1232	78.8	.036	677	.34	236	74	75	49	2
A2	160 ~~200~~	1237	80.9	.052	908	.42	261	74	74	49	2
A2	165 ~~205~~	1242	82.3	.04	780	.34	256	75	75	50	2
A1	170 ~~210~~	1247	83.9	.04	680	.34	237	74	75	53	2
A1	175	1252	85.8	.05	771	.44	236	75	75	53	2
A1	180	1257	87.4	.035	652	.34	237	77	76	51	2

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 02
PAGE 3 OF 3

PLANT	CCH
DATE	9/21/90
SAMPLING LOCATION	STACK
SAMPLE TYPE	METAL
RUN NUMBER	02
OPERATOR	FLG

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
A1	185	1302	89.2	.04	643	.39	228	75	75	51	2
A1	190	1307	91.2	.05	643	.49	229	75	75	50	2
A1	195	1312	92.9	.04	655	.31	233	74	75	51	2
A2	200	1317	94.4	.03	606	.31	233	76	75	53	2
2	205	22	96.3	.06	959	.45	234	75	75	54	3
2	210	27	98.0	.043	741	.38	245	77	75	51	2
3	215	32	99.9	.043	676	.43	248	77	76	52	3
3	220	37	101.8	.06	908	.48	251	76	75	54	3
3	225	42	103.7	.054	825	.45	258	76	75	55	3
4	230	47	105.6	.04	677	.38	251	76	75	56	3
4	235	52	107.4	.083	930	.66	264	77	76	58	3
4	240	13 57	109.839	.07	800	.60	270	77	76	57	4
			END TEST								
					leak	✓ .010 @ 10"					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Central Carolina Hospital Sample Identification Code: _____

Date 9/21/90

Sampling location Stack

Sample type Metals

Run number 02

Sample box number _____ Filter MP-41

Clean-up person BWN

Solvent rinses 3 x 0.1 N HNO_3

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT		MGS	614.6	504.2	110.4
2	5% HNO_3 10% H_2O_2		MGS	665.4	523.7 626.0	39.4
3	5% HNO_3 10% H_2O_2		GS	622.5	514.3 618.5	4.0
4	MT		MGS	473.4	470.7	2.7
5	Acidic $KMnO_4$		MGS	595.4	464.1 591.2	4.2
6	Acidic $KMnO_4$		MGS	602.1	491.1 601.7	0.4
7	Silica Gel	≈ 200	MGS	836.7	816.0	20.7

Total Weight Gain (grams) 181.8

Run No. 3
Plant CCH
Pollutant Tm, Pm

Date 9/22/90
Plant Location
Recorded by
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☑
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓ .008 @16"	A	947	1147	120
end port leak ✓ .008 @16"				
start leak ✓ .008 @17"	B	1200	1400	240
end run 3 leak ✓ .006 @10"				

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RADIAN

METHOD 5
FIELD DATA

RUN 3
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/22/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	13
RUN NUMBER	3	Yd	.9992	MOISTURE METHOD	
OPERATOR	JLG	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	C9	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE	29.67	HEATER BOX SETTING		O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.008			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		947	0.35								
A-4	5	952	12.7	.086	781	.76	261	74	73	66	2
4	10	957	15.0	.08	715	.74	246	74	74	64	2
4	15	1002	17.6	.075	708	.7	258	75	74	62	2
A-3	20	1007	19.5	.07	698	.60	260	76	74	59	2
3	25	1012	21.9	.085	898	.68	260	76	74	59	2
3	30	1017	24.2	.065	700	.60	266	76	75	59	1
A-2	35	1022	26.0	.04	615	.41	259	77	75	60	1
2	40	1027	27.8	.042	631	.42	250	78	76	60	1
2	45	1032	29.7	.043	642	.42	251	79	77	62	1
A 1	50	1037	31.6	.050	638	.49	254	79	77	62	1
1	55	1042	33.1	.029	803	.25	260	79	77	63	1
1	60	1047	34.5	.026	686	.24	254	78	77	64	1
A1	65	1052	36.0	.025	658	.24	254	78	78	65	1
1	70	1057	37.4	.025	633	.24	257	78	78	60	1
1	75	1102	38.84	.026	634	.25	251	79	78	58	1
2	80	1107	40.9	.08	1023	.6	255	80	79	59	2
2	85	1112	42.8	.052	726	.47	261	81	81	60	1
2	90	1117	44.8	.048	689	.44	257	82	81	59	1
3	95	1122	47.7	.075	856	.62	252	82	80	60	2

COMMENTS: * 38.8

Revision: 5/90

METHOD 5
FIELD DATA

RUN 3
PAGE 2 OF 3

PLANT	CCH
DATE	9/22/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	3
OPERATOR	[illegible]

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)	
								Dry Gas Meter		Impinger Exit		
								Inlet (Tm in)	Outlet (Tm out)			
A 3	100	1127	48.9	.07	811	.6	262	82	80	59	2	.645
3	105	1132	50.9	.060	711	.55	263	81	80	60	2	.245
4	110	1137	53.3	.102	1018	.76	263	83	81	58	2	.319
4	115	1142	55.6	.087	937	.68	261	82	82	52	2	.295
4	120	1147	57.86	.078	859	.65	262	82	81	51	2	.279
			58.544	leak	✓ .008 @ 16" changed ports leak ✓						.008 @ 17"	
~~B4~~	120	1200										
B4	125	1205	61.0	.07	700	.65	275	80	80	57	2	
B4	130	1210	63.2	.086	881	.69	275	81	80	50	2	
B4	135	1215	65.4	.081	740	.72	273	81	80	49	2	
B3	140	1220	67.8	.081	800	.73	269	82	81	50	2	
3	145	1225	70.2	.102	967	.78	263	84	82	52	2	
3	150	1230	72.6	.093	912	.73	265	85	82	54	2	
B ~~B2~~	155	35	74.2	.035	715	.33	248	85	83	48	1	
2	160	40	76.2	.050	744	.46	241	84	83	51	1	
2	165	45	78.0	.047	750	.42	231	83	83	52	1	
1	170	50	79.8	.037	650	.36	232	84	83	55	1	
1	175	55	81.6	.045	700	.42	235	84	83	56	1	
1	180	1300	83.3	.032	760	.30	252	83	83	57	1	

COMMENTS:

METHOD 5
FIELD DATA

RUN 3
PAGE 3 OF 3

PLANT	CCH
DATE	9-22-90
SAMPLING LOCATION	S[redacted]g
SAMPLE TYPE	TM
RUN NUMBER	3
OPERATOR	flg jbc

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
B 1	185	1305	85.1	.044	662	.43	259	82	83	59	2
1	190	1310	87.0	.056	876	.46	261	83	83	59	2
1	195	1315	88.9	.054	855	.44	265	83	83	59	2
2	200	1320	90.8	.05	760	.44	257	83	82	61	2
2	205	1325	92.3	.032	767	.28	259	82	82	62	1
2	210	1330	94.0	.035	641	.34	250	82	82	63	1
B 3	215	1335	96.1	.06	695	.56	254	82	82	61	2
3	220	1340	98.2	.09	960	.69	261	83	82	54	2
3	225	1345	100.2	.055	700	.51	258	83	82	53	2
4	230	1350	102.1	.051	688	.47	246	84	82	54	2
4	235	1355	104.1	.054	702	.5	258	83	82	55	2
4	240	1400	106.385	.076	738	.67	261	84	83	56	2
					leak	✓ .006 @ 10"					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Central Carolina Hospital Sample Identification Code: _____

Date 9/22/90

Sampling location Stack

Sample type Metal

Run number 03

MP-78

Sample box number _____

Clean-up person BWN

Solvent rinses 3x 0.1 N HNO_3

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT	—	MGS	656.0	504.8	151.2
2	5% HNO_3 10% H_2O_2		MGS	668.3	524.2 631.0	37.3
3	5% HNO_3 10% H_2O_2		GS	621.1	513.9 618.2	2.9
4	MT	—	MGS	472.7	470.3	2.4
5	Acidic $KMnO_4$		MGS	567.1	465.1 566.5	0.6
6	Acidic $KMnO_4$		MGS	595.4	491.6 593.0	2.4
7	Silica Gel	≈ 200	MGS	788.1	769.6	18.5

Total Weight Gain (grams) 215.3

Run No. 4
Plant CCH
Pollutant TM

Date 9/23/90
Plant Location Sanford
Recorded by flg
Checked by

QA Checklist
Impingers in correct order ☑
Filter loaded with rough side to the front ☑
Pre-test leakcheck of pitots ☑
Zero manometer ☑
Double Check K-Factor ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓.006 @16"	B	1140	1340	120
end port B leak ✓.008 @8"				
start port A leak ✓.008 @16"	A	1347	1547	240
end run 4 leak ✓.018@17"				

RADIAN

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METHOD 5
FIELD DATA

RUN 4
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	36'
DATE	9/23/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18'
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	10
RUN NUMBER	4	Yd	.9992	MOISTURE METHOD	
OPERATOR	Jg	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	75	PROBE HEATER SETTING	0	O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Pe)	-.15			CO2	
INITIAL LEAKCHECK	.006			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		1140	6.825								
B 4	5	1145	9.3	.07	484	.82	251	79	78	61	2
4	10	1150	12.0	.118	970	.93	252	82	80	56	2
4	15	1155	14.6	.112	892	.9	260	82	79	55	2
3	20	1200	17.2	.112	838	.95	255	82	79	56	2
3	25	1205	19.7	.118	963	.85	261	84	80	57	2
3	30	1210	22.2	.102	889	.83	259	83	79	57	2
2	35	1215	24.3	.06	760	.53	253	83	80	58	2
2	40	1220	26.4	.042	640	.41	247	81	79	60	2
2	45	1225	28.3	.056	735	.5	261	82	80	59	2
1	50	1230	30.3	.048	603	.49	263	81	80	53	2
1	55	1235	32.2	.043	547	.46	261	80	80	52	2
1	60	1240	34.1	.059	791	.51	263	81	81	50	2
1	65	1245	36.0	.047	718	.44	266	80	80	50	2
1	70	1250	38.1	.047	576	.48	255	82	80	53	2
1	75	1255	39.9	.060	696	.56	254	81	81	51	2
2	80	1300	42.1	.058	678	.56	256	80	80	53	2
2	85	1305	44.2	.055	650	.54	255	79	79	54	2
2	90	1310	46.2	.06	775	.53	257	79	79	55	2
3	95	1315	48.2	.06	763	.53	258	80	80	56	2

COMMENTS:

METHOD 5
FIELD DATA

RUN 4
PAGE 2 OF 3

PLANT	CCH
DATE	9/23/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	4
OPERATOR	fleg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
B 3	100	1320	50.5	.079	739	.7	263	80	80	53	2
3	105	1325	53.1	.112	954	.87	265	80	80	52	3
4	110	1330	55.5	.09	742	.8	261	80	80	55	4
4	115	1335	57.9	.088	732	.78	258	79	79	57	5
4	120	1340	60.615	.113	950	.88	263	81	80	59	6
			leak ✓ @ .008 @ 8"								
		1347	61.196	leak ✓ .008 @			16"				
A 4	125	1352	63.4	.07	753	.62	261	79	79	62	5
4	130	1357	65.5	.061	725	.56	268	81	80	61	5
4	135	1402	67.5	.061	730	.56	265	80	80	61	5
A 3	140	1407	69.7	.074	749	.66	255	83	81	59	6
3	145	1412	71.8	.067	740	.6	261	83	82	58	6
3	150	1417	73.9	.056	709	.52	258	83	83	59	7
2	155	1422	75.8	.053	900	.42	261	81	83	56	6
2	160	1427	77.9	.063	886	.57	266	83	83	58	7
2	165	1432	79.8	.046	717	.42	261	86	85	59	7
1	170	1437	81.8	.057	912	.46	263	84	85	59	7
1	175	1442	83.6	.052	827	.44	259	82	85	60	7
1	180	1447	85.5	.047	696	.44	263	80	84	61	7

COMMENTS:

METHOD 5
FIELD DATA

RUN 4
PAGE 3 OF 3

PLANT	CCH
DATE	9/23/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	4
OPERATOR	flo

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter			
								Inlet (Tm in)	Outlet (Tm out)	Impinger Exit	
A 1	185	1452	87.4	.054	818	.46	261	82	83	61	8
1	190	1457	89.4	.053	703	.49	263	81	83	60	8
1	195	1502	91.3	.05	656	.49	259	81	83	58	8
2	200	1507	93.4	.062	836	.51	261	83	83	58	9
2	205	1512	95.3	.055	777	.47	263	81	84	57	9
2	210	1517	97.2	.053	740	.47	261	83	84	58	9
3	215	1522	99.2	.066	1022	.5	257	85	85	59	9
3	220	1527	101.2	.063	794	.54	261	85	86	58	10
3	225	1532	103.2	.057	733	.51	259	84	85	61	11
4	230	1537	105.4	.095	1186	.63	261	83	86	60	13
4	235	1542	107.6	.077	946	.6	263	86	87	61	13
4	240	1547	109.746	.063	747	.56	258	83	85	62	13
			Leak 0.018 @ 17"								

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Centra • Carolina Hospital

DATE 9/23/90

RUN NUMBER 04

SAMPLING LOCATION Stack

SAMPLING TYPE Metals

SAMPLING BOX NUMBER

CLEAN-UP PERSON DWJ

SOLVENT RINSES 3 x 0.1 N HNO_3

SAMPLE IDENTIFICATION CODE

~~XAD TRAP NUMBER~~ Filter MP-80

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		MGS	602.5	504.4	98.1
2	5% HNO_3 10% H_2O_2		MGS	675.8	523.7 630.7	45.1
3	5% HNO_3 10% H_2O_2		GS	625.7	514.3 620.3	5.4
4	MT		MGS	473.7	470.4	3.3
5	Acidic $KMnO_4$		MGS	572.3	465.0 568.0	4.3
6	Acidic $KMnO_4$		MGS	594.2	492.6 594.6	-0.4
7	Silica Gel		MGS	794.3	773.6	20.7

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 176.5

Run No. 5
Plant CCH
Pollutant TM PM

Date 9/24/90
Plant Location Sanford
Recorded by flg
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Filter loaded with rough side to the front ☑
Zero manometer ☑
Double Check K-Factor ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓.004 @ 15"	A	1145	1345	120
end A leak ✓.010 @ 17"				
Start part B leak ✓.008@15"	B	1352	1552	240
end run 5 leak ✓.006@10"				

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RADIAN

METHOD 5
FIELD DATA

RUN 5
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/24/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	12
RUN NUMBER	5	Yd	.9992	MOISTURE METHOD	
OPERATOR	fly	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	66	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE	29.9	HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.004			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
		1245	12.442					Inlet (Tm in)	Outlet (Tm out)		
A 4	5	1250	14.5	.053	467	.63	248	72	72	45	1
4	10	1255	16.6	.055	621	.54	248	78	71	44	1
4	15	1300	18.8	.057	580	.58	254	79	72	44	1
3	20	1305	21.0	.06	553	.64	256	78	72	44	1
3	25	1310	23.1	.061	666	.59	260	78	74	45	1
3	30	1215	25.3	.067	679	.61	256	77	73	46	1
2	35	1220	27.2	.044	650	.43	254	77	74	47	1
2	40	1225	29.1	.048	620	.49	247	76	73	46	1
2	45	1230	31.3	.063	709	.59	255	79	75	46	1
1	50	1235	33.3	.053	670	.51	253	78	74	47	1
1	55	1240	35.2	.048	641	.46	255	76	74	46	1
1	60	1245	37.2	.054	665	.51	258	78	75	48	1
1	65	1250	39.2	.056	753	.5	259	76	75	48	1
1	70	1255	41.2	.047	715	.43	247	78	76	48	1
1	75	1300	43.2	.055	715	.51	225	76	75	49	1
2	80	1305	45.3	.095	1020	.66	250	76	75	50	1
2	85	1310	47.4	.068	791	.58	270	75	75	48	1
2	90	1315	49.6	.064	756	.57	270	76	75	48	1
3	95	1320	51.8	.084	769	.75	263	76	75	49	1

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 5
PAGE 2 OF 3

PLANT	CCH
DATE	9/24/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	5
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
A 3	100	1325	54.2	.087	846	.72	256	77	76	48	2
3	105	1330	56.6	.087	819	.74	258	78	75	48	2
4	110	1335	59.1	.09	805	.77	261	79	76	48	2
4	115	1340	61.3	.078	872	.63	263	75	75	47	2
4	120	1345	63.636	.094	839	.78	258	75	74	47	2
		1352	64.17	leak ✓		.010 @ 17"		leak ✓		.008 @ 15"	
B 4	125	1357	66.6	.091	750	.81	248	76	75	55	2
4	130	1402	69.0	.083	805	.71	251	80	77	49	2
4	135	1407	71.3	.092	1003	.68	253	82	78	50	2
3	140	1412	73.7	.096	846	.79	256	80	79	51	2
3	145	1417	76.2	.099	843	.82	263	81	81	51	3
3	150	1422	78.6	.093	845	.77	261	83	82	50	3
2	155	1427	80.6	.055	725	.51	258	83	83	51	2
2	160	1432	82.7	.066	786	.57	248	82	84	52	2
2	165	1437	85.1	.082	813	.7	255	84	85	53	2
1	170	1442	87.3	.07	683	.65	251	84	85	54	2
1	175	1447	89.4	.07	850	.58	255	83	86	55	2
1	180	1452	91.5	.064	728	.59	261	82	86	49	2
1	185	1457	93.7	.063	710	.59	260	83	86	48	3

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 5
PAGE 3 OF 3

PLANT	CCH
DATE	9/24/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	5
OPERATOR	tlg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter			
								Inlet (Tm in)	Outlet (Tm out)	Impinger Exit	
		1502									
B 1	190	1502	96.0	.072	700	1.67	260	87	87	48	3
1	195	1507	98.1	.052	643	.52	264	84	87	48	2
2	200	1512	100.1	.052	641	.52	259	87	86	48	2
2	205	1517	102.3	.085	850	.71	266	88	88	50	2
2	210	1522	104.4	.075	840	.63	268	87	88	48	2
3	215	1527	106.7	.066	628	.66	254	85	87	49	2
3	220	1532	109.0	.087	901	.69	263	82	87	50	2
3	225	1537	111.7	.108	852	.89	261	84	87	51	3
4	230	1542	114.3	.11	834	.89	263	88	88	52	4
4	235	1547	116.6	.08	683	.75	264	84	86	51	3
4	240	1552	118.98	.073	647	.71	247	86	87	52	3
					leak ✓	.006		@ 10"			

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/24/90
RUN NUMBER 05
SAMPLING LOCATION Stack
SAMPLING TYPE Metal
SAMPLING BOX NUMBER
CLEAN-UP PERSON Bill
SOLVENT RINSES 3 x 0.1 N HNO_3
SAMPLE IDENTIFICATION CODE
~~XAD TRAP NUMBER~~ Filter MP-46

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		MGS	638.0	506.1	131.9
2	5% HNO_3 10% H_2O_2		MGS	678.2	522.5 635.7	42.5
3	5% HNO_3 10% H_2O_2		GS	620.3	514.4 618.3	2.0
4	MT		MGS	472.6	470.4	2.2
5	Acidic $KMnO_4$		MGS	567.9	465.0 566.4	1.5
6	Acidic $KMnO_4$		MGS	595.6	491.8 594.1	1.5
7	Silica Gel		MGS	771.1	753.3	17.8

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 199.4

RADIAN CORPORATION

Run No. 6
Plant CCH
Pollutant TM

Date 9/25/90
Plant Location Sanford
Recorded by fcg
Checked by

QA Checklist
Impingers in correct order ☑
Filter loaded with rough side to the front ☑
Pre-test leakcheck of pitots ☑
Zero manometer ☑
Double Check K-Factor 14
Post-test leakcheck of pitots ( )

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓ .004 @15"	B	1010	1210	120
end port B leak ✓ .010 @15"				
start port A leak ✓ .008 @15"	A	1215	1415	240
end run 6 leak ✓ .003 @ 8"				

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METHOD 5
FIELD DATA

RUN 6
PAGE 1 OF 3

PLANT	CC H	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/25/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@	1.9	ASSUMED MOISTURE (%)	11
RUN NUMBER	6	Yd	.9992	MOISTURE METHOD	
OPERATOR	fg	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	65	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.004			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		1010	19.53								
B-4	5	1015	22.0	.071	509	.8	253	73	75	58	1
4	10	1020	24.4	.077	590	.77	246	74	76	54	1
4	15	1025	26.9	.077	582	.78	258	75	77	52	1
3	20	1030	29.4	.075	602	.76	260	80	79	50	1
3	25	1035	31.8	.077	600	.78	261	82	80	51	1
3	30	1040	34.3	.077	599	.78	263	84	81	52	1
2	35	1045	36.4	.055	722	.5	265	84	82	53	1
2	40	1050	38.5	.06	654	.58	258	84	83	54	1
2	45	1055	40.6	.057	642	.55	257	85	83	54	1
1	50	1100	42.4	.036	602	.37	253	83	83	51	1
1	55	1105	44.2	.036	544	.39	249	83	84	52	1
1	60	1110	46.2	.047	651	.46	254	87	85	53	1
1	65	1115	48.2	.051	593	.52	256	88	85	52	1
1	70	1120	50.1	.045	615	.45	257	85	84	50	1
1	75	1125	52.1	.052	744	.46	258	84	83	50	1
2	80	1130	54.1	.052	702	.48	261	84	83	51	1
2	85	1135	56.1	.064	739	.57	263	83	81	50	1
2	90	1140	58.3	.063	729	.57	264	86	82	51	1
3	95	1145	60.6	.082	788	.71	261	83	79	50	2

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 4
PAGE 2 OF 3

PLANT	CCH
DATE	9/25/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	6
OPERATOR	[illegible]

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter			
								Inlet (Tm in)	Outlet (Tm out)	Impinger Exit	
B 3	100	1150	63.0	.083	775	.73	257	82	79	51	2
3	105	1155	65.4	.082	765	.73	263	85	80	50	2
4	110	1200	68.1	.11	850	.91	262	86	81	52	2
4	115	1205	70.7	.107	840	.9	261	87	82	53	2
4	120	1210	73.365	.108	830	.9	268	88	83	52	2
		1215	73.641	leak ✓ .010 @ 15"				leak ✓ .008 @ 15"			
A 4	125	1220	76.2	.086	700	.8	249	81	79	55	2
4	130	1225	78.3	.072	809	.62	250	85	81	49	2
4	135	1230	80.5	.080	809	.66	249	87	82	49	2
3	140	1235	82.7	.078	792	.64	250	86	82	48	2
3	145	1240	84.9	.075	848	.62	248	85	82	49	2
3	150	1245	87.1	.072	814	.63	250	82	82	50	2
2	155	1250	89.1	.05	818	.43	252	85	82	51	2
2	160	1255	90.9	.048	762	.43	247	78	78	49	2
2	165	1300	92.7	.044	755	.39	250	78	78	50	2
1	170	1305	94.4	.04	746	.35	254	79	79	51	2
1	175	1310	96.2	.044	792	.38	258	82	80	52	2
1	180	1315	97.8	.037	749	.33	263	81	80	51	2
1	185	1320	99.4	.03	655	.29	257	78	79	52	1

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 6
PAGE 3 OF 3

PLANT	CCH
DATE	9/25/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	6
OPERATOR	flg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
A 1	190	1325	101.1	.044	867	.36	266	81	80	52	2
1	195	1330	102.9	.043	784	.37	260	78	79	52	2
2	200	1335	104.8	.05	762	.45	261	79	79	51	2
2	205	1340	106.7	.055	782	.47	265	81	81	53	2
2	210	1345	108.7	.057	798	.49	266	82	81	54	2
3	215	1350	110.9	.048	638	.47	249	77	78	50	2
3	220	1355	112.8	.071	863	.64	269	82	91	54	2
3	225	1400	114.7	.050	705	.47	276	81	80	55	2
4	230	1405	116.8	.060	765	.54	264	84	82	54	2
4	235	1410	119.2	.079	822	.67	260	84	83	55	2
4	240	1415	121.245	.065	677	.62	253	81	82	53	2
END	TEST										
				leak	.003	@ 8'					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital

DATE 9/24/90

RUN NUMBER 06

SAMPLING LOCATION Stack

SAMPLING TYPE Metals

SAMPLING BOX NUMBER

CLEAN-UP PERSON BWN

SOLVENT RINSES 3 x 0.1 N HNO_3

SAMPLE IDENTIFICATION CODE

~~XAD TRAP NUMBER~~ Filter MP-84

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	—	MGS	639.8	505.8	
2	5% HNO_3 10% H_2O_2		MGS	671.8	523.6 630.6	
3	5% HNO_3 10% H_2O_2		GS	624.9	514.3 620.6	
4	MT	—	MGS	470.6	470.3	
5	Acidic $KMnO_4$		MGS	571.0	466.3 569.6	
6	Acidic $KMnO_4$		MGS	596.7	491.1 595.1	
7	Silica Gel		MGS	786.6	771.3	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

RADIAN

Run No. 7
Plant CCH
Pollutant TM - PM

Date 9/26/90
Plant Location Sanford
Recorded by flg
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☑
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments leak ✓	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run .006 @ 16"	A	1000	1200	120
end port A .004 @ 15"				
start port B .004 @ 15"	B	1206	1406	240
end port B .003 @ 7"				

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METHOD 5
FIELD DATA

RUN 7
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/26/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ▲H@	1.9	ASSUMED MOISTURE (%)	11
RUN NUMBER	7	Yd	.9994	MOISTURE METHOD	
OPERATOR	fly	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	63	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.006 @16"			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		1000	21.836								
A 4	5	1005	23.8	.045	489	.5	249	82	80	66	1
4	10	1010	26.1	.092	983	.68	251	81	82	60	1
4	15	1015	28.3	.075	833	.62	254	81	83	59	1
3	20	1020	30.5	.067	774	.62	262	81	83	54	1
3	25	1025	32.7	.084	988	.62	264	81	84	53	1
3	30	1030	34.9	.067	789	.58	265	84	85	54	1
2	35	1035	37.1	.064	733	.59	257	86	85	55	1
3	40	1040	39.5	.068	1022	.5	258	87	86	56	1
3	45	1045	41.2	.064	860	.53	261	87	86	55	1
1	50	1050	43.0	.044	778	.39	249	87	86	54	1
1	55	1055	44.7	.05	1058	.36	253	84	87	55	1
1	60	1100	46.5	.047	844	.4	251	84	87	56	1
1	65	1105	48.4	.048	803	.42	248	84	86	57	1
1	70	1110	50.2	.057	1129	.4	253	86	87	58	1
1	75	1115	52.3	.068	1058	.49	255	86	86	57	1
2	80	1120	54.4	.075	988	.57	260	87	87	54	2
2	85	1125	56.4	.074	1182	.49	263	90	88	53	2
2	90	1130	58.4	.06	1065	.43	265	91	88	54	2
3	95	1135	60.4	.053	769	.48	261	89	88	52	2

COMMENTS:

METHOD 5
FIELD DATA

RUN 7
PAGE 2 OF 3

PLANT	CCH
DATE	9/26/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	7
OPERATOR	leg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperatur (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
			562.5								
A 3	100	1040	604	.056	697	.54	248	89	89	54	2
3	105	1045	64.5	.052	711	.5	252	87	87	50	2
4	110	1050	66.5	.058	711	.46	255	88	87	51	2
4	115	1055	68.4	.055	716	.48	261	89	87	50	2
4	120	1200	70.528	.055	661	.55	254	89	87	51	2
		1206	70.925	leak	✓	.004	@15"	.004	@15"		
B 4	125	1211	73.3	.077	682	.74	256	89	88	55	2
4	130	1216	75.8	.075	700	.75	256	90	87	57	2
4	135	1221	78.3	.085	725	.82	262	93	87	59	2
3	140	1226	80.7	.082	795	.74	268	93	87	54	3
3	145	1231	83.1	.077	742	.7	263	89	87	61	3
3	150	1236	86.2	.1	778	.89	261	89	87	60	3
2	155	1241	87.9	.054	714	.51	259	90	87	49	3
2	160	1246	90.0	.065	729	.6	252	89	87	49	3
2	165	1251	92.1	.055	742	.5	252	90	87	50	3
1	170	1256	94.2	.068	829	.58	253	89	88	51	3
1	175	1301	96.3	.058	704	.56	252	89	88	50	3
1	180	1306	98.4	.061	816	.54	251	89	88	51	3
1	185	1311	100.6	.065	731	.61	252	89	88	50	3

COMMENTS:

METHOD 5
FIELD DATA

RUN 7
PAGE 3 OF 3

PLANT	CCH
DATE	9/26/90
SAMPLING LOCATION	Stack
SAMPLE TYPE	TM
RUN NUMBER	7
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
B 1	190	1316	102.7	.055	704	.54	255	93	92	53	3
1	195	1321	104.9	.06	665	.58	256	89	88	54	3
2	200	1326	107.1	.066	752	.6	252	89	88	53	3
2	205	1331	109.1	.053	692	.5	253	90	89	55	3
2	210	1336	111.5	.082	772	.74	254	91	89	56	4
3	215	1341	113.8	.075	726	.7	251	89	89	57	4
3	220	1346	116.3	.075	754	.67	252	91	90	57	4
3	225	1351	118.9	.092	757	.82	247	91	90	60	4
4	230	1356	121.2	.075	795	.67	255	90	89	59	4
4	235	1401	123.5	.075	734	.67	250	92	90	60	4
4	240	1406	125.737	.085	826	.72	251	92	90	60	4
	THE	END		.003	out 7" Hg						

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/25/90
RUN NUMBER 07
SAMPLING LOCATION Stack
SAMPLING TYPE Metals
SAMPLING BOX NUMBER
CLEAN-UP PERSON BWN
SOLVENT RINSES 3 x 0.1 N HNO_3
SAMPLE IDENTIFICATION CODE
~~XAD TRAP NUMBER~~ Filter MP-10

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		MGS	596.3	504.9	91.4
2	5% HNO_3 10% H_2O_2		MGS	609.3	465.6 573.1	36.2
3	5% HNO_3 10% H_2O_2		GS	628.0	514.2 622.1	5.9
4	MT		MGS	472.3	470.4	1.9
5	Acidic $KMnO_4$		MGS	571.0	465.4 570.3	0.7
6	Acidic $KMnO_4$		MGS	594.6	491.0 594.4	0.2
7	Silica Gel		MGS	744.7	727.0	17.7

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 154.0

METHOD 5
FIELD DATA

RUN 8
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/27/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ΔH@ 1.9	~~.9992~~	ASSUMED MOISTURE (%)	13
RUN NUMBER	8	Yd	.9992	MOISTURE METHOD	
OPERATOR	Ky	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	79	PROBE HEATER SETTING	0	O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Pa)	-.15			CO2	
INITIAL LEAKCHECK	.010 @15"			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

pitot leak ✓ OK

Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		1345	27.869								
B 4	5	1350	30.3	.072	535	.77	250	85	85	63	1
4	10	1355	32.8	.111	1033	.8	253	88	86	53	1
4	15	1400	35.4	.103	831	.87	255	87	87	50	2
3	20	1405	38.0	.092	813	.91	262	90	88	49	2
3	25	1410	40.4	.104	1163	.71	263	90	90	50	2
3	30	1415	42.9	.097	920	.77	261	92	92	52	2
2	35	1420	45.1	.071	804	.62	264	91	91	51	2
2	40	1425	47.3	.082	1020	.61	253	91	93	52	2
2	45	1430	49.5	.072	841	.59	248	90	93	53	2
1	50	1435	51.4	.044	584	.45	249	90	93	54	2
1	55	1440	53.6	.08	1045	.59	252	90	94	52	2
1	60	1445	55.7	.073	921	.58	253	92	95	53	2
1	65	1450	57.8	.052	618	.53	250	96	96	54	2
1	70	1455	59.9	.055	688	.53	247	93	95	55	2
1	75	1500	62.0	.055	655	.54	250	93	97	56	2
2	80	1505	64.1	.054	619	.56	251	97	98	57	2
2	85	1510	66.4	.074	840	.63	260	100	100	57	2
2	90	1515	68.6	.074	730	.68	262	102	102	52	2
3	95	1520	71.0	.069	684	.66	259	99	101	53	2

COMMENTS:

METHOD 5
FIELD DATA

RUN 8
PAGE 2 OF 3

PLANT	CCH
DATE	9/27/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	8
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24 hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
B 3	100	1525	73.2	.069	695	.65	261	98	100	52	2
3	105	1530	75.5	.074	709	.7	258	94	98	53	2
4	110	1535	77.5	.046	652	.46	252	91	97	52	2
4	115	1540	79.5	.057	813	.52	253	97	101	56	2
4	120	1545	81.584	.055	677	.52	257	98	100	58	2
		STOP	PORT CHANGE		0.014	@ 11" @ B		.012 @ 15" @ Port A			
		1550	81.884								
A 4	125	1555	84.1	.06	620	.64	253	99	100	59	2
4	130	1600	86.3	.064	746	.6	263	94	97	57	3
4	135	1605	88.6	.067	692	.66	254	100	98	56	3
3	140	1610	90.6	.06	765	.52	252	96	99	55	3
3	145	1615	92.8	.063	744	.58	251	94	98	56	3
3	150	1620	95.1	.073	737	.68	253	93	98	55	3
2	155	1625	97.4	.075	802	.66	259	93	97	54	3
2	160	1630	99.5	.055	690	.54	253	97	97	55	3
2	165	1635	101.7	.067	715	.66	256	94	95	54	3
1	170	1640	103.9	.072	840	.61	261	98	97	55	3
1	175	1645	106.0	.053	680	.52	257	92	94	57	3
1	180	1650	108.0	.056	684	.56	256	95	96	56	3

COMMENTS:

METHOD 5
FIELD DATA

RUN 8
PAGE 3 OF 3

PLANT	CCIH
DATE	9/27/90
SAMPLING LOCATION	Stack
SAMPLE TYPE	TM
RUN NUMBER	8
OPERATOR	fcg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
A1	185	1655	110.1	.06	756	.53	257	97	96	56	3
1	190	1700	112.3	.065	699	.63	255	97	97	55	3
1	195	1705	114.6	.065	697	.63	256	96	97	54	3
2	200	1710	116.8	.065	764	.6	252	90	93	48	4
2	205	1715	119.0	.062	706	.6	254	88	92	47	4
2	210	1720	121.1	.058	659	.58	255	89	92	48	4
3	~~220~~ 215	1725	123.3	.08	904	.65	262	91	92	48	4
3	~~225~~ 220	1730	125.4	.068	807	.6	258	90	91	50	5
3	~~230~~ 225	1735	127.6	.065	689	.61	257	87	89	53	5
4	230	1740	129.7	.07	927	.55	269	92	92	57	5
4	235	1745	131.9	.075	841	.62	265	90	90	56	5
4	240	1750	134.12	.065	927	.59	266	91	91	57	5
			END Test		Final	Leak ✓ = .004 cut		10"			

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/26/90
RUN NUMBER 08
SAMPLING LOCATION Stack
SAMPLING TYPE M23
SAMPLING BOX NUMBER
CLEAN-UP PERSON Brad
SOLVENT RINSES 3x Acet, $NaCl_2$
SAMPLE IDENTIFICATION CODE
XAD TRAP NUMBER XAD # 7

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	—	KO ~~MGS~~	578.3	440.3	~~578.3~~ 138
2	HPLC H_2O		MGS	560.9	454.5 563.7	-2.8
3	HPLC H_2O		GS	608.0	499.5 610.6	-2.6
4	MT	—	MGS	507.9	~~4~~ 508.1	-0.2
5	Silica Gel		MGS	800.2	775.2	25.0

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 157.4

Run No. 9
Plant CC 14
Pollutant TM

Date 9/28/90
Plant Location Sanford
Recorded by Lg
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☑
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments leak ✓	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run .005 @ 15"	A	1100	1300	120
end A .012 @ 13"				
start B .010 @ 17"	B	1305	1505	240
end test .006 @ 11"				

11816638

RADIAN CORPORATION

METHOD 5
FIELD DATA

RUN 9
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	9/28/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	stack	METER BOX NUMBER	M-31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ▲H@	1.9	ASSUMED MOISTURE (%)	9
RUN NUMBER	9	Yd	.9992	MOISTURE METHOD	
OPERATOR	fg	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE		PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.005 @15"			FINAL LEAKCHECK	

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm in)	Outlet (Tm out)		
		1100	35.114								
A 4	5	1105	37.0	.04	483	.47	251	84	85	51	1
4	10	1110	39.4	.077	735	.71	247	83	86	45	2
4	15	1115	41.8	.073	617	.75	249	83	86	45	2
3	20	1120	44.3	.073	627	.75	251	82	85	44	2
3	25	1125	46.4	.06	676	.57	258	81	84	43	2
3	30	1130	48.4	.052	637	.53	251	84	85	45	2
2	35	1135	50.9	.09	783	.83	253	86	86	46	2
2	40	1140	53.2	.08	799	.7	252	88	86	47	2
2	45	1145	55.5	.076	733	.7	255	88	86	48	2
1	50	1150	57.5	.055	716	.53	251	90	87	49	2
1	55	1155	59.6	.061	795	.54	246	91	87	51	2
1	60	1200	61.5	.057	758	.53	249	93	88	52	2
1	65	1205	63.7	.066	776	.6	255	93	89	53	2
1	70	1210	65.9	.072	836	.61	256	95	90	53	2
1	75	1215	67.9	.056	735	.52	255	94	91	53	2
2	80	1220	70.3	.085	761	.77	250	93	92	55	2
2	85	1225	72.8	.092	846	.76	267	94	91	52	2
2	90	1230	75.3	.099	846	.82	270	96	93	55	2
3	95	1235	77.7	.070	797	.60	272	92	92	52	2

750
~~460~~
1210

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 9
PAGE 2 OF 3

PLANT	CCH
DATE	9/28/90
SAMPLING LOCATION	STACK
SAMPLE TYPE	METALS
RUN NUMBER	09
OPERATOR	FLG

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
A 3	100	12:40	79.8	.075	827	.63	262	93	91	51	2
3	105	1245	82.0	.068	797	.6	259	96	93	52	2
4	110	1250	84.5	.091	803	.8	253	91	89	53	3
4	115	1255	86.9	.096	857	.79	267	87	89	51	2
4	120	1300	89.461	.094	818	.81	268	86	88	53	3
PORT	CHANGE	0.012 @	13"	0.010 @	17"						
		1305	89.946								
B 4	125	1310	92.6	.103	730	.96	248	85	86	59	3
4	130	1315	95.1	.104	840	.88	256	92	89	55	3
4	135	1320	97.8	.11	844	.93	259	88	86	54	3
3	140	1325	100.3	.095	832	.82	261	88	87	51	3
3	145	1330	102.7	.09	827	.77	257	86	87	55	3
3	150	1335	105.1	.078	831	.67	248	83	86	59	3
2	155	1340	107.3	.064	793	.58	249	85	86	59	3
2	160	1345	109.4	.073	778	.65	253	86	85	55	3
2	165	1350	111.4	.045	590	.48	249	91	88	54	3
1	170	1355	113.6	.077	797	.68	248	93	89	55	3
1	175	1400	115.8	.07	771	.63	250	92	88	53	3
1	180	1405	118.0	.056	648	.57	247	88	87	51	3

COMMENTS:

METHOD 5
FIELD DATA

RUN 9
PAGE 3 OF 3

PLANT	CCH
DATE	9/28/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	9
OPERATOR	fbg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
B 1	185	1410	120.1	.07	827	.6	261	91	89	54	3
1	190	1415	122.4	.077	855	.66	264	96	93	53	3
1	195	1420	124.5	.063	766	.58	262	100	96	53	3
2	200	1425	126.9	.085	751	.82	253	101	98	50	3
2	205	1430	129.2	.076	802	.65	262	96	96	51	3
2	210	1435	131.3	.055	634	.54	254	100	100	53	3
3	215	1440	133.7	.09	835	.74	253	90	94	49	3
3	220	1445	136.3	.096	819	.83	265	93	96	54	4
3	225	1450	138.9	.105	862	.87	261	88	93	54	4
4	230	1455	141.6	.113	875	.93	265	95	95	57	4
4	235	1500	144.3	.106	829	.91	261	96	95	55	4
4	240	1505	146.98	.096	810	.84	259	97	95	54	4
					leak	— .006	@ 11"				

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

H_2O_2 10% 3240 KDRD

PLANT Central Carolina Hospital

DATE 9/28/90

RUN NUMBER 09

SAMPLING LOCATION Stack

SAMPLING TYPE Metals

SAMPLING BOX NUMBER

CLEAN-UP PERSON Brad & D²

SOLVENT RINSES 3 × 0.1 N HNO_3

SAMPLE IDENTIFICATION CODE

~~XAD TRAP NUMBER~~ MP-35

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT	0	mGS	653.1	505.5	147.6
2	5% HNO_3 10% H_2O_2	101.3	mGS	615.1	465.0 566.3	48.8
3	5% HNO_3 10% H_2O_2	103.6	GS	621.9	513.9 619.5	4.4
4	MT	0	mGS	471.1	470.1	1.0
5	Acidic $KMnO_4$	102.6	mGS	567.9	464.6 566.6	1.3
6	Acidic $KMnO_4$	101.5	mGS	590.8	489.4 590.9	-0.1
7	Silica Gel	≈200	mGS	771.7	749.4	22.3

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 225.3

METHOD 5
FIELD DATA

RUN 10
PAGE 1 OF 3

PLANT	CCH	PROBE LENGTH AND TYPE	4'	HEIGHT OF LOCATION (ft)	30'
DATE	10/2/90	NOZZLE I.D. (in)	.385	DUCT DIMENSIONS	18"
SAMPLING LOCATION	stack	METER BOX NUMBER	N31	FILTER NUMBER	
SAMPLE TYPE	TM	METER ▲ H@	1.9	ASSUMED MOISTURE (%)	9
RUN NUMBER	10	Yd	.9992	MOISTURE METHOD	
OPERATOR	fly	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	63	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING	4	O2	
STATIC PRESSURE (Ps)	-.15			CO2	
INITIAL LEAKCHECK	.004 @15"			FINAL LEAKCHECK	

pitot leak ✓ OK

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲ Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Temperature (deg. F) Dry Gas Meter Outlet (Tm out)	Temperature (deg. F) Impinger Exit	Pump Vacuum (in. Hg)
		1015	~~47.996~~ 47.984								
B 4	5	1020	50.3	.065	500	.73	248	88	86	56	2
4	10	1025	51.5	.015	654	.16	249	89	88	56	1
4	15	1030	52.7	.015	581	.15	250	84	86	54	1
3	20	1035	53.8	.012	572	.13	251	91	90	56	1
3	25	1040	55.0	.015	650	.16	250	92	92	56	1
3	30	1045	57.4	.076	642	.76	248	86	89	53	2
2	35	1050	59.5	.05	623	.51	255	92	91	49	2
2	40	1055	61.6	.055	645	.54	254	91	90	50	2
2	45	1100	63.6	.055	642	.54	255	95	94	51	2
1	50	1105	65.8	.056	641	.55	252	94	93	52	2
1	55	1110	67.8	.053	676	.49	254	88	90	51	2
1	60	1115	69.7	.055	671	.49	250	90	92	52	2
1	65	1120	71.8	.056	656	.49	254	92	92	53	2
1	70	1125	74.0	.065	766	.58	261	92	94	55	2
1	75	1130	76.1	.061	709	.58	262	96	98	54	2
2	80	1135	78.3	.056	677	.55	260	95	96	55	2
2	85	1140	80.4	.06	714	.57	257	94	96	55	2
2	90	1145	82.6	.06	704	.58	253	95	96	54	2
3	95	1150	85.2	.084	698	.8	254	98	96	54	2

COMMENTS:

Revision: 5/90

METHOD 5
FIELD DATA

RUN 10
PAGE 2 OF 3

PLANT	CCH
DATE	10/2/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	10
OPERATOR	flg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
	95										
B-3	100	1155	87.7	.095	879	.79	263	102	96	55	2
3	105	1200	90.2	.09	815	.79	261	100	96	54	2
4	110	1205	93.1	.15	1243	.99	265	100	96	55	2
4	115	1210	95.7	.112	966	.85	266	100	95	55	2
4	120	1215	98.37	.104	856	.89	260	99	95	56	2
		1221 .006 @ 12°	99.241	0.007	@ 11°						
A 4	125	1226	102.0	.078	780	.7	248	101	95	59	2
4	130	1231	104.2	.06	721	.6	250	101	96	56	2
4	135	1236	106.9	.107	826	.92	253	93	94	63	3
3	140	1241	109.5	.094	875	.78	259	95	93	58	3
3	145	1246	111.5	.044	622	.49	246	95	93	52	2
3	150	1251	113.4	.04	636	.45	245	99	94	53	2
2	155	1256	115.8	.078	865	.66	258	100	94	55	2
2	160	1301	118.2	.082	851	.7	252	94	96	64	2
2	165	1306	120.3	.067	796	.59	253	95	93	61	2
1	170	1311	123.2	.043	675	.45	255	99	94	55	2
1	175	1316	124.4	.055	678	.58	251	98	94	54	2
1	180	1321	127.18	.062	675	.65	247	98	94	55	2
1	185	1326	129.04	.065	875	.54	268	98	94	55	2

COMMENTS:

METHOD 5
FIELD DATA

RUN 10
PAGE 3 OF 3

PLANT	CCH
DATE	10/2/90
SAMPLING LOCATION	stack
SAMPLE TYPE	TM
RUN NUMBER	10
OPERATOR	fly

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPs), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
A 1	190	1331	131.12	.058	746	0.52	256	94	92	53	2
1	195	1336	133.20	.060	875	0.50	258	96	94	57	2
A 2	200	1341	135.4	.060	700	0.60	261	97	95	57	2
2	205	1346	137.5	.054	649	.58	253	94	94	50	2
2	210	1351	140.2	.118	1062	.87	257	94	94	46	3
3	215	1356	142.3	.055	741	.55	259	99	96	48	3
3	220	1401	144.4	.048	645	.52	251	94	95	45	3
3	225	1406	146.8	.105	1129	.73	256	99	98	46	3
4	230	1411	149.2	.091	924	.72	251	104	99	48	3
4	235	1416	151.6	.076	805	.69	257	105	100	49	3
4	240	1421	153.985	.06	640	.66	248	105	101	48	3
			leak	.006	7"						

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 10/2/90
RUN NUMBER 10
SAMPLING LOCATION Stack
SAMPLING TYPE Metals
SAMPLING BOX NUMBER
CLEAN-UP PERSON DWN
SOLVENT RINSES 3 x 0.1 N HNO_3
SAMPLE IDENTIFICATION CODE
~~XAD TRAP NUMBER~~ Filter MP-40

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	MT		MGS	613.1	504.4	108.7
2	5% HNO_3 10% H_2O_2		MGS	614.2	464.7 570.1	44.1
3	5% HNO_3 10% H_2O_2		GS	627.6	513.7 621.7	5.9
4	MT		MGS	472.6	470.5	2.1
5	Acidic $KMnO_4$		MGS	573.4	464.0 571.5	1.9
6	Acidic $KMnO_4$		MGS	597.1	489.9 595.0	2.1
7	Silica Gel		MGS	762.8	745.2	17.6

Revision: 3/90

TOTAL WEIGHT GAIN (grams) 182.4

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

Plant Central Carolina Hospital Sample Identification Code: CCH-0914-LPB-01

Date 9/14/90

Sampling location Lab Proof Blank

Sample type Method

Run number N/A

Sample box number N/A

Clean-up person BWN

Solvent rinses

Filter MP-38

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight (grams) Final	Initial	Weight Gain
1	MT	—	MGS		501.5	
2	5% HNO_3 10% H_2O_2		MGS		519.8 624.4	
3	5% HNO_3 10% H_2O_2		GS		511.5 615.8	
4	MT	—	MGS		468.7	
5	Acidic $KMnO_4$		MGS		462.0 562.5	
6	Acidic $KMnO_4$		MGS		487.5 587.8	
7	Silica Gel	≈ 200g	MGS		814.8	

Total Weight Gain (grams) _____

Run No. 01A
Plant Central Carolina Hospital
Pollutant INDICATOR Spores

Date 9/20
Plant Location Stack - 25' EL
Recorded by CRP
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K-Factor ☑
Filter loaded with rough side to the front ☐ N/A
Zero manometer ☑
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
1ST RUN. EXTREMELY LOW SILICA	A	1358	1558	120
Imp. temps. - EVERYTHING WORKING				
GOOD.				

RADIAN

11816638

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 01A
PAGE 1 OF 2

PLANT	CEMEX CAL I/O	PROBE LENGTH AND TYPE	47" S	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	9/20	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13 5	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N-72	MOISTURE METHOD	ENTRAIN	FIRST IMPINGER	
RUN NUMBER	01A	METER ▲ H@	1.92	MOISTURE DATA	PM/CDD	FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0002	O2/CO2 METHOD	CEMS	SPIKE LOADS ~ 1401, 1415	
AMBIENT TEMPERATURE	85	K FACTOR	14	O2 ~15			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.00207	HEIGHT OF LOCATION (ft)	25 1	BUFFER SOLN RATE (ml/min)	~10		

#2 = .467
#1 .462

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1358	920.897								
B1	5	1403	923.45	.03	400	.78	93	92	83	866	0
B1	10	1408	925.9	.035	520	.80	93	91	74	56	1.5
B1	15	1413	928.3	.03	560	.73	95	94	78	57	1.5
B2	20	1418	931	.04	566	.99	96	95	77	57	2
B2	25	1423	934.0	.05	550	1.12	97	96	77	58	2
B2	30	1428	937.15	.057	527	1.29	99	97	77	57	2
B3	35	1433	940.85	.085	620	1.81	99	97	77	57	2.5
B3	40	1438	944.53	.095	705	1.86	103	99	80	59	2.5
B3	45	1443	948.2	0.085	660	1.73	103	100	80	60	2.5
B4	50	1448	951.85	0.085	644	1.77	102	100	78	59	2.5
B4	55	1453	955.63	0.093	713	1.83	102	100	81	61	2.7
B4	60	1458	959.21	0.092	690	1.82	102	101	80	60	2.7
B4	65	1503	962.7	0.085	690	1.67	103	100	80	60	2.7
B4	70	1508	966.4	0.09	686	1.8	104	102	82	63	2.7
B4	75	1513	970.1	0.09	681	1.8	104	102	78	58	2.7
B3	80	1518	973.65	0.085	687	1.71	106	103	77	57	2.7
B3	85	1523	977.2	0.087	764	1.65	109	101	79	58	2.6
B3	90	1528	980.75	0.085	718	1.62	108	106	77	57	2.6
B2	95	1533	984.4	0.045	692	.91	108	106	76	56	2

COMMENTS: 0A0 @ 15:15 ΔP_{min} .13" T_{max} = 920°F
15:30 ΔP_{max} .065 T_{max} 930

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 01A
PAGE 2 OF 2

PLANT	C.C.H.	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	9/20/90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	01A	METER ▲ H@		MOISTURE DATA			
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
B2	1538	100	986.15	.05	770	.94	107	106	78	58	2
B2	1543	105	988.65	.047	731	.92	108	108	78	58	2
B1	1548	110	991.6	.05	726	.92	107	105	76	58	2
B1	1553	115	993.95	.032	677	.65	109	110	79	62	2
B1	1558	120	996.278	.032	680	.46	108	110	77	61	2
		LEAK @ @5" = 0.003									

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Cambria Hosp
DATE 9/20/90
RUN NUMBER ~~CCH~~ 01 A
SAMPLING LOCATION STACK
SAMPLING TYPE IND. SPEC
SAMPLING BOX NUMBER SPOT 1
CLEAN-UP PERSON CRP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH - 0920 - SPO - FMP - 01A
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	H_2O_4	200	MOD GS	2400.9	1089.5	
2	H_2O_4	100	GS ~~MOD~~	675.7	666.4	
3	MT	MT	MOD	470.9	467.3	
4	Silica	300	MOD	20% wgt 814.3	800.2	
		Bag A		107.6	1303.8	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. SPO-01B
Plant CENTRAL CAROLINA HOSPITAL
Pollutant SPORES

Date 9-20-90
Plant Location SANFORD NC
Recorded by T. McDONALD
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Filter loaded with rough side to the front ☐ N/A
Zero manometer ☑
Double Check K Factor ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
No problems	Port A	1558	1758	2 hours

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MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spr. C-10
PAGE 1 OF 2

PLANT	Central Precipitation Lbs.	PROBE LENGTH AND TYPE	4' quartz	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	9-20-90	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13.5%	INITIAL BUFFER pH	
SAMPLING LOCATION	stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	Spr-C13	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TMcD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	n/A	CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	n/A	FINAL LEAKCHECK	0.003@6"		
INITIAL LEAKCHECK	0.008@7"	HEIGHT OF LOCATION (ft)	~35'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer	Silica Gel	
							Inlet (Tm out)	Outlet (Tm out)	Impinger Exit	Impinger Exit	
	0	1558	734.105	0.041	711	0.77	92	92	80	76	1
A 1	5	1603	736.63	0.047	837	0.84	96	94	77	73	1
1	10	1608	739.22	0.041	745	0.77	98	93	72	69	1
1	15	1613	741.72	0.054	678	1.02	101	94	69	67	1
A 2	20	1618	745.11	0.055	834	1.04	102	97	72	68	1
2	25	1623	747.50	0.056	799	1.10	107	98	72	69	1
2	30	1628	750.33	0.095	824	1.68	110	98	69	63	1
A 3	35	1633	754.00	0.090	819	1.60	109	96	67	61	1
3	40	1638	757.72	0.096	812	1.70	114	99	69	60	1
3	45	1643	761.33	0.069	659	1.22	117	102	73	67	2
A 4	50	~~1648~~ 1648	764.60	0.105	898	1.86	113	100	70	62	3
4	55	~~1653~~ 1653	768.49	0.092	842	1.63	117	102	73	65	3
4	60	~~1658~~ 1658	772.07	0.070	688	1.20	118	103	76	66	2
A 4	65	~~1703~~ 1703	775.27	0.075	725	1.29	115	102	74	64	2
4	70	1708	778.46	0.096	859	1.65	116	104	75	66	3
4	75	1713	782.09	0.085	674	1.46	117	103	70	63	3
A 3	80	1718	785.67	0.092	862	1.58	118	106	73	66	3
3	85	1723	789.31	0.090	867	1.55	119	106	74	66	3
3	90	1728	792.82								

COMMENTS:

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN SPC 01B
PAGE 1 OF 2

PLANT	CENTRAL CAROLINA Hospital	PROBE LENGTH AND TYPE	4' QUARTZ	DUCT DIMENSIONS	18" ID	FIRST IMPINGER INITIAL BUFFER pH	
DATE	9-20-90	NOZZLE I.D. (in)	0.462	ASSUMED MOISTURE (%)	~~13.9~~		
SAMPLING LOCATION	STACK	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	SPC-01B	METER ▲ H@	1.83	MOISTURE DATA			
OPERATOR	TMD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	N/A	CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	N/A	FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.005@7"	HEIGHT OF LOCATION (ft)	~35'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
	90	~~1528~~ 1728	792.82								
A 2	95	~~1533~~ 1733	796.45	0.091	829	1.57	118	106	74	67	3
2	100	~~1538~~ 1738	799.55	0.064	914	1.10	114	104	74	67	3
2	105	1743	802.53	0.065	862	1.12	111	104	72	67	3
A 1	110	1748	805.52	0.061	853	1.05	111	104	72	62	3
1	115	1753	808.06	0.049	766	0.84	110	103	72	68	3
1	120/off	1758	810.527	0.045	745	0.77	108	102	72	67	2

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Centrow Carolina Hospital

DATE 9/20/90

RUN NUMBER 01B

SAMPLING LOCATION STACK

SAMPLING TYPE END. SPARE

SAMPLING BOX NUMBER CRP 3 D2

CLEAN-UP PERSON SPARE

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CCH - 0920 - SPA - IMP - 01B

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	PO_4	250	MOD	2420.1	1231.2	
2	PO_4	100	6S	666.0	658.2	
3	MT	MT	MOD	479.8	479.6	
4	Silica	300	MOD	20% used 806.5	791.5	
			Bag B	166.2	1236.1	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 02A

Plant Central Carolina Hospital

Pollutant Imp. Spire

Date 9/21/90

Plant Location Stack

Recorded by af

Checked by

QA Checklist

Impingers in correct order ☑

Pre-test leakcheck of pitots ☑

Double Check K-Factor ☐

Filter loaded with rough side to the front ☐ NA

Zero manometer ☑

Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time		Elapsed Time (min)
		Began	Ended	
	B	0943	1128	105

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MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 02A

PAGE 1 OF _____

PLANT	CCH	PROBE LENGTH AND TYPE	47" quartz	DUCT DIMENSIONS	60" ID	FIRST IMPINGER	
DATE	5/9/21	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13.5	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	W-12	MOISTURE METHOD	Fm/(Cp)	FIRST IMPINGER	
RUN NUMBER	02A	METER ▲ H@	1.92	MOISTURE DATA	Fm/(Cp)	FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0007	O2/CO2 METHOD	Orsat	Spare 0945	
AMBIENT TEMPERATURE	75	K FACTOR	14-20	O2 ~15		Loads 1101	
BAROMETRIC PRESSURE	29.90	PROBE HEATER SETTING	Not	CO2 ~3			
STATIC PRESSURE (Pa)		HEATER BOX SETTING	Not	FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.0407"	HEIGHT OF LOCATION (ft)	25	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	0943	996.413								
B1	5	0948	998.78	.03	400	.76	72	71	66	62	1.8
B1	10	0953	1001.1	.035	610	.71	73	72	69	50	1.8
B1	15	0958	1003.4	.035	663	.68	74	73	66	48	1.8
B2	20	1003	1005.86	.045	677	.88	74	73	67	48	2
B2	25	1008	1008.4	.05	840	.84	76	73	61	49	2
B2	30	1013	1011.0	.05	731	.92	76	74	63	50	2
B3	35	1018	1014.4	.095	783	1.75	78	74	63	51	3
B3	40	1023	1017.75	.096	834	1.64	80	75	64	51	3
B3	45	1028	1021.1	.091	770	1.55	81	75	65	52	3
B4	50	1033	1024.7	.10	780	1.78	81	76	65	52	3
B4	55	1038	1028.15	.12	1044	1.76	82	76	68	53	3.5
B4	60	1043	1031.7	.115	982	1.76	82	77	69	51	3.9
B4	65	1048	1035.2	.104	866	1.71	82	77	68	48	3.8
B4	70	1053	1039.0	.114	980	1.83	84	78	68	44	4
B4	75	1058	1042.35	.10	840	1.7	84	78	69	44	4
B3	80	1103	1045.5	.082	800	1.44	84	77	68	50	3.7
B3	85	1108	1049.0	.12	1230	1.58	85	79	70	57	7
B3	90	1113	1052.0	.10	1040	1.48	85	80	70	55	7
B2	95	1118	1054.9	.055	854	.91	85	80	68	55	10

COMMENTS: 11:04 VAC↑ UNTIL QUARTZ WOOL SUCKED THROUGH TO TOP OF PROBE, HOWEVER STILL BUILDING VAC, 11:17 VAC↑, QUARTZ WOOL SUCKED INTO IMP. STEM (VAC↓)

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 02A
PAGE 2 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	09/21	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	02A	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)	
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit		
							Inlet (Tm out)	Outlet (Tm out)				
B2	100	1123	1057.53	0.064	1107	.90	84	80	68	54	10	
B2	105	1128	1059.631	0.055	962	.86	82	80	67	57	19	X CAN'T MAKE RATE
B1			LEAK	0.08	@ 284	—	STOPPED	BECAUSE plugged	wants heat		na	
B1												
B1												

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Cape Fear Hosp. Fac.
DATE 09/21/90
RUN NUMBER 02A
SAMPLING LOCATION Stack
SAMPLING TYPE Impactor Spore
SAMPLING BOX NUMBER Spore 1
CLEAN-UP PERSON CRP
SOLVENT RINSES Wt
SAMPLE IDENTIFICATION CODE CFH - 0921 - spo - imp - 02A
XAD TRAP NUMBER Wt

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Pdy	300	mod	2429.3	1145	
2	Pdy	100	GS	763.1	674.9	
3	wt	wt	mod	536.9	469.2	
4	Silica	300	mod	70% mod 825.0	814.3	
5	Pdf	1000	316	118.4	467.5	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

? 467.5 or 1467.5 ?
mdr

Run No. 02B
Plant Centra Cuyuna Hosp
Pollutant Ind. Sprue

Date 9/21/80
Plant Location Stark
Recorded by CP
Checked by

Impingers in correct order ☐✓
Filter loaded with rough side to the front ☐✓

QA Checklist
Pre-test leakcheck of pitots ☐✓
Zero manometer ☐✓

Double Check K-Factor 14
Post-test leakcheck of pitots ☐✓

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	A	1128	1343	135

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MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN SPO-02B
PAGE 1 OF 2

PLANT	CENTRAL CAROLINA Hospital	PROBE LENGTH AND TYPE	47" quartz	DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-21-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	13.0%	INITIAL BUFFER pH	
SAMPLING LOCATION	stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	SPO-02B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	JC	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80	K FACTOR		O2			
BAROMETRIC PRESSURE	29.9	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.006@5"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
	0	1128	810.947								
A 1	5	1133	813.22	0.039	730	0.61	74	73	59	54	1
1	10	1138	815.55	0.044	682	0.69	74	73	59	54	1
1	15	1143	817.85	0.035	672	0.55	78	75	60	55	1
A 2	20	48	820.1	0.040	655	0.79	81	75	60	54	1
2	25	53	822.6	0.075	1073	1.1	84	75	60	54	2
2	30	58	825.5	0.065	1000	.98	87	76	63	55	2
A-3	35	1203	828.5	.080	900	1.3	91	78	64	54	5
3	40	08	831.7	.07	715	1.3	94	79	64	56	2
3	45	13	834.9	.07	753	1.3	95	80	63	56	2
4	50	18	838.0	.063	679	1.2	96	81	64	57	2
4	55	23	841.2	.07	768	1.3	97	82	65	57	2
4	60	28	844.2	.055	673	1.1	97	83	60	54	2
4	65	33	846.8	.055	660	1.1	96	83	60	52	2
4	70	38	850.2	.083	885	1.4	83	77	62	57	2
4	75	43	853.2	.065	760	1.2	97	84	63	56	2
3	80	48	856.3	.060	683	1.2	97	84	63	57	2
3	85	53	859.1	.065	820	1.1	98	85	64	58	2
3	90	58	862.2	.065	699	1.2	98	85	63	57	2
3	95	1303	864.9	.055	682	1.0	98	85	61	57	2

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN SPO 02B
PAGE 2 OF 2

PLANT		PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	9-21-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION		METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	SPO-02B	METER ▲ H@		MOISTURE DATA			
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
3	100	1308	867.8	.065	800	1.1	96	85	62	57	2
3	105	13	871.0	.062	693	1.2	97	85	63	57	3
2	110	18	873.8	.055	629	1.1	100	86	62	57	3
2	115	23	876.6	.055	900	.91	100	86	64	57	3
2	120	28	879.2	.048	718	.92	100	86	63	58	6
	Stop	Change	0 Tube	(Plug shifted so no need to change tube)							
1	125	33	881.6	.033	637	.68	101	87	63	54	1
1	130	38	884.1	.045	631	.79	97	86	63	60	2
1	135	43	886.44	.040	733	.74	96	86	62	59	2
Stop		Leak	V 0.006	@ 10"							

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Care. Hospice

DATE 9/21/92

RUN NUMBER 02B

SAMPLING LOCATION [illegible]

SAMPLING TYPE INDICATOR SPORE

SAMPLING BOX NUMBER ORP

CLEAN-UP PERSON SPORE 3

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CFH-0921-Spo-Imp-02B

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	H_2O	300	MOD	2416.5	1271.0	
2	H_2O	100	GS	*	669.6	
3	MT	MT	MOD	486.5	480.4	
4	Silica	300	MOD	50% used 821.8	806.5	
5	H_2O	1000	BAB	106.5	1159.2	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

* DIDN'T WEIGH FIRST ONE DIDN'T OVERFLOW SO NOT MUCH EXPECTED WEIGHT GAIN

RADIAN

Run No. 03A & B

Plant Central Carolina Hospital

Pollutant INDICATOR spores

Date 09/22

Plant Location Smack

Recorded by CRP

Checked by

QA Checklist

Impingers in correct order ☑ ✓

Pre-test leakcheck of pitots ☐ ✓

Double Check K-Factor IT ✓

Filter loaded with rough side to the front ☐ NA

Zero manometer ☑ ✓

Post-test leakcheck of pitots IT ✓

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
Good run	B	0943	1143	2 hours
Good run	A	1143	1343	2 hours

11816638

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 03A
PAGE 1 OF ~

PLANT	CCH	PROBE LENGTH AND TYPE	47" quartz	DUCT DIMENSIONS	18' ID	FIRST IMPINGER	
DATE	9/22/90	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13.5	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N-32	MOISTURE METHOD	ENVIRA/W	FIRST IMPINGER	
RUN NUMBER	03A	METER ▲ H@	1.92	MOISTURE DATA	PW/COND	FINAL BUFFER pH	
OPERATOR	cap	Yd	1.0002	O2/CO2 METHOD	c&MS	Spike levels 0945.5, 1100	
AMBIENT TEMPERATURE	72	K FACTOR	14-20	O2 ~15			
BAROMETRIC PRESSURE	20.67	PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	not	FINAL LEAKCHECK			
INITIAL LEAKCHECK	.004 @ 7"	HEIGHT OF LOCATION (ft)	251	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	0943	61.270								
B1	5	0948	64.05	.04	420	.[illegible]98	71	71	69	54	3.5
B1	10	0953	66.25	.035	640	.69	73	73	65	52	2
B1	15	0958	68.54	.034	645	.67	74	74	63	51	2
B2	20	1003	71.05	.045	654	.89	75	74	65	51	2.3
B2	25	1008	74.0	.052	634	1.04	76	75	67	51	2.8
B2	30	1013	76.65	.056	724	1.03	78	75	68	52	2.8
B3	35	1018	80.1	.082	650	1.62	78	75	67	52	3.5
B3	40	1023	83.7	.089	648	1.76	80	76	68	52	3.8
B3	45	1028	87.0	.085	646	1.69	81	77	68	52	3.8
B4	50	1033	90.7	.085	620	1.74	81	77	70	54	4
B4	55	1038	94.1	.079	606	1.61	81	77	69	54	3.8
B4	60	1043	97.7	.106	774	1.7	82	78	72	53	4
B4	65	1048	101.3	.103	718	1.[illegible]92	83	78	72	55	4
B4	70	1053	105	.10	700	1.9	83	78	72	55	4
B4	75	1058	108.6	.097	673	1.81	84	79	72	57	4
B3	80	1103	112.2	.087	645	1.69	84	79	70	56	4
B3	85	1108	115.75	0.105	801	2.04	84	80	72	57	4.5
B3	90	1113	119.45	.10	740	1.75	85	80	70	55	4
B2	95	1118	121.75	.035	664	.69	82	81	71	58	2.4

COMMENTS: 1006 - change ΔP_{max}: .075 T_{max}: 830
1036 - " .155 " 999

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 03A
PAGE 1 OF 2

PLANT	ECH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9/22	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	03A	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
B2	100	1123	124.5	.035	760	1.0	83	81	70	57	3
B2	105	1128	127.2	.05	740	.91	83	81	70	57	3
B1	110	1133	129.4	.03	654	.58	82	81	69	56	2
B1	115	1138	131.47	.04	880	.66	80	81	70	57	2
B1	120	1143	133.749	.04	843	.67	81	80	71	58	2
		LEAK ✓	0.001 @ 6"								

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/22/90
RUN NUMBER 3A
SAMPLING LOCATION Stack
SAMPLING TYPE Impactor Spare
SAMPLING BOX NUMBER Spare 1
CLEAN-UP PERSON Rep
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0922-SPO-IMP-03A
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Pow	300	MOD	2353.7	1088.7	
2	Pow	100	GS	677.9	669.5	
3	MT	MT	MOD	470.4	468.5	
4	Silica	300	MOD	207.-new 862.8	846.9	
5	Pow	1000	BAG	207.7	1378.3 83	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Silica final

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Sp20 03B
PAGE 1 OF _____

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE	4' quartz	DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-22-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	13%	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	Sp 03B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TmD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°f	K FACTOR		O2			
BAROMETRIC PRESSURE	29.67	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	~~-0.04~~	HEATER BOX SETTING		FINAL LEAKCHECK	0.003@6" Hg		
INITIAL LEAKCHECK	0.005@7" Hg	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1143	~~886.617~~								
A 1	5	1148	889.93	0.045	745	0.89	77	77	68	66	1
1	10	1153	892.36	0.061	684	1.20	77	74	62	62	1
1	15	1158	895.21	0.045	573	0.93	82	78	61	63	1
A 2	20	1203	897.61	0.039	633	0.81	84	79	62	62	1
2	25	1208	900.65	0.070	880	1.18	87	80	66	64	1
2	30	1213	903.54	0.051	692	1.01	91	83	66	63	1
A 3	35	1218	906.95	0.085	740	1.61	91	82	67	64	1
3	40	1223	910.75	0.103	907	1.74	95	84	67	63	2
3	45	1228	914.47	0.099	897	1.67	96	85	69	64	2
A 4	50	1233	917.89	0.082	790	1.49	97	87	65	63	2
4	55	1238	921.19	0.064	652	1.32	98	88	64	63	2
4	60	1243	924.73	0.062	647	1.28	98	89	66	64	2
A 4	65	1248	927.75	0.068	663	1.40	96	89	66	65	2
4	70	1253	930.90	0.057	604	1.20	95	89	66	65	2
4	75	1258	934.6	0.088	792	1.60	96	88	68	65	2
A 3	80	1303	937.67	0.06	628	1.24	97	90	62	59	2
3	85	1308	941.2	0.095	950	1.54	97	90	64	58	2
3	90	1313	945.0	.099	907	1.67	94	91	66	59	2
A 2	95	1318	948.26	.07	740	1.40	98	91	66	61	2

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 03B
PAGE 2 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	09/22/90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	/
RUN NUMBER	03B	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger	Silica Gel Impinger	
							Inlet (Tm out)	Outlet (Tm out)	Exit	Exit	
A2	100	1323	~~94~~ 951.5	0.06	750	1.13	97	91	66	62	2
A2	105	1328	954.44	0.055	700	1.08	96	91	66	64	2
A1	110	1333	957.58	0.045	610	0.93	97	90	62	59	2
A1	115	1338	960.13	0.059	828	1.03	96	92	63	63	2
A1	120/off	1343	962.938	0.051	754	0.97	95	91	64	64	2

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Quincy Cottage Hospital

DATE 9/22/90

RUN NUMBER 03B

SAMPLING LOCATION STACK

SAMPLING TYPE Indicator Spare

SAMPLING BOX NUMBER Spare 3

CLEAN-UP PERSON C.R.P

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CCH-0922-Imp-03B

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	H_2O	300	MOD	2579.5	1247.5	
2	H_2O	100	GS	706.9	688.3	
3	MT	MT	MOD	486.3	480.3	
4	Silica	300	MOD	807.7 * ~~857.4~~ **	793.6 ~~835.4~~ **	
5	H_2O	1000	BAT	1528	1361.5	

Revision 3/90

TOTAL WEIGHT GAIN (grams) _____

* Impinger broke, new impinger

Silica Fresh

A 04@16

Run No. 04A & B
Plant Central Carolina Hospital
Pollutant INDICATOR species

Date 9/23
Plant Location Stack
Recorded by CAP
Checked by

Impingers in correct order ☑

QA Checklist
Pre-test leakcheck of pitots ☐

Double Check K-Factor ☑

Filter loaded with rough side to the front ☐ N/A

Zero manometer ☐

Post-test leakcheck of pitots ☑

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
STOPPED FOR 2 MIN TO	B Run 04A)	1138	1340	2 hours 2 min
REPLACE U-TUBE QUARTZ WOOL				
no problems	A Run 04B	1340	1540	2 hours

11816638

134.075

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 04A
PAGE 1 OF 2

PLANT	CCA	PROBE LENGTH AND TYPE	47" S w/ B	DUCT DIMENSIONS	18" F.D.	FIRST IMPINGER	
DATE	9/23	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N-32	MOISTURE METHOD	EMPIRICAL	FIRST IMPINGER	
RUN NUMBER	04A	METER ▲ H@	1.72	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0002	O2/CO2 METHOD	OE M5		
AMBIENT TEMPERATURE	74	K FACTOR	14-20	O2 ~15			
BAROMETRIC PRESSURE	29.65	PROBE HEATER SETTING	N4	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.004@10"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	10		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1138	134.075								
B1	5	1143	136.25	.025	430	.58	74	74	52	63	1.5
B1	10	1148	138.45	.035	830	.60	74	77	72	54	1.8
B1	15	1153	140.55	.034	800	.60	74	74	72	55	2
B2	20	1158	142.9	.043	793	.76	75	74	73	54	2
B2	25	1203	145.4	.052	940	.82	76	75	73	57	2.2
B2	30	1208	148.0	.052	830	.889	74	75	73	56	2.6
B3	35	1213	151.15	.08	656	1.59	76	74	71	56	4
B3	40	1218	154.3	.064	660	1.27	77	75	72	57	4
B3	45	1223	157.3	.076	750	1.39	77	75	72	57	4
B4	50	1228	160.65	.075	625	1.53	78	75	72	58	4
B4	55	1233	163.736*	.06	578	1.28	78	75	69	53	4
~~B4~~	~~55~~	1235	STOP	replace	U TUBE						
B4	60	1240	167.25	.095	810	1.7	77	78	78	60	4
B4	65	1245	170.41	.084	670	1.45	78	76	71	53	4
B4	70	1250	173.4	.06	584	1.28	80	77	73	58	4
B4	75	1255	176.7	.083	689	1.77	79	76	66	53	5
B3	80	1300	179.9	.07	656	1.37	79	76	65	54	5
B3	85	1305	183.3	.08	720	1.64	77	78	67	56	5.5
B3	90	1310	186.5	.075	738	1.39	78	76	71	56	5

COMMENTS: * plugged U TUBE (switched w/ new wool)

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 04A
PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9/23	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	04A	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger	Silica Gel Impinger	
							Inlet (Tm out)	Outlet (Tm out)	Exit	Exit	
B2	95	1315	189.9	.08	690	1.54	79	76	71	50	6
B2	100	1320	193	.05	650	1.0	79	76	69	58	4.5
B2	105	1325	195.6	.06	827	1.04	78	76	73	58	5
B1	110	1330	197.6	.025	682	.50	78	76	72	61	3
B1	115	1335	199.7	.03	643	.59	78	77	70	60	3.5
B1	120	1340	201.865	.038	822	.66	79	77	68	60	3.5
		LEAK ✓	= .005 @ 8"								

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Cherokee Catawba Hosp

DATE 09/23/90

RUN NUMBER 4A

SAMPLING LOCATION Stack

SAMPLING TYPE Indicator Spare

SAMPLING BOX NUMBER Spare 1

CLEAN-UP PERSON CRF

SOLVENT RINSES NIT

SAMPLE IDENTIFICATION CODE CCH-0923-Spo-IMP-4A

XAD TRAP NUMBER NIT

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	MOD	2283.2	1108.2	
2	Poly	100	GS	684.8	679.3 ~~665.9~~	
3	MT	MT	MOD	468.8	468.2 ~~470.4~~	
4	Silica	300	MOD	~307 (320 and 873.3)	862.8	
5	Poly	1000	BAG	343	1457.2	

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TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN SPO 043
PAGE 1 OF 2

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE	4' quartz	DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-23-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	SPO 043	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TMD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE	29.65	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	-0.1	HEATER BOX SETTING		FINAL LEAKCHECK	@7	"Hg	
INITIAL LEAKCHECK	0.006 @ 8"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1340	964.939								
A1	5	1345	967.3	0.042	638	0.87	77	76	69	68	1
1	10	1350	970.27	0.048	555	0.99	77	77	67	65	1
1	15	1355	973.1	0.055	725	1.04	80	77	63	60	1
A 2	20	1400	976.0	.055	650	1.1	83	78	58	63	2
2	25	05	979.0	.055	615	1.1	86	78	57	62	4
2	30	10	982.0	.065	705	1.2	89	80	60	63	1
3	35	15	985.4	.040	703	1.5	90	81	61	64	3
3	40	20	989.1	.09	680	1.8	92	82	61	64	4
3	45	25	993.2	.11	682	2.2	94	82	60	64	5
4	50	30	996.4	.075	682	1.5	1000	84	62	66	2
4	55	35	999.4	.065	633	1.3	97	84	58	62	2
4	60	40	1002.2	.067	673	1.1	91	85	61	65	2
4	65	45	1005.1	.060	668	6.2	87	83	59	63	4
4	70	50	1008.2	.062	628	1.3	90	84	60	65	4
4	75	55	1011.1	.062	660	1.2	92	83	60	64	2
3	80	1500	1014.3	.070	667	6.4	93	84	60	64	2
3	85	05	1017.5	.072	642	1.5	95	85	59	64	2
3	90	10	1020.74	.09	668	1.5	94	85	60	65	3

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spo 04B
PAGE 2 OF 2

PLANT	Central Parotina Hospital	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	9-23-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	Spo 04B	METER ▲ H@		MOISTURE DATA			
OPERATOR	TMCD	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE	29.65	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	-0.1	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
	90	1510	1020.74								
A 2	95	~~1520~~ 1515	1023.54	0.056	719	1.11	95	85	65	62	2
A 2	100	~~1530~~ 1520	1026.18	0.055	687	1.09	93	86	66	62	2
2	105	1525	1029.05	0.066	866	1.16	93	84	62	58	2
A 1	110	1530	1031.27	0.024	673	0.70	93	85	62	61	2
1	115	1535	1033.65	0.041	657	0.85	91	86	63	61	2
1	120/off	1540	1036.203	0.049	960	0.80	90	85	64	61	2

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Cement Chemical Corp

DATE

RUN NUMBER 4B

SAMPLING LOCATION STACK

SAMPLING TYPE Indicator Spike

SAMPLING BOX NUMBER

CLEAN-UP PERSON CRP

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	MOD	2490.0	1307.9	
2	Poly	100	S	702.1	695.4	
3	MT	MT	MOD	1818.4	1813.5	
4	Silica	300	MOD	820.9	807.2	
5	Poly	1000	BAG	422.6	1368	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 05A & B
Plant Central Carolina Hospital
Pollutant Indicator Spores

Date 9/24
Plant Location Incinerator Stack
Recorded by CBP
Checked by

QA Checklist
Impingers in correct order ☐✓
Pre-test leakcheck of pitots ☐✓
Filter loaded with rough side to the front ☐NA
Zero manometer ☐✓
Double Check K-Factor ☐✓
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	B	11:44	1344	120
HAD TO CHANGE METER BOXES IN	A	1344	1544	120
MID STREAM DUE TO A STICKY				
METER READING				

1181663R

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 05A
PAGE 1 OF 2

PLANT	ecn	PROBE LENGTH AND TYPE	17 "glass-lined	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	9/24	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	N-32	MOISTURE METHOD	ENTHALPHY	FIRST IMPINGER	
RUN NUMBER	05A	METER ▲ H@	1.92	MOISTURE DATA	PM/CVD	FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0002	O2/CO2 METHOD	CEMS	1145.15, 12.40	
AMBIENT TEMPERATURE	65	K FACTOR	14-30	O2 ~15		Spare Kore ↑	
BAROMETRIC PRESSURE	29.9	PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	.006 @ 8"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	~10 (6)		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1144	209.70								
B1	5	1149	211.9	.025	427	.62	63	64	72	55	2
B1	10	1154	213.4	.03	593	.61	65	64	70	54	2
B1	15	1159	215.9	.025 *	550	.53	66	65	66	57	2
B2	20	1204	218.3	.035	535	.77	66	65	65	52	2.5
B2	25	1209	220.8	.045	641	.87	69	67	68	53	2.5
B2	30	1214	223.3	.044	640	.88	69	66	66	57	2.8
B3	35	1219	226.5	.075	656	1.48	70	68	66	52	4
B3	40	1224	229.8	.075	648	1.48	74	69	68	52	4
B3	45	1229	233.1	.085	706	1.68	6474	68	68	52	4
B4	50	1234	236.76	.091	689	1.80	74	69	67	50	4.5
4	55	1239	240.3	.084	662	1.75	73	70	67	57	4.5
4	60	1244	243.75	.086	657	1.69	74	70	69	53	4.5
B4	65	1249	247.3	.102	725	1.82	77	70	70	53	4.5
4	70	1254	251	.098	730	1.82	76	71	71	55	4.5
4	75	1259	254.45	.094	707	1.78	78	72	71	53	4.5
B3	80	1304	257.9	.091	720	1.71	77	72	69	52	4.5
3	85	1309	261.3	.096	800	1.67	74	72	71	52	4.5
3	90	1314	264.75	.092	765	1.66	76	72	72	54	4.5
B2	95	1319	267.48	.055	737	1.02	77	73	72	54	

COMMENTS: * .025 1241 → Tmax = 920 Δp - 0.145

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 05A
PAGE 1 OF 2

PLANT	CC 1+	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	09/24	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	/
RUN NUMBER	05A	METER ▲ H@		MOISTURE DATA			
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
B2	100	1324	270.0	.045	796	.85	76	73	71	54	3
B2	105	1329	272.7	055	776	.97	76	73	68	50	3.4
B1	110	1334	274.9	.034	750	.60	79	74	64	50	2.8
B1	115	1339	277.1	.036	811	.63	76	74	60	49	2.8
B1	120	1344	279.289	.034	724	.64	78	75	62	50	2.8
			Leak ✓	0.005	@9"						

COMMENTS:

Revision: 5/90

pit
CPBA 7.0
B 7.0
CH 6.9
B 6.
2A 6.9
B 6.
3A 6.7
B 6.
C/A 6.8
4B
6.7

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 9/24/90
RUN NUMBER 05B
SAMPLING LOCATION Stack
SAMPLING TYPE Indicator Spare
SAMPLING BOX NUMBER Spare 3
CLEAN-UP PERSON asp
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0924 ~~Spa-Imp-05~~ B
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	PO4	300	MOD	2360.7 ~~2354.1~~	1229.8	
2	PO4	100	GS	686.9	683.7	
3	MT	MT	MOD	483.5	483.5	
4	Silica	300	MOD	202-300 778.1	766.3 Fresh	
5	PO4	100	BAE	186.1	1277.3 ~~1175.3~~	*

Revision 3/90

TOTAL WEIGHT GAIN (grams) ____

* Bag not valved off, lost some buffer. Refilled & re-weighed. Jack Johnson

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spo 05B
PAGE 1 OF 2

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE	4' quartz	DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-24-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	Spo 05B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TMcD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE	29.90	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK	0.005 @ 9" Hg		
INITIAL LEAKCHECK	0.006 @ 10"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

Spore load @ 1441

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1344	44.422								
A 1	5	1349	47.13	0.049	682	0.97	69	69	57	56	1
1	10	1354	50.12	0.057	720	1.11	73	72	59	53	1
1	15	1359	52.81	0.051	771	0.93	77	73	62	52	1
A 2	20	1404	55.75	0.068	788	1.24	82	75	62	52	1
2	25	1409	58.15	0.041	815	0.75	83	74	61	51	1
2	30	1414	60.63	0.043	798	0.78	82	76	62	54	1
A 3	35	1419	62.94	0.040	776	0.74	84	77	61	54	1
3	40	1424	65.60	0.053	791	0.96	86	78	63	54	1
3	45	1429	67.47	0.058	801	1.05	86	79	63	54	1
A 4	50	1434	69.31	0.057	797	1.04	86	80	64	55	1
4	55	1439	71.90	0.052	790	0.95	92	81	65	55	1
4	60	1444	74.49	0.042	715	0.83	89	82	61	52	1
A 4	65	1449	77.83	0.058	850	1.02	89	84	62	53	1
4	70	1454	80.03	0.056	770	1.06	92	85	62	52	1
4	75	1459	82.863	0.052	800	1.04	93	86	62	52	1
	*	1459	279.369	0.045	635	Changed meter boxes to #2 Y=					1.0002 ΔH@=1.92
A 3	80	1504	282.08	0.045	635	0.93	86	83	64	52	3
A 3	85	1509	284.82	0.057	753	1.08	85	83	61	50	3
3	90	1514	288.01	0.056	760	1.06	85	84	63	54	3

.1 cfm 10 sec 1458

COMMENTS:

* START -1 min meter box

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spa 05B
PAGE 2 OF 2

PLANT	CENTRAL CAROLINA Hospital	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	9-24-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	SPA 05B	METER ▲ H@		MOISTURE DATA			
OPERATOR	TM'D	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger	Silica Gel Impinger	
							Inlet (Tm out)	Outlet (Tm out)	Exit	Exit	
	90	1514	288.01								
A 2	95	1519	289.95	0.044	792	0.80	87	85	62	52	3
2	100	1524	292.37	0.041	769	0.78	88	88	63	52	3
2	105	1529	294.75	0.030	571	0.67	86	87	60	50	3
A 1	110	1534	297.05	0.041	800	0.75	86	85	61	51	3
1	115	1539	299.57	0.044	741	0.80	88	87	62	51	3
1	120/off	1544	301.992	0.043	783	0.78	90	88	62	51	3

COMMENTS:

Revision: 5/90

R2218

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT @ Enfield Carolina Hospital

DATE 9/24/90

RUN NUMBER 5A

SAMPLING LOCATION Stack

SAMPLING TYPE Indicator Sari

SAMPLING BOX NUMBER CRP → Spare 1

CLEAN-UP PERSON

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CC4-0924-Spo-Imp-5A

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	PO_4	300	MOD	2458.3	1191.0	
2	PO_4	100	GS	689.2	604.9	
3	MT	MT	MOD	~~672.5~~ 474.3	473.5	
4	Silica	300	MOD	307.0 used 685.4	575.3	
5	PO_4	1000	BAG	1072	1275.3	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 06A & B
Plant Central Carolina Hospital
Pollutant Indicator Spec

Date 09/25/80
Plant Location Incinerator
Recorded by CBP
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Filter loaded with rough side to the front ☐ N/A
Zero manometer ☑
Double Check K Factor ☑
Post-test leakcheck of pitots ☑

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	B	1008	1208	120
	A	1208	1408	120

11816638

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 06A
PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE	47" Quartz	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	09/25	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	1.32	MOISTURE METHOD	ENTRAIN	FIRST IMPINGER	
RUN NUMBER	06A	METER ▲ H@	1.72	MOISTURE DATA	PM/COND	FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0002	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	65	K FACTOR	24-30	O2 ~15			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Pa)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	003 @ 9"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1008	302.200								
B1	5	1013	304.8	.035	400	.89	63			48	27
1	10	1018	307.2	.037	540	.81	64	60	64	53	2.3
1	15	1023	309.62	.035	520	.79	66	64	64	53	2.3
B2	20	1028	312.6	.06	533	1.32	67	65	66	53	3
2	25	1033	315.6	.06	565	1.32	69	66	67	54	3
2	30	1038	318.7	.059	560	1.26	71	67	60	56	3
B3	35	1043	322.45	.12	765	2.13	72	68	72	58	5
3	40	1048	325.9	.088	660	1.72	75	70	72	61	4
3	45	1053	329.3	.092	666	1.81	74	70	75	61	4
B4	50	1058	333.24	.102	654	2.02	75	70	70	57	4.5
4	55	1103	337.1	.106	636	2.13	76	71	70	57	5
4	60	1108	341.0	.12	757	2.17	77	71	72	57	5
B4	65	1113	344.9	.11	678	2.13	80	73	73	57	5
4	70	1118	349.1	.111	690	2.13	78	72	71	58	5
4	75	1123	352.8	.13	843	2.22	77	73	72	57	5
B3	80	1128	356.7	.103	814	2.12	77	73	72	56	5
3	81	1133	360.4	.105	755	1.9	77	71	72	56	5
3	90	1138	364.0	.101	742	1.85	78	73	72	57	4.5
B2	95	1143	366.5	.065	782	1.15	81	75	74	58	3.3

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 06A
PAGE 2 OF 2

PLANT	CC4	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9/25	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	06A	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer	Silica Gel	
							Inlet (Tm out)	Outlet (Tm out)	Impinger Exit	Impinger Exit	
B2	100	1148	369.75	.066	744	1.21	82	76	71	58	3 3
B2	105	1153	372.65	.06	709	1.14	74	77	68	55	3.3
B1	110	1158	375.05	.04	734	0.74	77	75	64	57	2.8
B1	115	1203	377.41	.04	712	0.76	78	75	70	58	3
B1	120	1208	379.858	.038	695	.74	76	74	67	55	3
				L≤Ahr ~	@84	≥.003					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital

DATE 09/25/90

RUN NUMBER 06A

SAMPLING LOCATION STACK

SAMPLING TYPE INDICATOR Spore

SAMPLING BOX NUMBER spore 1

CLEAN-UP PERSON CRP

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CCH-0925-SPO-IMP-06A

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	H2O	300	MOD	2129.6	1193.6	
2	H2O	100	GS	703.7	692.5	
3	MT	MT	MOD	472.9	470.8	
4	Silica	300	MOD	60% used 899.6	885.4	
5	H2O	1000	BIAS	460.0	1292.2	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 6.6B

PAGE 1 OF 2

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE	4' quartz	DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-25-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	900 06B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TmD	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	80°F	K FACTOR		O2			
BAROMETRIC PRESSURE	30.11	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Pa)	-0.15	HEATER BOX SETTING		FINAL LEAKCHECK	.0036	9" 1/3	
INITIAL LEAKCHECK	.004@12"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1208	81.002								
A1	5	1213	83.89	0.055	745	1.0	74	74	58	54	1
1	10	1218	86.8	063	735	1.14	78	75	58	57	1
1	15	1223	89.5	.052	163	.96	83	76	52	60	1
2	20	28	92.2	.055	163	1.0	87	76	53	60	1
2	25	33	95.0	.055	163	1.0	94	75	55	61	1
2	30	38	97.8	.057	800	1.0	97	80	56	62	1
3	35	43	101.3	.09	811	1.6	95	82	55	61	1
3	40	48	104.8	.1	831	1.7	102	84	53	64	1
3	45	53	108.3	.092	852	1.6	107	87	54	66	1
4	50	58	112.1	.11	851	1.9	104	87	54	65	3
4	55	1303	115.7	.093	800	1.7	107	87	53	61	2
4	60	08	119.4	.093	793	1.7	110	89	53	63	2
4	65	13	123.1	.1	809	1.8	110	90	53	64	2
4	70	18	126.7	.095	800	1.7	110	91	53	64	2
4	75	23	130.4	.103	430	1.7	111	92	53	66	2
3	80	28	134.0	.095	854	1.7	111	95	53	63	2
3	85	33	137.5	.1085	820	1.5	110	94	54	65	21
3	90	38	141.1	.09	853	1.6	112	95	53	66	1
2	95	43	144.3	.07	801	1.3	113	95	54	66	1

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 3C-3
PAGE 2 OF 2

PLANT	[illegible]	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	01/23/90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER		METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	PBC	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE	30.11	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	-0.15	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
A 2	100	1348	142.3	.06	765	1.1	112	96	58	66	1
2	105	53	150.1	.055	815	1.0	106	95	57	64	1
A 1	110	58	152.7	.045	760	0.85	101	94	55	64	1
1	115	1403	155.29	.039	612	0.80	102	94	57	64	1
1	120/off	1408	157.891	.049	787	0.93	103	94	57	64	1

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Centralia Cogeneration Project

DATE 09/25/90

RUN NUMBER 6 06B

SAMPLING LOCATION Stack

SAMPLING TYPE Indicator Spore

SAMPLING BOX NUMBER Spore 3

CLEAN-UP PERSON CAP

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CC4-0925-SPO-IMS-06B

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	H2O	300	MOD	2155.8	1191.1	
2	H2O	100	GS	714.5	706.5 ~~666.9~~	
3	Mt	dry	MOD	483.3	482.1	
4	Silica	300	MOD	707.1 790.1	778.1	
5	H2O	100	BAG	471.6	341.8	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 07A : B
Plant Central Carolina Hospital
Pollutant Indicator Spores

Date 9/26/10
Plant Location CCH - Incin. Stack
Recorded by CRP
Checked by

QA Checklist
Impingers in correct order ☐ ✓
Pre-test leakcheck of pitots ☐
Double Check K-Factor ☐
Filter loaded with rough side to the front ☐ NA
Zero manometer ☑ ✓
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	B	0958	1158	120
	A	1158	1358	120

11981663R

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 07A
PAGE 1 OF _____

PLANT	CCH	PROBE LENGTH AND TYPE	47" pitot	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	09/26	NOZZLE I.D. (in)	.482	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N-32	MOISTURE METHOD	ENTRAIN	FIRST IMPINGER	
RUN NUMBER	07A	METER ▲ H@	1.92	MOISTURE DATA	PM/CDD	FINAL BUFFER pH	
OPERATOR	CRP	Yd	1.0002	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	70	K FACTOR	20-30	O2	~15		
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING	NA	CO2	3		
STATIC PRESSURE (Pe)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	.0030 @ 6"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	10 (424)		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	0958	396.625								
B1	5	1003	399.3	.035	458	.81	70	70	72	63	2
1	10	1008	401.83	.054	912	.87	71	70	65	57	2.5
1	15	1013	404.25	.045	802	.78	72	71	65	57	2.3
B2	20	1018	407.0	.055	756	.99	73	71	67	58	2.3
2	25	1023	409.9	.07	950	1.1	75	72	68	58	3
2	30	1028	412.60	.056	792	.98	75	73	68	60	3
B3	35	1033	416.0	.097	761	1.68	76	73	66	58	4
3	40	1038	419.8	.126	1063	1.82	78	74	67	57	4
3	45	1043	423.2	.112	908	1.82	79	75	69	57	4.4
B4	50	1048	427	.105	782	1.88	79	75	69	57	4.5
4	55	1053	430.5	* .130	1062	1.90	79	75	70	56	5
4	60	1058	434.2	.105	868	1.76	79	76	72	57	5.5
B4	65	1103	437.6	.103	771	1.77	79	77	72	57	6
4	70	1108	441.5	.134	1100	1.91	80	76	73	57	8
4	75	1113	444.9	.126	1097	1.90	81	77	78	59	9
B 3	80	1118	448.2	.11	1030	* 1.65	82	77	77	58	9
3	85	1123	451.8	.135	1174	1.85	83	78	75	60	9
3	90	1128	455.4	.124	1091	1.78	83	79	73	58	10
B2	95	1133	457.88	.025	715	.36	78	80	66	59	7

COMMENTS: * .13

** High Temps

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 07A
PAGE 2 OF 2

PLANT	CCA	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	09/26	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	07A	METER ▲ H@		MOISTURE DATA			
OPERATOR	CAP	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
B2	100	1138	460.03	.053	732	.99	79	74	65	58	10
B2	105	1143	462.7	.05	704	.95	80	74	64	55	10
B1	110	1148	465.11	.035	620	.73	81	77	64	56	10
1	115	1153	467.6	.044	724	.83	80	77	64	54	11
1	120	1158	470.083	.04	689	.78	81	74	64	57	11
			LEAK ✓	@13"	=.019						

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

plts

5A 6.7
B 6.7
6A 6.8
B 6.7

PLANT Central Cambria Hospital
DATE 09/26
RUN NUMBER 07A
SAMPLING LOCATION STACK
SAMPLING TYPE INDICATOR SPUR
SAMPLING BOX NUMBER Spare 1
CLEAN-UP PERSON CRP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0926-spu-Fwp-07A
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	H_2O	300	MOD	2375.1	1167.2	
2	H_2O	100	GS	690.9	680.9	
3	MT	MT	MOD	472.2	459.2	
4	Silica	300	MOD	707. 911.7	607.3gl 599.6	
5	H_2O	1000	BAG	1355.5	1213.6	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN C7B
PAGE 1 OF 2

PLANT	CCIT	PROBE LENGTH AND TYPE	47" Quartz	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	09/26	NOZZLE I.D. (in)	.466	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	9	MOISTURE METHOD	ENTRAIN	FIRST IMPINGER	
RUN NUMBER	07B	METER ▲ H@	1.83	MOISTURE DATA	FM/CDD	FINAL BUFFER pH	
OPERATOR	CRD	Yd	1.007	O2/CO2 METHOD	Orsa		
AMBIENT TEMPERATURE	75	K FACTOR	15-30	O2 ~15			
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	.008@12"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	10		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1158	160.323								
A1	5	1203	162.8	.035	578	.75	79	76	7968	67	0
1	10	1208	165.65	.05	650	1.04	82	77	60	60	0
	15	1213	168.0	.035	610	.69	77	86	60	58	0
A2	20	1218	170.56	.042	642	.84	88	77	60	59	1
2	25	1223	173.2	.055	796	.98	82	79	61	59	1
2	30	1228	176.1	.05	705	.96	95	81	62	60	1
A3	35	1233	179.2	.06	722	1.15	95	82	63	59	2
3	40	1238	182.1	.06	761	1.11	97	86	63	59	1
3	45	1243	184.9	.06	737	1.12	99	91	63	60	1
A4	50	1248	187.9	.06	705	1.12	100	92	65	60	1
4	55	1253	191.3	.079	823	1.47	100	94	64	60	1
4	60	1258	193.9	.052	717	0.97	102	92	65	62	1
4	65	1303	196.8	.048	672	0.98	101	92	66	62	1
4	70	08	199.9	.06	810	1.1	102	93	65	63	1
4	75	13	202.8	.058	717	1.1	106	95	64	63	1
3	80	18	205.8	.06	701	1.2	108	96	61	61	1
3	85	23	209.0	.072	806	1.3	107	95	59	58	2
3	90	28	212.2	.068	758	1.3	110	98	62	61	2
2	95	33	214.7	.104	690	.80	108	98	61	58	1

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 07B
PAGE 2 OF 2

PLANT	CC Hoof	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9-26-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	07B	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	[illegible]	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Pe)	-0.15	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
A2	100	1338	217.2	.044	798	.80	107	98	63	61	2
2	105	43	219.9	.05	715	.98	104	98	63	61	4
1	110	48	222.4	.038	687	.76	104	98	64	63	2
1	115	53	225.0	.048	790	.89	100	97	64	64	5
1	120	58	227.47	.035	700	.70	104	98	64	65	4
		Leak ✓	0.006	@ 9"							

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Cardinal
DATE 09/26/90
RUN NUMBER 07B
SAMPLING LOCATION Stack
SAMPLING TYPE INDICATOR Spare
SAMPLING BOX NUMBER Spare 3
CLEAN-UP PERSON CRP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCII - 0926 - SPU - FMP - 7B
XAD TRAP NUMBER N/A

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	PO_4	300	MOD	2484.2	1280.2	
2	PO_4	100	O.S.	697.8	693.6	
3	MT	MT	MOD	491.4	480.6	
4	Silica	300	MOD	207.2 wet 205.7	fresh 783.6	
5	PO_4	1000	BAG	107.6	1246.3	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run 8A

Date 09/27/90

Plant Location Indian Stack

Recorded by CRF

Checked by

QA Checklist

Pre-test leakcheck of pitots ☑

Zero manometer ☑

Filters in correct order ☑

Filter loaded with rough side to the front ☑ N/A

Sampling Location (Port)	Clock Time Began	Clock Time Ended	Post-test leakcheck of pitots ☑ Elapsed Time (min)	Comments
B	1343	1544	120	Had to replace grunts wool (took 1 minute) @ 1439
A	1544	1756	120	Replaced grunts wool (took 1 minute) & H.O. impinger closed at G.S. tip — had to remove and clean blockage (took 11 minutes)

Double Check K Factor TT

RADIAN

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 08A

PAGE 1 OF _____

PLANT	CCH	PROBE LENGTH AND TYPE	6ft "quartz	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	04/27	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	13	INITIAL BUFFER pH	
SAMPLING LOCATION	08A	METER BOX NUMBER	N-32	MOISTURE METHOD	ENTRAIN	FIRST IMPINGER	
RUN NUMBER	stack	METER ▲ H@	1.92	MOISTURE DATA	Fm / CDS	FINAL BUFFER pH	
OPERATOR	CAP	Yd	1.0002	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	80	K FACTOR	14-30	O2 ~15			
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Pa)		HEATER BOX SETTING	NA	FINAL LEAKCHECK	0.004@	15"	
INITIAL LEAKCHECK	.003@ 10"	HEIGHT OF LOCATION (ft)	251	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1343	476.702								
B1	5	1348	479.43	.04	465	.97	87	87	78	59	2.1
B1	10	1353	481.8	.045	933	.73	87	86	68	55	2
B1	15	1358	484.17	.04	778	.73	88	88	64	53	2
B2	20	1403	486.73	.046	748	.85	87	87	69	54	2.2
B2	25	1408	489.4	.069	1150	.92	91	90	73	57	3
B2	30	1413	492.2	.059	915	.97	91	90	73	58	3.2
B3	35	1418	495.2	.088	791	1.60	92	90	73	56	4.4
3	40	1423	498.77	.11	970	1.75	94	91	73	52	7
3	45	1428	502	.089	906	1.5	96	93	75	59	4
B4	50	1433	505.4	.066	606	1.41	97	93	73	56	8.5
4	55	1438	508.858	.115	1075	1.69	98	93	73	51	11.5
A4	55	START 1439	" " "	STOP	TO REPLACE		GLASS	WOOL			
B4	60	1444	512.4	.105	943	1.71	98	94	78	58	3
B4	65	1449	515.7	.069	628	1.45	101	96	74	57	3
4	70	1454	519.1	.08	713	1.55	103	96	73	56	3
4	75	1459	522.4	.073	660	1.49	105	98	73	56	3
B3	80	1504	525.4	.059	624	1.24	106	100	74	58	3
3	85	1509	528.18	.072	819	1.51	107	103	75	60	3
3	90	1514	531.8	.061	674	1.28	109	105	73	60	3

COMMENTS:

Revision: 5/90

547.6
547.605

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spike 5A
PAGE 2 OF 2

PLANT	CC14	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	9-27-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	Spike A	METER ▲ H@		MOISTURE DATA			
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
	90	1514	531.8								
B2	95	1519	535.2	0.065	684	1.37	109	106	71	60	3
2	100	1524	537.7	.036	687	.74	104	107	66	60	3
2	105	1529	540.3	.04	662	.84	109	108	67	58	3
B1	110	1534	542.6	.03	609	.66	110	110	67	58	3
1	115	1539	545.3	.044	773	.91	110	107	67	57	4
1	120	1544	547.605	.029	655	.65	116	112	67	57	4

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT AmI Central Carolina Hog
DATE 09/27/90
RUN NUMBER 08A
SAMPLING LOCATION Stack
SAMPLING TYPE INDICATOR SAM
SAMPLING BOX NUMBER Spare 1
CLEAN-UP PERSON CRP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0927-SM-Imp-08A
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Dry	~300	MOD	2411.8 ~~2411.7~~	1150.6	
2	Dry	~100	GS	761.8	685.0	
3	MT	MT	MOD	470.3	467.1	
4	Silica	~300	MOD	207 used 900.6	fresh 685.5	
5	Dry	~1000	BAG	1074 ~~1256.8~~	1348.4	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spo 08B
PAGE 1 OF _____

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS	18	FIRST IMPINGER	
DATE	9-27-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	~~17~~ 9	INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	Spo 08B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	MS	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	85°F	K FACTOR		O2			
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	-0.1	HEATER BOX SETTING		FINAL LEAKCHECK	0.010@	18" Hg	
INITIAL LEAKCHECK	0.005@2"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft (227.729)	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1544	~~227.729~~ 229.729	0.031							
A 1	5	1549	229.96	0.015	596	0.735	91	92	73	69	1
1	10	1554	233.10	0.051	740	1.17	92	91	65	54	1
1	15	1559	235.87	0.044	669	0.99	99	93	66	57	1
A 2	20	1604	238.64	0.046	671	1.03	100	91	63	55	1
2	25	1609	241.62	0.058	793	1.16	107	96	67	58	1
2	30	1614	244.83	0.054	664	1.21	104	93	60	52	1
A 3	35	1619	247.74	0.055	710	1.18	104	98	64	57	1
3	40	1624	251.22	0.076	831	1.46	111	103	69	62	1
3	45	1629	254.46	0.058	683	1.25	114	101	67	59	2
A 4	50	1634	257.88	0.070	703	1.60	118	103	68	62	2
4	55	1639	261.21	0.068	823	1.36	118	102	62	58	3
4	60	1644	264.46	0.061	703	1.31	121	106	65	61	3
A 4	65	1649	267.78	0.054	654	1.21	120	105	67	61	3
4	70	1654	270.81	0.061	726	1.27	121	107	66	63	3
4	75	1659	273.97	0.056	659	1.26	122	108	68	63	5
A 3	80	*1704/1705	277.37	0.064	706	1.37	128	110	69	65	7
3	85	1710	279.93	0.070	784	1.40	117	107	66	65	3
3	90	1715	282.82	0.066	737	1.37	118	108	69	66	4

* Changed glass wool

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN Spo 08B
PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9-27-90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	Spo 08B	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TMCD	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE	29.78	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	~~29.7~~	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.008@14"	HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

*1

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer	Silica Gel	
							Inlet (Tm out)	Outlet (Tm out)	Impinger Exit	Impinger Exit	
	90	1715	282.82								
* A2	95	1720/1721	285.31	0.065	703	1.40	115	105	68	65	12
~~2~~	~~100~~		285.871	~~0.069~~	~~830~~	1.32	,				
~~2~~	1	1731	~~287.484~~	~~0.044~~	~~540~~	1.21					
2	100	1736	290.02	0.049	540	1.21	107	103	~~72~~	65	2
2	105	1741	292.62	0.050	880	0.92	113	101	68	64	3
A 1	110	1746	294.85	0.030	728	0.62	119	103	66	63	4
1	115	1751	297.07	0.027	592	0.63	118	104	65	61	12
1	120/off	1756	299.162	0.029	692	0.62	118	106	67	64	14
						0.57 actual					

* couldn't make rate, changed quality w00/+ that didn't do it so we pulled main out of stack & started trouble shooting impinger found problem (clogged 5+9 tips in 3rd imp) leaked checked & continued testing

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 09/27/90
RUN NUMBER 8B
SAMPLING LOCATION Stack
SAMPLING TYPE Indicator Spore
SAMPLING BOX NUMBER Spore 3
CLEAN-UP PERSON CKP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0927-SPO-EMP-08B
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	MOD	2355.1	1256.4	
2	Poly	200	GS	718.3	711.8	
3	MT	MT	MOD	479.7	462.2	
4	Silica	300	MOD	50% 809.4	20% used 795.7	
5	Poly	1000	BAG	108.5	1320.4	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 09A & B
Plant Central Carolina Hospital
Pollutant Indicator Spores

Date 09/28/90
Plant Location Incin. Stack
Recorded by CAP
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Double Check K Factor ☑
Filter loaded with rough side to the front ☐ N/A
Zero manometer ☑
Post-test leakcheck of pitots ☑

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	B	1058	1258	120
	A	1258	1458	120

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MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 09A
PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE	47" pitot	DUCT DIMENSIONS	18" ID	FIRST IMPINGER	
DATE	09/28	NOZZLE I.D. (in)	.482	ASSUMED MOISTURE (%)	9%	INITIAL BUFFER pH	
SAMPLING LOCATION	stack	METER BOX NUMBER	N-32	MOISTURE METHOD	EXPRAIN	FIRST IMPINGER	
RUN NUMBER	09A	METER ▲ H@	1.92	MOISTURE DATA	pm/cos	FINAL BUFFER pH	
OPERATOR	CAP	Yd	1.0002	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	78	K FACTOR	15-30	O2 15			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	NA	CO2 3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK	0.006@	9"	
INITIAL LEAKCHECK	.003 @ 10"	HEIGHT OF LOCATION (ft)	251	BUFFER SOLN RATE (ml/min)	10		

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1058	547.757								
B1	5	1103	550.4	.035	450	.93	78	77	73	63	2.1
1	10	1108	552.9	.039	721	.79	78	78	74	61	2
1	15	1113	555.2	.032	600	.72	79	79	78	57	2
B2	20	1118	557.7	.036	550	.84	80	80	81	58	2
2	25	1123	560.3	.042	660	.96	81	80	80	59	2
2	30	1128	563	.042	617	.94	81	80	79	58	2.2
B3	35	1133	566.2	.074	625	1.66	84	81	76	58	3.5
3	40	1138	570	.101	822	1.90	85	81	77	56	3.8
3	45	1143	573.6	.091	750	1.81	88	83	78	57	4
B4	50	1148	577.3	.09	730	1.85	90	84	78	59	4
4	55	1153	581.1	.109	798	2.12	91	85	80	59	4
4	60	1158	585.0	.109	796	2.12	93	86	78	55	4
B4	65	1203	588.7	.106	774	2.1	92	86	79	53	4
4	70	1208	592.75	.109	800	2.08	93	88	80	55	4
4	75	1213	596.65	.11	781	2.1	93	88	79	54	4
B3	80	1218	600.5	.10	763	2.1	93	89	80	55	4
3	85	1223	604.2	.10	837	~~2.0~~ 1.89	95	89	79	52	4
3	90	1228	607.8	.095	816	1.83	92	87	79	56	4
B2	95	1233	610.6	.055	782	1.07	91	90	81	59	3

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 09A
PAGE 1 OF 2

PLANT	CCF	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	09/28	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	09A	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
B2	100	1238	~~613.4~~	0.05	773	.97	93	90	79	60	3
2	105	1243	616.2	0.058	772	1.07	94	91	75	55	3
B1	110	1248	618.65	.04	735	.79	95	91	73	54	2.8
1	115	1253	621.1	.04	770	.78	94	91	72	53	2.8
1	120	1258	623.468	.037	760	.72	94	92	72	54	2.8
		leak	006 @	9"							

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

pH's

7A 6.6
7B 6.7
8A 6.5
8B 6.5

9A 6.9
9B 6.9

PLANT Central Carolina Hospital
DATE 09/28/90
RUN NUMBER 08A 09A
SAMPLING LOCATION Incin. stack
SAMPLING TYPE Indicator spec
SAMPLING BOX NUMBER Spec 1
CLEAN-UP PERSON CRP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0128-spc-Imp-09A
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	mod	2417.?	1423.7	
2	Poly	100	GS	730.3	698.2	
3	MT	MT	Mod	482.1	469.0	
4	Silica	300	Mod	407 used 913.6	294 used 894.7	
5	Poly	1000	Bub	224.7	1420.1	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 09B

PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS	18"	FIRST IMPINGER	
DATE	9-28-90	NOZZLE I.D. (in)	0.466	ASSUMED MOISTURE (%)	9%	INITIAL BUFFER pH	
SAMPLING LOCATION	stack	METER BOX NUMBER	9	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	09B	METER ▲ H@	1.83	MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	TMED	Yd	1.0070	O2/CO2 METHOD			
AMBIENT TEMPERATURE	85°F	K FACTOR		O2			
BAROMETRIC PRESSURE	30.0	PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)	-0.1	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.008 @ 7"	HEIGHT OF LOCATION (ft)	251	BUFFER SOLN RATE (ml/min)			

spore charge @ 1300

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger	Silica Gel Impinger	
							Inlet (Tm out)	Outlet (Tm out)	Exit	Exit	
	0	1258	317.576								
A 1	5	1303	319.69	0.024	679	0.59	93	94	72	69	1
1	10	1308	322.73	0.056	775	1.16	96	94	69	68	1
1	15	1313	325.31	0.041	737	0.85	100	94	67	61	1
A 2	20	1318	328.35	0.060	795	1.20	103	94	68	61	1
2	25	1323	331.18	0.054	842	1.04	107	96	69	61	1
2	30	1328	334.35	0.064	809	1.25	108	96	69	61	1
A 3	35	1333	337.87	0.079	820	1.54	105	95	67	57	1
3	40	1338	341.26	0.075	821	1.50	105	94	67	57	1
3	45	1343	344.73	0.075	815	1.56	106	93	67	56	1
A 4	50	1348	347.87	0.051	610	1.20	109	95	67	57	1
4	55	1353	351.19	0.061	691	1.31	111	96	69	59	1
4	60	1358	354.60	0.075	801	1.50	111	97	70	59	1
A 4	65	1403	357.79	0.057	698	1.22	114	98	70	60	1
4	70	1408	360.97	0.059	716	1.27	114	99	70	61	1
4	75	1413	364.	0.090	923	1.66	114	99	71	61	1
A 3	80	1418	368.5	0.076	838	1.44	117	102	71	61	1
3	85	1423	371.6	.054	655	1.19	118	102	67	56	1
3	90	1428	375.2	.085	833	1.62	119	104	67	56	1
A 2	95	1433	377.8	.04	641	.89	118	103	66	57	1

COMMENTS:

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 09B
PAGE 1 OF 2

PLANT	CCIT	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	9/28/90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	Stack	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	09B	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
A2	100	1438	380.8	.06	681	1.1	117	104	68	58	1
A2	105	1443	383.9	.06	788	1.18	116	104	66	58	1
A1	110	1448	386.6	.044	728	.91	114	103	65	58	1
1	115	1453	389.3	.044	675	.94	112	101	64	59	1
1	120	1458	392.329	.059	776	1.17	112	101	66	61	1
			@5" =	.008							

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 09/28/96
RUN NUMBER 09B 09B
SAMPLING LOCATION Stack
SAMPLING TYPE Incinerator Spike
SAMPLING BOX NUMBER Spike 3
CLEAN-UP PERSON CBP
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-0928-SPK-IMP-09B
XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams) FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	MOD	2575.3	1306.0	
2	Poly	100	GS	756.4	699.1	
3	MT	MT	MOD	479.8	480.4	
4	Silica	300	MOD	603.0 wet 821	509.0 wet 809.8	
5	Poly	1000	BAG	1064.1	1348.6	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 10A & B
Plant Carolina Hospital
Pollutant Indicator Spores

Date 10/2/90
Plant Location ~~Incinerator~~ Incinerator Stack
Recorded by CRP
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☑
Zero manometer ☑
Filter loaded with rough side to the front ☐ NA
Double Check K-Factor ☐
Post-test leakcheck of pitots ☑

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
	B	1013	1213	120
	A	1213	1413	120

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MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 10A
PAGE 2 OF 2

PLANT	QCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER INITIAL BUFFER pH	
DATE	10/2	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)			
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER FINAL BUFFER pH	
RUN NUMBER	10A	METER ▲ H@		MOISTURE DATA			
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Ps)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger	Silica Gel Impinger	
							Inlet (Tm out)	Outlet (Tm out)	Exit	Exit	
B2	100	1153	690.25	0.064	840	1.17	89	84	78	59	3
B2	105	1158	693.3	066	800	1.25	90	85	79	69	3
B1	110	1203	695.85	.042	745	.83	91	85	76	55	3
1	115	1208	698.4	.046	882	.82	90	86	77	57	3
1	120	1213	700.899	.043	796	.82	91	87	77	56	3
			LEAK @	@ 7" =	.014						

COMMENTS:

Revision: 5/90

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 10A
PAGE 1 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE	47" quartz	DUCT DIMENSIONS	174" ID	FIRST IMPINGER	
DATE	10/2/90	NOZZLE I.D. (in)	.462	ASSUMED MOISTURE (%)	10	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N-32	MOISTURE METHOD	ENRAN	FIRST IMPINGER	
RUN NUMBER	10A	METER ▲ H@	1.92	MOISTURE DATA	PM(COD)	FINAL BUFFER pH	
OPERATOR	CAP	Yd	1.0002	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	75	K FACTOR	15-30	O2	~15		
BAROMETRIC PRESSURE		PROBE HEATER SETTING	NA	CO2	~3		
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	0.0207	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1013	623.700								
B1	5	1018	626.0	.028	444	0.72	71	70	86	77	2
1	10	1023	628.3	.035	663	.73	72	71	72	64	2
1	15	1028	630.65	.031	534	.73	73	71	74	55	2
B2	20	1033	633.4	.042	536	.98	73	75	74	52	2.7
2	25	1038	636.15	.051	639	1.08	78	74	76	53	2.7
2	30	1043	639	.048	597	1.05	77	74	76	54	2.7
B3	35	1048	642.6	.087	1.91 ⇆ 616		80	76	76	56	4
3	40	1053	646.2	.091	673	1.87	82	76	77	57	4
3	45	1058	~649.7	.093	663	1.94	83	77	79	58	4
B4	50	1103	653.85	.101	660	2.13	84	78	78	57	4
4	55	1108	657.85	.111	728	2.21	85	77	78	58	4.5
4	60	1113	661.8	.106	700	2.17	84	80	79	57	4.5
B4	65	1118	665.6	.102	688	2.08	86	80	80	59	4.5
4	70	1123	669.6	.12	846	2.18	86	81	76	55	4.5
4	75	1128	673.5	.102	719	2.06	89	82	77	55	4.5
B5	80	1133	677.15	.091	704	1.86	88	82	75	55	4
5	85	1138	680.85	.096	746	1.91	86	82	75	55	4
5	90	1143	684.5	.093	722	1.87	87	82	76	56	4
B2	95	1148	687.3	.055	697	1.13	87	83	76	58	3

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital

DATE 10-1-90

RUN NUMBER Spo 10 A

SAMPLING LOCATION Stack

SAMPLING TYPE Indicator Spore

SAMPLING BOX NUMBER 1

CLEAN-UP PERSON

SOLVENT RINSES

SAMPLE IDENTIFICATION CODE

XAD TRAP NUMBER

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1st	buffer	300 m/s	S+G	2416.2	1075.3	
2ND	"	200 m/s	Mod. S+G	667.9	657.2	
3RD	MT	MT	S+G	469.7	467.5	
4th	Silica Gel	~700 gms	S+G	~20% used 925.2	910.9	
Buffer Bag	buffer	1100 m/s	N/A	608.9	1338.0	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 10B
PAGE 1 OF 2

4/15-

PLANT	CCL	PROBE LENGTH AND TYPE	47" quartz	DUCT DIMENSIONS	18" ED	FIRST IMPINGER	
DATE	10/2/90	NOZZLE I.D. (in)	.466	ASSUMED MOISTURE (%)	10	INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	#9	MOISTURE METHOD	SMTRAIN	FIRST IMPINGER	
RUN NUMBER	10B	METER ▲ H@	1.83	MOISTURE DATA	PM/CDD	FINAL BUFFER pH	
OPERATOR	CAP/TM	Yd	1.007	O2/CO2 METHOD	CEMS		
AMBIENT TEMPERATURE	~75	K FACTOR	20-30	O2 ~15			
BAROMETRIC PRESSURE		PROBE HEATER SETTING	NA	CO2 ~3			
STATIC PRESSURE (Ps)		HEATER BOX SETTING	NA	FINAL LEAKCHECK			
INITIAL LEAKCHECK	.004 @ 10"	HEIGHT OF LOCATION (ft)	25'	BUFFER SOLN RATE (ml/min)	~10		

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	1st Buffer Impinger Exit	Silica Gel Impinger Exit	Pump Vacuum (in. Hg)
	0	1213	420.091								
A1	5	1218	422.76	.045	640	.86	103	96	67	61	0
1	10	1223	425.8	.057	697	1.19	107	97	67	59	6
1	15	1228	428.7	.05	734	1.02	112	98	68	58	0
A2	20	1233	431.8	.057	644	1.20	112	98	68	59	0
2	25	1238	434.9	.065	655	1.21	112	99	68	61	0
2	30	1243	~438	.058	765	1.10	110	98	66	56	0
A3	35	1248	441.0	.085	746	1.72	113	99	63	54	1
3	40	1253	445.07	.086	900	1.55	113	99	65	55	1
3	45	1258	448.89	0.104	863	1.59	114	101	67	56	1
A4	50	1303	452.26	0.060	663	1.34	117	101	67	56	1
4	55	1308	455.67	0.062	680	1.33	113	102	66	57	1
4	60	1313	459.02	0.062	699	1.44	119	103	66	55	1
A4	65	1318	462.54	0.075	725	1.56	117	103	62	55	1
4	70	1323	466.13	0.092	923	1.66	118	104	64	56	1
4	75	1328	469.87	0.094	873	1.74	119	104	62	56	1
A3	80	1333	473.25	0.059	685	1.27	122	105	67	56	1
3	85	1338	476.9	0.088	878	1.63	119	105	68	57	1
3	90	1343	480.7	085	760	1.79	123	106	68	56	1
A2	95	1348	483.8	055	643	1.24	119	105	66	58	1

COMMENTS:

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN 10B
PAGE 2 OF 2

PLANT	CCH	PROBE LENGTH AND TYPE		DUCT DIMENSIONS		FIRST IMPINGER	
DATE	10/2/90	NOZZLE I.D. (in)		ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER		MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	10B	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR		Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE		K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Pa)		HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK		HEIGHT OF LOCATION (ft)		BUFFER SOLN RATE (ml/min)			

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer	Silica Gel	
							Inlet (Tm out)	Outlet (Tm out)	Impinger Exit	Impinger Exit	
A2	100	1353	487.0	.054	629	1.23	118	106	67	59	1
A2	105	1358	490.3	.058	628	1.24	120	108	68	60	1
A1	110	1403	492.95	.039	640	0.88	118	106	68	60	1
1	115	1408	495.8	.055	860	1.03	112	104	68	60	1
1	120	1413	498.548	.04	641	0.90	112	105	68	60	1
		LEAK @ 34 = .008									

COMMENTS:

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

pH's
10A 6.9
10B 6.9
FB A ~~6.9~~ 7
FB B 7.0

PLANT Central Carolina Hospital
DATE 10-1-90
RUN NUMBER SPO 10 B
SAMPLING LOCATION Stack
SAMPLING TYPE Indicator Spore
SAMPLING BOX NUMBER ~~#~~ Spore 3
CLEAN-UP PERSON
SOLVENT RINSES
SAMPLE IDENTIFICATION CODE
XAD TRAP NUMBER

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1st	Buffer ~~300 ml's~~	300 ml's	S+G	2372.5	1142.3	
2nd	Buffer ~~200 ml's~~	200 ml's	Mod. S+G	623.5	615.9	
3rd	mT	mT	MOD. S+G	8[illegible]8[illegible].1	480.4	
4th	Silica Jel	~ ~~200~~ 500 gm	S+G	1570 764.5	fresh 748.0	
Buffer Bag	Buffer	1100 ml's	n/a	239.7	140.6	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MICROORGANISM EMISSIONS TESTING
FIELD DATA

RUN FB
PAGE 1 OF 1

FIELD BLANK

PLANT	LMH	PROBE LENGTH AND TYPE	4'9" glass	DUCT DIMENSIONS	N/A	FIRST IMPINGER	
DATE	6/6/90	NOZZLE I.D. (in)	.375	ASSUMED MOISTURE (%)		INITIAL BUFFER pH	
SAMPLING LOCATION	STACK	METER BOX NUMBER	N/A	MOISTURE METHOD		FIRST IMPINGER	
RUN NUMBER	FB	METER ▲ H@		MOISTURE DATA		FINAL BUFFER pH	
OPERATOR	CRP	Yd		O2/CO2 METHOD			
AMBIENT TEMPERATURE	75	K FACTOR		O2			
BAROMETRIC PRESSURE		PROBE HEATER SETTING		CO2			
STATIC PRESSURE (Pe)	N/A	HEATER BOX SETTING		FINAL LEAKCHECK			
INITIAL LEAKCHECK	N/A	HEIGHT OF LOCATION (ft)	35'	BUFFER SOLN RATE (ml/min)			

pump setting @ 90

READ AND RECORD ALL DATA EVERY ____ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲ Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Temperature (deg. F)				Pump Vacuum (in. Hg)
							Dry Gas Meter		1st Buffer Impinger Exit	Silica Gel Impinger Exit	
							Inlet (Tm out)	Outlet (Tm out)			
		0926									
				FIELD		BLANK — SET UP					
				COMPLETE		TRAIN, INJECTED BUFFER,					
				FOR ___		MINUTES					

COMMENTS:

Revision: 5/90

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Carolina Hospital
DATE 10/1/90
RUN NUMBER FB-A
SAMPLING LOCATION ~~Spack~~
SAMPLING TYPE Indicator Spud
SAMPLING BOX NUMBER ~~Spud~~ 1
CLEAN-UP PERSON TM
SOLVENT RINSES NA
SAMPLE IDENTIFICATION CODE CCH-101-SP0-1MP FB-A
XAD TRAP NUMBER ~~NA~~

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Poly	300	MOD	1760.0	1155.0	605.0
2	Poly	100	G.S.	680.4	680.1	
3	MT	MT	MOD	470.9	471.3	
4	Silica	300	MOD	911.0	50% 913.6	
5	Poly	1000	BAD	656.3 ~~1255~~	1261.3	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MOISTURE RECOVERY FORM FOR METHODS 4, 5, 6

PLANT Central Cumberland Hospital

DATE 10/1/90

RUN NUMBER FB - B

SAMPLING LOCATION Stack

SAMPLING TYPE Indicator Spare

SAMPLING BOX NUMBER Spare 3

CLEAN-UP PERSON TM

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CCH-101-SPO-IMP-FB-B

XAD TRAP NUMBER NA

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	Pur	300	MOD	1822.4	1264.1	558.3
2	Pur	100	GS	701.9	702.4	
3	MT	MT	MOD	481.7	481.1	
4	Silica	300	MOD	748.1	748.1	0
5	Pur	100	BAG	680.4 ~~608.4~~	1238.6	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MOISTURE RECOVERY FORM FOR METHODS ~~4, 5, 6~~ 9

PLANT: Central Carolina Hosp
DATE: 9/20/90
RUN NUMBER: Lab Prep Blank A
SAMPLING LOCATION: N/A
SAMPLING TYPE: Indicator Spore
SAMPLING BOX NUMBER: Spore 1
CLEAN-UP PERSON: CRP
SOLVENT RINSES: NA
SAMPLE IDENTIFICATION CODE: CCH-0920-SPO-IMP-LPBA-A
XAD TRAP NUMBER: N/A

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	PO4 Buffer	~250	MOD G.S.		1097.2	
2	"	~100	G.S		674.8	
3	K.O	MT	MOD		461.6	
4	Silica	~300g	MOD		800.2	
			BAL		693.0	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

MOISTURE RECOVERY FORM FOR METHODS ~~4, 5, 6~~ 2

PLANT Centralia Carol. Hospital

DATE 9/20/90

RUN NUMBER LAB PROOF BLANK B

SAMPLING LOCATION NA

SAMPLING TYPE INDICATOR SOURCE

SAMPLING BOX NUMBER SOURCE 3

CLEAN-UP PERSON CRP

SOLVENT RINSES NA

SAMPLE IDENTIFICATION CODE CCH-0920-SPU-IMP-LPB-B

XAD TRAP NUMBER N/A

IMPINGER NUMBER	IMPINGER SOLUTION	AMOUNT OF SOLUTION (g)	IMPINGER TIP CONFIGURATION	IMPINGER WEIGHT (grams)		
				FINAL	INITIAL	WEIGHT GAIN
1	H_2O_4	250	MOD		1212.4	
2	"	100	G.S		663.5	
3	K.O	MT	MOD		474.5	
4	Silica	300	MOD		782.5	
					406.0	

Revision: 3/90

TOTAL WEIGHT GAIN (grams) _____

Run No. 1
Plant CCH
Pollutant HCl

Date 9/20/90
Plant Location Sanford
Recorded by flg
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☐
Double Check K Factor ☐
Filter loaded with rough side to the front ☐
Zero manometer ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run A leak ✓ 0 @ 10"	C	1409	1509	60
end run A leak ✓ 0 @ 12"				
start run B leak ✓ 0 @ 12"	C	1521	1621	60
end run B leak ✓ 0 @ 12"				
start run C leak ✓ 0 @ 13"	C	1635	1735	60
end run C leak ✓ 0 @ 13"				

RADIAN

11816638

HCl
FIELD DATA

PLANT CCH
DATE 9/20/90
SAMPLING LOCATION stack
RUN NUMBERS A, B, C
OPERATOR [illegible]
AMBIENT TEMPERATURE 81
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 13
SAMPLE BOX NUMBER
METER BOX NUMBER V-5
METER FACTOR 1.0104
PROBE HEATER SETTING 4
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1409	0.6					
A	10	19	18.3	3.6	91			6
	20	29	38.6	3.7	94			7
	30	39	60.3	4.0	97			7
	40	49	80.1	4.0	101			7
	50	59	100.9	4.1	103			7
	60	1509	121.13	4.1	105			7
		1521	0.65					
B	10	31	20.0	4.0	106			6
	20	41	40.2	4.1	106			6
	30	51	59.2	4.0	107			6
	40	1601	80.0	4.4	109			6
	50	11	99.9	4.5	111			7
	60	1621	120.43	4.6	111			7
		1635	0.83					
C	10	45	21.2	4.4	109			5
	20	55	40.4	4.4	107			5
	30	1705	59.9	4.3	107			5
	40	15	78.8	4.3	107			6
	50	25	98.6	4.3	106			7
	60	1735	118.56	4.5	106			7

Leakchecks	
Initial	0@10
Final	0@12

Leakchecks	
Initial	0@12
Final	0@13

Leakchecks	
Initial	0@13
Final	0@15"

Revision: 3/90

RADIAN

Run No. 2
Plant CCH
Pollutant HCl

Date 9/21/90
Plant Location sanford
Recorded by dey
Checked by

QA Checklist
Impingers in correct order [✓]
Pre-test leakcheck of pitots [ ]
Double Check K Factor [✓]
Filter loaded with rough side to the front [ ]
Zero manometer [ ]
Post-test leakcheck of pitots [ ]

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start run leak ✓ 0 @ 12"	C	953	1003	10
stopped high vac.				
restart leak ✓ 0 @ 12"	C	1053	1143	60
start B leak ✓ 0 @ 13"	C	1230		

1181663R

HCl
FIELD DATA

PLANT CCH
DATE 9/21/90
SAMPLING LOCATION Stack
RUN NUMBERS 2 A,B
OPERATOR [illegible]
AMBIENT TEMPERATURE 70
BAROMETRIC PRESSURE 29.9
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 12
SAMPLE BOX NUMBER
METER BOX NUMBER V-5
METER FACTOR 1.0104
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		953	0.93					
A	10	1003	7.2	4.2	70			6
			stopped b/c high vac.					
		1053	0.5					
	20	1103	20.7	4.0	75			7
	30	13	40.4	4.1	77			7
	40	23	59.0	4.0	78			7
	50	33	79.1	4.0	80			7
	60	1143	98.72	4.0	81			7
		1230	0.01					
B	5	1235	7.14	4.0	78			10
		1321	0.23	cant	make rate	look	✓ 0 @ 12	
	20	36	27.3	4.0	78			7
	30	46	44.5	4.0	80			10
	40	56	61.5	4.0	81			11
	50	1406	77.9	3.8	83			11
	60	16	91.3	3.6	85			11
	70	26	106.0	3.5	85			12
	80	1436	120.56	3.3	85			12

Leakchecks
Initial 0 @ 12
Final 0 @ 12

Leakchecks
Initial 0 @ 13'
Final 0 @ 12

Leakchecks
Initial
Final

Revision 3/90

Run No. 3
Plant CCH
Pollutant HCl

Date 9/22/00
Plant Location Sanford
Recorded by Hg
Checked by

QA Checklist
Impingers in correct order ☐
Filter loaded with rough side to the front ☐
Pre-test leakcheck of pitots ☑
Zero manometer ☐
Double Check K-Factor ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A leak ✓ 0@12"	C	953	959	6
changed filter leak ✓ 0@16"				
restart A leak ✓ 0@16"	C	1025	1030	11
changed filter leak ✓ 0@16"	C			
restart	C	1104	1153	60
filter meltdown - void A				
start B leak ✓ 0@11"	C	1222	1322	60
end B leak ✓ 0@12"				
start C leak ✓ 0@12"	C	1335	1435	60
end C leak ✓ 0@12"				

RADIAN

11816638

HCl
FIELD DATA

PLANT CCH
DATE 9/22/90
SAMPLING LOCATION Stack
RUN NUMBERS 3
OPERATOR Mg
AMBIENT TEMPERATURE 69
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 13
SAMPLE BOX NUMBER
METER BOX NUMBER V-5
METER FACTOR 1.0104
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		953	0.01					
A	6	959	8.98	4.0	70			7
		1025	0.27	cant make rate		leak ✓	@ 15	11
	11	1030	5.43	3.8	74	leak ✓	@ 16	
		1104	0.52	cant make rate		leak ✓	@ 16	
	20	1113	18.8	4.3	77			3
	30	1123	39.2	4.5	78			3
	40	1133	59.5	4.5	80			3
	50	1143	80.7	4.6	82	no final leak ✓		3
	60	1153	100.29	4.7	83	hole melted in filter holder		3
		1222	0.35					
B	10	32	19.6	4.6	81			5
	20	42	40.4	4.7	82			6
	30	52	62.9	4.7	83			6
	40	1302	83.2	4.9	84			6
	50	12	104.3	4.8	85			6
	60	1322	125.64	4.7	85			5
		1335	0.1					
C	10	45	20.2	4.8	84			5
	20	55	40.3	4.9	84			5
	30	1405	60.9	4.8	84			5
	40	15	81.3	4.8	84			5
	50	25	100.9	4.7	84			5
	60	1435	120.53	4.7	84			5

Leakchecks	
Initial	0 @ 12"
Final	

Leakchecks	
Initial	0 @ 11"
Final	0 @ 12"

Leakchecks	
Initial	0 @ 12"
Final	0 @ 12"

Revision: 3/90

Run No. 4
Plant CCH
Pollutant HCl

Date 9/23/90
Plant Location Sanford
Recorded by fey
Checked by

QA Checklist
Impingers in correct order ☐
Filter loaded with rough side to the front ☐
Pre-test leakcheck of pitots ☐
Zero manometer ☐
Double Check K-Factor ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A leak ✓ 0 @ 13"	C	1142	1242	60
end A leak ✓ 0 @ 12"				
start B leak ✓ 0 @ 12"	C	1252	1352	60
end B leak ✓ 0 @ 12"				
start C leak ✓ 0 @ 12"	C	1403	1503	60
end C leak ✓ 0 @ 13"				

RADIAN

1181663R

HCl
FIELD DATA

PLANT CCH
DATE 9/23/90
SAMPLING LOCATION Stack
RUN NUMBERS 4
OPERATOR Jg
AMBIENT TEMPERATURE 75
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 10
SAMPLE BOX NUMBER
METER BOX NUMBER U-5
METER FACTOR 1.0401
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

1.0104?

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1142	0.36					
A	10	1152	20.9	4.7	75			4
	20	1202	41.3	4.7	76			4
	30	1212	61.0	4.7	78			4
	40	1222	80.3	4.5	80			4
	50	1232	100.5	4.3	81			4
	60	1242	120.15	4.1	82			4
		1252	0.52					
B	10	1302	20.3	4.6	82			4
	20	1312	40.2	4.6	81			4
	30	1322	60.5	4.6	82			4
	40	1332	80.4	4.6	83			4
	50	1342	100.3	4.6	84			4
	60	1352	119.19	4.6	85			4
		1403	0.23					
C	10	1413	20.5	4.7	85			4
	20	1423	39.6	4.7	85			4
	30	1433	60.1	4.7	85			4
	40	1443	81.0	4.7	86			4
	50	1453	100.9	4.7	85			4
	60	1503	121.31	4.7	84			4

Leakchecks	
Initial	0 @ 13"
Final	0 @ 12"

Leakchecks	
Initial	0 @ 12"
Final	0 @ 12"

Leakchecks	
Initial	0 @ 12"
Final	0 @ 13"

Run No. 5
Plant CCH
Pollutant HCl

Date 9/24/90
Plant Location sanford
Recorded by [illegible]
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☐
Double Check K-Factor ☐
Filter loaded with rough side to the front ☐
Zero manometer ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A leak ✓ .0 @ 12"	C	1154	1254	60
end A leak ✓ 0@13				
start B leak ✓ 0 @ 12	C	1317	1417	60
end B leak ✓ 0@13				
start C leak ✓ 0@13	C	1429	1529	60
end test leak ✓ 0@13				

RADIAN

11816638

HCl
FIELD DATA

PLANT CCH
DATE 9/24/90
SAMPLING LOCATION stack
RUN NUMBERS 5 A B C
OPERATOR [illegible]
AMBIENT TEMPERATURE 66
BAROMETRIC PRESSURE 29.9
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 12
SAMPLE BOX NUMBER
METER BOX NUMBER V-5
METER FACTOR 1.0104
PROBE HEATER SETTING 6
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1154	0.66					
JA	10	1204	21.0	4.6	67			5
	20	1214	41.5	4.6	69			4
	30	1224	61.9	4.6	73			3
	40	1234	81.4	4.6	76			3
	50	1244	101.5	4.6	79			3
	60	1254	120.43	4.6	80			3
		1317	0.87					
JB	10	1327	20.9	4.6	81			3
	20	1337	41.6	4.6	82			3
	30	1347	60.8	4.6	85			3
	40	1357	81.4	4.6	88			3
	50	1407	100.9	4.6	89			3
	60	1417	121.91	4.6	90			3
		1479	2.65					
JC	10	1439	20.8	4.6	87			3
	20	1449	41.4	4.6	86			3
	30	1459	63.2	4.6	87			3
	40	1509	83.5	4.6	88			3
	50	1519	103.1	4.6	89			3
	60	1529	122.8	4.6	90			3

Leakchecks
Initial 0 @ 12"
Final 0 @ 13"

Leakchecks
Initial 0 @ 12"
Final 0 @ 13"

Leakchecks
Initial 0 @ 13"
Final 0 @ 13"

Revision 3/90

Run No. 6
Plant Het CCH
Pollutant HCl

Date 9/25/90
Plant Location stack - sanford
Recorded by dlg
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☐
Double Check K Factor ☐
Filter loaded with rough side to the front ☐
Zero manometer ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A leak ✓ 0 @13"	C	1022	1122	60
end A leak ✓ 0 @12"				
start B leak ✓ 0 @13"	C	1133	1233	60
end B leak ✓ 0 @13"				
start C leak ✓ 0 @13"	C	1241	1341	60
end C leak ✓ 0 @13"				

RADIAN

1181663R

HCl
FIELD DATA

PLANT CCH
DATE 9/25/90
SAMPLING LOCATION stack
RUN NUMBERS 6 ABC
OPERATOR LLg
AMBIENT TEMPERATURE 65
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 11
SAMPLE BOX NUMBER
METER BOX NUMBER N-31
METER FACTOR 1.0104
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (V_m, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1022	0.47					
A	10	1032	20.9	4.6	62			2
	20	1042	40.1	4.6	68			2
	30	1052	60.1	4.6	70			2
	40	1102	80.0	4.6	73			2
	50	1112	100.5	4.6	76			2
	60	1122	120.58	4.6	80			2
		1133	0					
B	10	1143	20.2	4.6	83			2
	20	1153	39.8	4.6	84			2
	30	1203	60.2	4.6	86			2
	40	1213	80.7	4.6	88			2
	50	1223	100.5	4.6	89			2
	60	1233	120.32	4.6	91			2
		1241	0.66					
C	10	1251	19.9	4.6	90			2
	20	1301	39.9	4.6	90			2
	30	1311	60.4	4.6	91			2
	40	1321	80.6	4.6	93			2
	50	1331	100.1	4.6	94			2
	60	1341	119.77	4.6	95			2

Leakchecks	
Initial	0 @ 13"
Final	0 @ 12'

Leakchecks	
Initial	0 @ 13"
Final	0 @ 13"

Leakchecks	
Initial	0 @ 13"
Final	0 @ 13"

Revision: 3/90

Run No. 7
Plant CCH
Pollutant HCl

Date 9/26/90
Plant Location Sanford
Recorded by [illegible]
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☐
Double Check K Factor ☐
Filter loaded with rough side to the front ☐
Zero manometer ☐
Post-test leakcheck of pitots ☐

Comments	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A leak ✓ 0 @ 13"	C	1006	1106	60
end A leak ✓ 0 @ 13"				
start B leak ✓ 0 @ 13"	C	1117	1217	60
end B " 0 @ 13"				
start C " 0 @ 13	C	1227	1327	60
end C " 0 @ 13				

RADIAN

11816638

HCl
FIELD DATA

PLANT CCH
DATE 9/26/90
SAMPLING LOCATION Stack
RUN NUMBERS 7 ABC
OPERATOR Jlg
AMBIENT TEMPERATURE 63
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%)
SAMPLE BOX NUMBER
METER BOX NUMBER U-S
METER FACTOR 1.0104
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1006	0.55					
A	10	1016	20.8	4.6	66			5
	20	1026	40.0	4.6	69			5
	30	1036	60.0	4.6	74			5
	40	1046	80.2	4.6	76			5
	50	1056	100.1	4.6	79			5
	60	1106	120.54	4.6	80			5
		1117	0.5					
B	10	1127	20.3	4.6	84			3
	20	1137	39.9	4.6	85			3
	30	1147	60.7	4.6	86			3
	40	1157	80.8	4.6	87			3
	50	1207	98.6	4.6	89			3
	60	1217	116.3	4.6	91			3
		1227	0.68					
C	10	1237	20.7	4.6	93			3
	30	1247	41.3	4.6	93			3
	30	1257	61.5	4.6	93			3
	40	1307	81.7	4.6	93			3
	50	1317	101.8	4.6	94			3
	60	1327	121.14	4.6	97			3

Leakchecks	
Initial	0 @ 13
Final	0 @ 13

Leakchecks	
Initial	0 @ 13
Final	0 @ 13

Leakchecks	
Initial	0 @ 13"
Final	0 @ 13"

HCl
FIELD DATA

PLANT CCH
DATE 9/27/90
SAMPLING LOCATION stack
RUN NUMBERS 8 ABC
OPERATOR flg
AMBIENT TEMPERATURE 79
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 12
SAMPLE BOX NUMBER
METER BOX NUMBER U-5
METER FACTOR 1.0104
PROBE HEATER SETTING 4
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1351	0.44					
A	10	1401	20.7	4.6 ~~0.64~~	94			3
	20	1411	40.7	4.6	95			3
	30	1421	60.4	4.6	98			3
	40	1431	80.3	4.6	101			3
	50	1441	100.5	4.6	103			3
	60	1451	121.2	4.6	105			3
		1501	0.65					
B	10	1511	21.2	4.6	108			3
	20	1521	40.9	4.6	108			3
	30	1531	61.3	4.6	109			3
	40	1541	80.9	4.6	109			3
	50	1551	100.9	4.6	111			3
	60	1601	120.94	4.6	113			3
		1612	0.32					
C	10	1622	20.4	4.6	112			3
	20	1632	41.3	4.6	109			3
	30	1642	61.4	4.6	108			3
	40	1652	81.2	4.6	108			3
	50	1702	101.0	4.6	109			3
	60	1712	120.96	4.6	108			3

Leakchecks
Initial 0@13"
Final 0@13"

Leakchecks
Initial 0@13"
Final 0@13"

Leakchecks
Initial 0@13"
Final 0@13"

Revision: 3/90

Run No. 9
Plant CCH
Pollutant HCl

Date 9/28/90
Plant Location Sanford
Recorded by [illegible]
Checked by

QA Checklist
Impingers in correct order ☑
Pre-test leakcheck of pitots ☐
Double Check K-Factor ☐
Filter loaded with rough side to the front ☐
Zero manometer ☐
Post-test leakcheck of pitots ☐

Comments leak ✓	Sampling Location (Port)	Clock Time Began	Clock Time Ended	Elapsed Time (min)
start A 0 @13"	C	1111	1211	60
end A 0 @13"				
start B 0 @ 13"	C	1222	1322	60
end B 0 @13"				
start C 0 @13"	C	1332	1432	60
end C 0 @13"				

RADIAN

1181663R

HCl
FIELD DATA

PLANT CCH
DATE 9/28/90
SAMPLING LOCATION stack
RUN NUMBERS 9 ABC
OPERATOR [illegible]
AMBIENT TEMPERATURE
BAROMETRIC PRESSURE
STATIC PRESSURE, (P_g) -.15

ASSUMED MOISTURE (%) 9
SAMPLE BOX NUMBER
METER BOX NUMBER V-5
METER FACTOR 1.0104
PROBE HEATER SETTING
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1111	0.32					
A	10	1121	19.8	4.6	77			3
↓	20	1131	39.9	4.6	78			3
	30	1141	59.6	4.6	80			3
	40	1151	79.3	4.6	84			3
	50	1201	99.6	4.6	88			3
	60	1211	120.36	4.6	91			3
		1222	0.79					
B	10	1232	21.5	4.6	96			2
↓	20	1242	41.3	4.6	96			2
	30	1252	61.1	4.6	98			3
	40	1302	80.9	4.6	98			3
	50	1312	99.9	4.6	100			3
	60	1322	119.68	4.6	101			3
		1332	0.16					
↓ C	10	1342	20.2	4.6	102			3
	20	1352	40.9	4.6	102			3
	30	1402	60.8	4.6	102			3
	40	1412	80.5	4.6	104			3
	50	1422	100.4	4.6	105			3
	60	1432	120.417	4.6	107			3

Leakchecks
Initial 0@13"
Final 0@13"

Leakchecks
Initial 0@13"
Final 0@13"

Leakchecks
Initial 0@13"
Final 0@13"

Revision: 3/90

HCl
FIELD DATA

PLANT CCH
DATE 10/2/90
SAMPLING LOCATION Stack
RUN NUMBERS 10 ABC
OPERATOR Leg
AMBIENT TEMPERATURE 63
BAROMETRIC PRESSURE
STATIC PRESSURE (P_g) -.13

ASSUMED MOISTURE (%) 9
SAMPLE BOX NUMBER
METER BOX NUMBER U-5
METER FACTOR 1.0104
PROBE HEATER SETTING 6
SAMPLE RATE 2 lpm
OTHER DATA/NOTES

READ AND RECORD ALL DATA EVERY 10 MINUTES

Test Section (#)	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm, l)	Meter Pressure (in. H_2O)	Dry Gas Meter Temperature (°F)	Probe Outlet Temperature (°F)	Impinger Outlet Temperature (°F)	Pump Vacuum (in. Hg)
		1026	0.98					
A	10	1036	21.0	4.6	68			2
	20	1046	40.2	4.6	72			2
	30	1056	60.3	4.6	75			2
	40	1106	80.9	4.6	80			2
	50	1116	100.8	4.6	84			2
	60	1126	120.80	4.6	85			2
		1138	0.28					
B	10	1148	20.3	4.6	90			2
	20	1158	39.9	4.6	91			2
	30	1208	59.8	4.6	95			2
	40	1218	80.0	4.6	97			2
	50	1228	100.6	4.6	101			2
	60	1238	120.56	4.6	103			2
		1247	0.08					
C	10	1257	20.6	4.6	104			2
	20	1307	40.9	4.6	102			2
	30	1317	60.3	4.6	103			2
	40	1327	80.4	4.6	104			2
	50	1337	100.4	4.8	107			2
	60	1347	121.83	4.7	107			2

Leakchecks	
Initial	0@13"
Final	0@13"

Leakchecks	
Initial	0@13"
Final	0@13"

Leakchecks	
Initial	0@13"
Final	0@13"

Revision: 3/90

Run 1

Visible Emission Observation Form

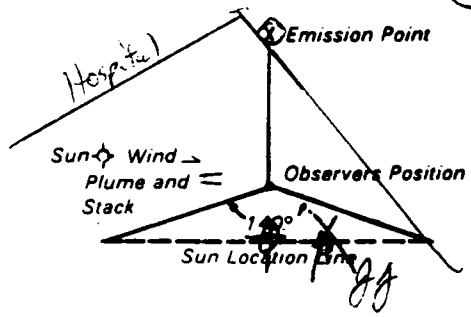
092690-1

SOURCE NAME: Mid Central Correctional Hosp	OBSERVATION DATE: 9/20/90	START TIME: 1400:00
ADDRESS: [illegible]		STOP TIME: 1459:45
CITY: [illegible]	STATE: [illegible]	ZIP:
PHONE:	SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital waste Incinerator	OPERATING MODE: Charging	
CONTROL EQUIPMENT: None	OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22' STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓	
DISTANCE FROM OBSERVER: START 50 STOP ✓	DIRECTION FROM OBSERVER: START NE STOP ✓	
DESCRIBE EMISSIONS: START ✱ STOP ✱		
EMISSION COLOR: START ✱ STOP ✱	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START ~~Sky~~ gg ✱ STOP ✱		
DESCRIBE BACKGROUND: START ~~Grey~~ SKY STOP ✓		
BACKGROUND COLOR: START Grey STOP ✓	SKY CONDITIONS: START Overcast 100% STOP ✓	
WIND SPEED: START 5-10 STOP ✓	WIND DIRECTION: START NW STOP ✓	
AMBIENT TEMP: START 80 STOP ✓	WET BULB TEMP:	RH,percent:

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM

Source Layout Sketch — Draw North Arrow



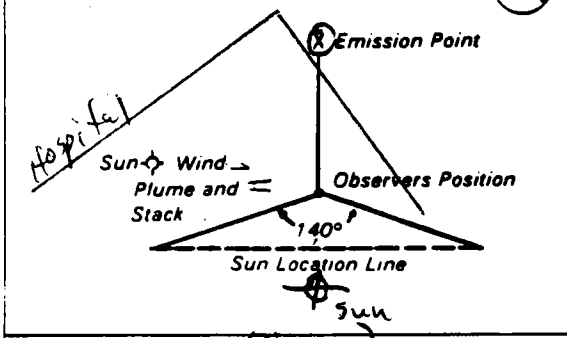
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: ✱ No (plume) emissions observed coming from source	OBSERVER'S SIGNATURE: Jack Johnson DATE: 9/20/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

~~Run 2~~ Run 1

Visible Emission Observation Form 092090-2

SOURCE NAME: AMI Central Carolina Hosp.	OBSERVATION DATE: 9/20/90	START TIME: 1500:00
ADDRESS: 1135 Carthage		STOP TIME: 1559:45
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: None / OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel Stack, 22" Dia. STOP		
HEIGHT ABOVE GROUND LEVEL: START 35 STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP ✓		
DESCRIBE EMISSIONS: START * STOP *		
EMISSION COLOR: START * STOP * / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP *		
DESCRIBE BACKGROUND: START SKY STOP SKY		
BACKGROUND COLOR: START Grey STOP ✓ / SKY CONDITIONS: START Overcast STOP Scattered		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓		
AMBIENT TEMP: START 80 STOP ✓ / WET BULB TEMP: / RH,percent:		

Source Layout Sketch — Draw North Arrow



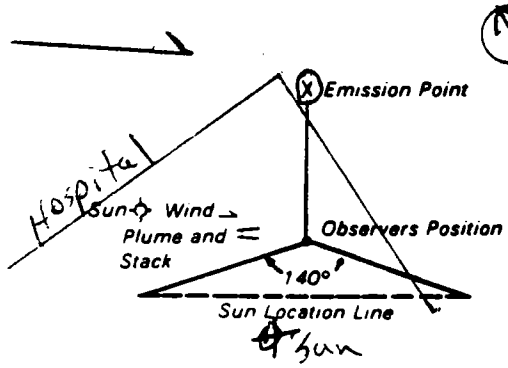
SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No emissions (plume) observed coming from source	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/20/90
	ORGANIZATION: Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form 092090-3

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/20/90	START TIME: 1600:00 / STOP TIME: 1659:45
ADDRESS: 1135 Carthage St.		
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: None / OPERATING MODE: —		
DESCRIBE EMISSION POINT: START Steel Stack, 22" Dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP ✓		
DESCRIBE EMISSIONS: START ✓ STOP ✓		
EMISSION COLOR: START ✓ STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START ✓ STOP ✓		
DESCRIBE BACKGROUND: START Sky STOP ✓		
BACKGROUND COLOR: START Grey STOP Blue / SKY CONDITIONS: START Overcast STOP Clear		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓		
AMBIENT TEMP: START 80 STOP ~~75~~ ~~88~~ / WET BULB TEMP: / RH,percent:		

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	~~58~~
29 30	0	0	0	0	60	0	0	0	0	59

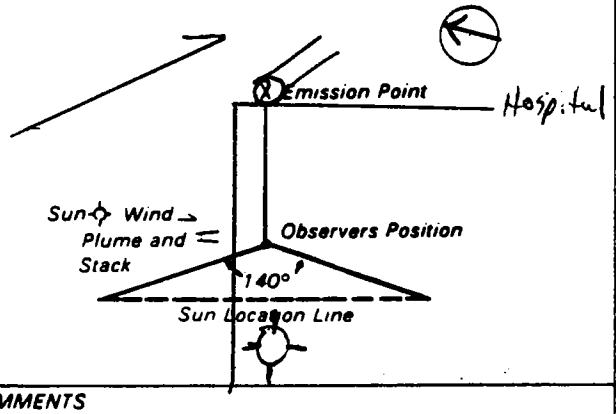
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/20/90
	ORGANIZATION: Radian corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form

092090-4

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/20/90	START TIME: 1700:00 / STOP TIME: 1759:45
ADDRESS: 1135 Carthage St.		
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Hospital waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: none / OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia. STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START E STOP ✓		
DESCRIBE EMISSIONS: START Black/lofting STOP ✓		
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP		
DESCRIBE BACKGROUND: START Sky STOP ✓		
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP ✓		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓		
AMBIENT TEMP: START 75 STOP ✓ / WET BULB TEMP: / RH,percent:		

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	5	5	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	5	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/20/90
	ORGANIZATION: Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

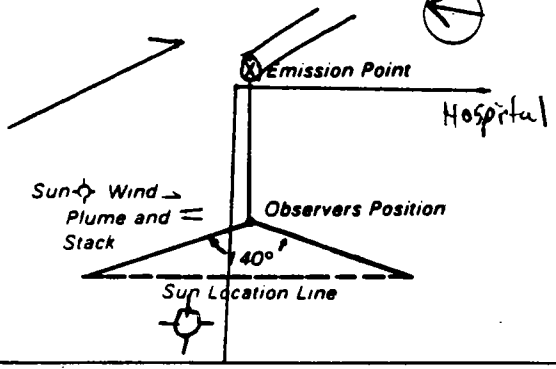
Run 1

Visible Emission Observation Form 920940-5

SOURCE NAME: Am I Central Carolina Hospital	OBSERVATION DATE: 9/20/90	START TIME: 1800:00 / STOP TIME: 1817:45
ADDRESS: 1135 Carthage St		
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: None / OPERATING MODE: —		
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50 STOP ✓ / DIRECTION FROM OBSERVER: START E STOP ✓		
DESCRIBE EMISSIONS: START Lofting STOP ✓		
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓		
DESCRIBE BACKGROUND: START SKY STOP ✓		
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓		
AMBIENT TEMP: START 75 STOP ✓ / WET BULB TEMP. / RH, percent		

SEC / MIN	0	15	30	45	MIN
0 1	0	0	0	0	31
1 2	0	0	0	0	32
2 3	0	0	0	0	33
3 4	0	0	0	0	34
4 5	0	0	0	0	35
5 6	0	0	0	0	36
6 7	0	0	0	0	37
7 8	0	0	0	0	38
8 9	0	0	0	0	39
9 10	0	0	0	0	40
10 11	0	0	0	0	41
11 12	0	0	0	0	42
12 13	0	0	0	0	43
13 14	0	0	0	0	44
14 15	0	0	0	0	45
15 16	0	0	0	0	46
16 17	0	5	0	0	47
17 18	0	0	0	0	48
18 19					49
20					50
21	End				51
22					52
23	Of				53
24					54
25	Test				55
26					56
27					57
28					58
29					59
30					60

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/20/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY	DATE

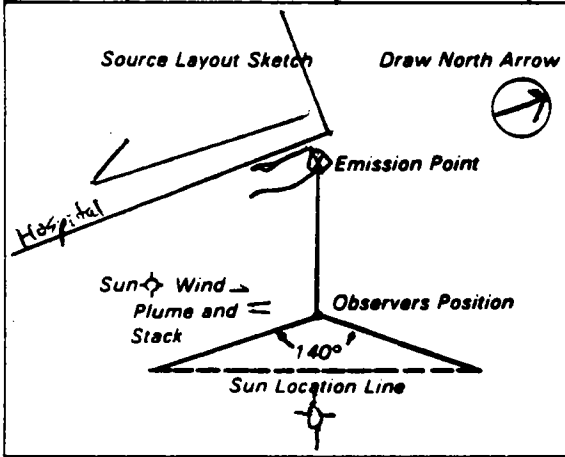
COMMENTS: Only 3 episodes occurred during entire test period

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE / TITLE / DATE

Run 2

Visible Emission Observation Form 092190-1

SOURCE NAME	AMI Central Carolina Hospital
ADDRESS	1135 Carthage St
CITY	Sanford
STATE	NC
ZIP	
PHONE	
SOURCE ID NUMBER	
PROCESS EQUIPMENT	Hospital Waste Incinerator
OPERATING MODE	Charging
CONTROL EQUIPMENT	None
OPERATING MODE	
DESCRIBE EMISSION POINT START	Steel Stack 22" Dia STOP
HEIGHT ABOVE GROUND LEVEL START	35' STOP
HEIGHT RELATIVE TO OBSERVER START	20 35' STOP 30'
DISTANCE FROM OBSERVER START	75' STOP 120
DIRECTION FROM OBSERVER START	W STOP N
DESCRIBE EMISSIONS START	lofting STOP lofting
EMISSION COLOR START	Black STOP ✓
PLUME TYPE CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT NO ☐ YES ☐	
IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START	1' above stack exit STOP ✓
DESCRIBE BACKGROUND START	Sky STOP ✓
BACKGROUND COLOR START	Grey STOP ✓
SKY CONDITIONS START	Overcast STOP ✓
WIND SPEED START	10-15 STOP ✓
WIND DIRECTION START	N STOP E
AMBIENT TEMP START	70 STOP ✓
WET BULB TEMP	
RH, percent	



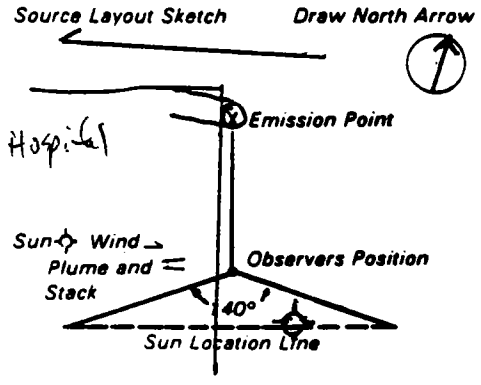
COMMENTS	Wind changed to East ~ 1840
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	
TITLE	DATE

OBSERVATION DATE	9/21/90
START TIME	0945:00
STOP TIME	1044:45
AVERAGE OPACITY FOR HIGHEST PERIOD	
NUMBER OF READINGS ABOVE % WERE	
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT)	Jack Johnson
OBSERVER'S SIGNATURE	Jack Johnson
DATE	9/21/90
ORGANIZATION	Radian corp
CERTIFIED BY	ETA
DATE	5/25/90
VERIFIED BY	
DATE	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	5	31	0	5	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	10	0	0	5	46	0	0	0	0	30
1 17	5	10	0	0	47	0	5	15	25	31
2 18	0	0	0	0	48	30	15	40	25	32
3 19	0	0	0	0	49	40	30	25	40	33
4 20	0	0	0	0	50	30	15	5	5	34
5 21	0	0	0	0	51	10	5	5	0	35
6 22	0	0	0	0	52	0	0	5	5	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

Visible Emission Observation Form 092198-2

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/21/90
ADDRESS: 1135 Cartnuge St	START TIME: 1045:00
CITY: Sanford NC / STATE: NC / ZIP:	STOP TIME: 1144'45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 35' STOP ✓	
DISTANCE FROM OBSERVER: START 120' STOP — / DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START Lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Grey STOP ✓ / SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 10-15 STOP ✓ / WIND DIRECTION: START E STOP ✓	
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:	



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	10	25	0	31	0	25	40	10	15
46 2	25	25	25	10	32	20	20	40	40	16
47 3	5	0	0	0	33	40	50	50	50	17
48 4	0	0	0	0	34	25	25	25	25	18
49 5	0	0	0	0	35	20	15	5	10	19
50 6	0	0	0	0	36	5	5	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 0	0	0	0	0	40	0	0	0	0	24
55 1	0	0	0	0	41	0	0	0	0	25
56 2	0	0	0	0	42	0	0	0	0	26
57 3	0	0	0	0	43	0	0	0	0	27
58 4	0	0	0	0	44	0	0	0	0	28
59 5	0	0	0	0	45	0	0	0	0	29
0 6	0	50	0	5	46	0	0	25	0	30
1 7	5	10	25	25	47	0	0	0	0	31
2 8	40	40	40	50	48	0	0	0	0	32
3 9	50	40	40	40	49	0	0	0	5	33
4 20	40	25	25	25	50	0	5	10	10	34
5 21	20	20	10	10	51	5	10	10	10	35
6 22	10	10	0	0	52	10	10	10	40	36
7 23	0	0	0	0	53	50	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	40	75	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	5	41
12 28	0	0	0	0	58	5	0	5	5	42
13 29	0	0	0	0	59	0	5	5	5	43
14 30	0	0	0	0	60	5	5	5	10	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): ~~Joe~~ Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/21/90
ORGANIZATION: Radian corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY:	DATE:

COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE / TITLE / DATE

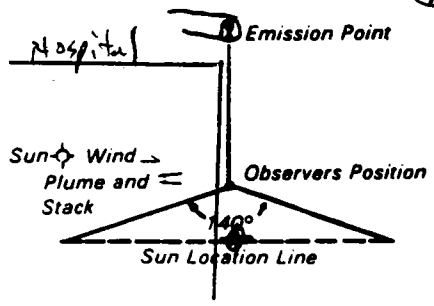
Visible Emission Observation Form 092190-3

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/21/90
ADDRESS: 1135 Carthage St.	START TIME: 1145:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1244:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP	
HEIGHT ABOVE GROUND LEVEL: START 35 STOP / HEIGHT RELATIVE TO OBSERVER: START 35 STOP ✓	
DISTANCE FROM OBSERVER: START 120 STOP ✓ / DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START Lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ✓	
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Grey STOP ✓ / SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 10-15 STOP ✓ / WIND DIRECTION: START E STOP ✓	
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	5	25	5	0	31	0	0	0	0	15
46 2	0	15	0	0	32	0	0	0	0	16
47 3	50	75	50	40	33	0	0	0	0	17
48 4	25	25	25	40	34	0	0	0	0	18
49 5	25	25	20	15	35	0	0	0	0	19
50 6	15	15	15	15	36	0	0	0	0	20
51 7	15	10	10	10	37	0	0	0	5	21
52 8	5	5	5	5	38	10	10	0	0	22
53 9	10	10	5	5	39	0	0	0	20	23
54 10	10	5	5	5	40	40	75	0	0	24
55 11	10	5	5	10	41	0	0	0	0	25
56 12	5	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	5	5	5	44	0	0	0	5	28
59 15	5	5	10	10	45	5	5	0	5	29
0 16	10	10	15	20	46	5	10	5	25	30
1 17	25	25	50	50	47	50	50	25	10	31
2 18	75	5	5	5	48	5	0	0	0	32
3 19	5	5	5	0	49	0	0	0	0	33
4 20	5	10	10	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	5	53	0	0	0	0	37
8 24	10	50	50	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	5	5	39
10 26	0	0	0	0	56	5	5	10	10	40
11 27	0	0	0	0	57	25	25	50	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/21/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY	DATE

Source Layout Sketch — Draw North Arrow

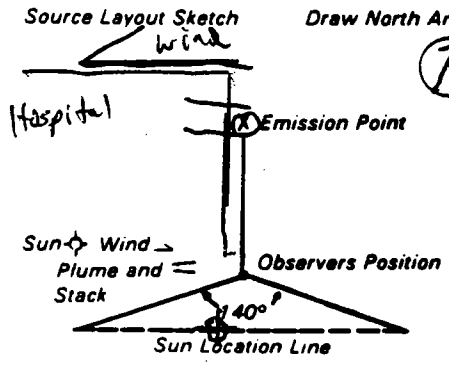


COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE / TITLE / DATE

Visible Emission Observation Form 092190-4

SOURCE NAME: ANI Central Carolina Hospital	OBSERVATION DATE: 9/21/90	START TIME: 1245:00
ADDRESS: 1135 Carthage St		STOP TIME: 1344:45
CITY: Sanford / STATE: NC / ZIP:	PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital waste Incinerator	OPERATING MODE: Charging	
CONTROL EQUIPMENT: None	OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 35' STOP ✓	
DISTANCE FROM OBSERVER: START 120' STOP ✓	DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START Lofting STOP ✓		
EMISSION COLOR: START Black STOP ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑ ✓	
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓		
DESCRIBE BACKGROUND: START Sky STOP ✓		
BACKGROUND COLOR: START Grey STOP ✓	SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 10-15 STOP 5-10	WIND DIRECTION: START E STOP ✓	
AMBIENT TEMP: START 70 STOP ✓	WET BULB TEMP: / RH, percent:	



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	40	10	0	31	0	25	5	25	15
1 2	0	0	0	0	32	25	50	50	75	16
2 3	0	0	0	0	33	25	25	5	0	17
3 4	0	0	0	0	34	0	0	0	0	18
4 5	0	0	0	0	35	0	0	0	0	19
5 6	5	5	5	5	36	0	0	0	0	20
6 7	10	10	15	50	37	0	0	0	0	21
7 8	0	0	0	0	38	0	0	0	5	22
8 9	0	0	0	0	39	5	5	5	5	23
9 10	0	0	0	0	40	5	5	10	10	24
10 11	0	0	0	0	41	10	10	40	0	25
11 12	0	0	0	0	42	0	0	0	0	26
12 13	0	0	0	0	43	0	0	0	0	27
13 14	0	5	0	5	44	0	5	0	5	28
14 15	5	5	5	5	45	0	5	5	5	29
15 16	5	5	5	5	46	5	5	0	0	30
16 17	0	5	5	10	47	25	100	100	50	31
17 18	0	10	0	0	48	20	15	10	0	32
18 19	0	0	0	0	49	5	5	0	0	33
19 20	5	5	20	50	50	0	0	0	0	34
20 21	50	0	0	0	51	0	0	0	0	35
21 22	0	0	0	0	52	0	0	0	0	36
22 23	5	0	0	0	53	0	0	0	0	37
23 24	0	0	0	0	54	5	5	5	10	38
24 25	0	0	0	0	55	5	5	5	25	39
25 26	0	0	0	0	56	40	50	50	75	40
26 27	0	0	0	0	57	5	5	5	5	41
27 28	0	0	0	0	58	5	5	5	5	42
28 29	0	0	5	0	59	5	5	5	5	43
29 30	0	0	0	0	60	5	5	5	5	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/21/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 9/21/90
VERIFIED BY:	DATE:

COMMENTS	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	
TITLE	DATE

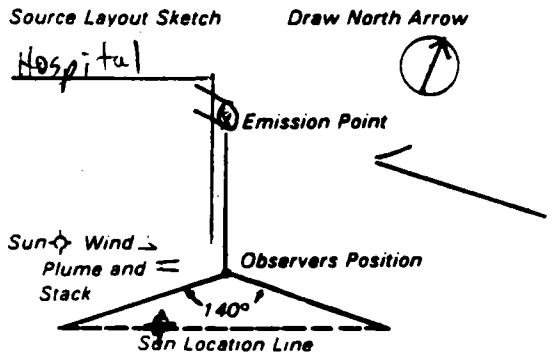
Run 2

Visible Emission Observation Form 092190-5

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/21/90
ADDRESS: 1135 Carthage St	START TIME: 1345:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1357:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: none / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 35' STOP ✓	
DISTANCE FROM OBSERVER: START 125' STOP ✓ / DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START ~~Steel stack~~ lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☒	
WATER DROPLETS PRESENT: NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Grey STOP ✓ / SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START E STOP ✓	
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP. / RH,percent	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
45 1	5	5	5	0	31				
46 2	0	5	5	0	32				
47 3	0	0	0	0	33				
48 4	0	0	0	0	34				
49 5	0	0	0	0	35				
50 6	0	0	0	0	36				
51 7	0	0	0	0	37				
52 8	0	0	5	5	38				
53 9	0	5	5	5	39				
54 0	5	5	5	10	40				
55 1	10	10	20	50	41				
56 2	20	0	0	5	42				
57 3	5	5	5	0	43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Source Layout Sketch — Draw North Arrow



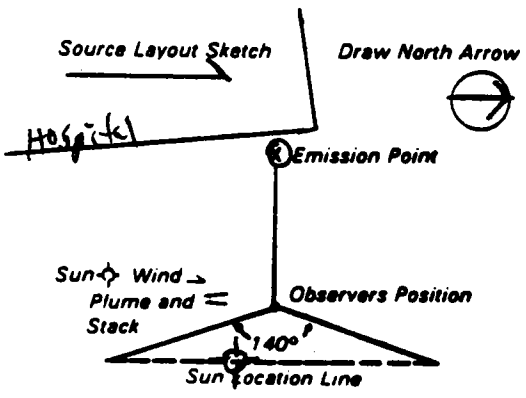
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/21/90
	ORGANIZATION: Ruetian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: EPA / DATE: 5/25/91
TITLE / DATE	VERIFIED BY / DATE

Run 3

Visible Emission Observation Form

092298-1

SOURCE NAME: A.M.I Central Carolina Hospital	OBSERVATION DATE: 9/22/90	START TIME: 0945:00	STOP TIME: 1044:45
ADDRESS: 1135 Carthage St			
CITY: Sanford / STATE: NC / ZIP:			
PHONE: / SOURCE ID NUMBER:			
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: charging			
CONTROL EQUIPMENT: None / OPERATING MODE:			
DESCRIBE EMISSION POINT: Dia ✓ START Steel Stack 22' STOP			
HEIGHT ABOVE GROUND LEVEL START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER START 15' STOP			
DISTANCE FROM OBSERVER START 80' STOP ✓ / DIRECTION FROM OBSERVER START W STOP ✓			
DESCRIBE EMISSIONS START ✓ STOP ✓			
EMISSION COLOR START ✓ STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐			
WATER DROPLETS PRESENT: NO ☐ YES ☐ / IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START ✓ STOP ✓			
DESCRIBE BACKGROUND START Sky STOP ✓			
BACKGROUND COLOR START Grey STOP ✓ / SKY CONDITIONS START Overcast STOP ✓			
WIND SPEED START 5-10 STOP ✓ / WIND DIRECTION START S STOP ✓			
AMBIENT TEMP START 75 STOP ✓ / WET BULB TEMP. / RH,percent			



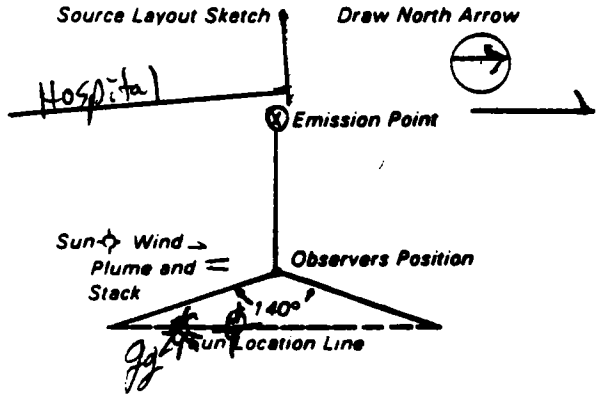
SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
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46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
51 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/22/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form 092290-2

SOURCE NAME	AMI Central Carolina Hospital
ADDRESS	1135 Carthage St.
CITY	Sanford
STATE	NC
ZIP	
PHONE	
SOURCE ID NUMBER	
PROCESS EQUIPMENT	Hospital waste Incinerator
OPERATING MODE	Charging
CONTROL EQUIPMENT	None
OPERATING MODE	
DESCRIBE EMISSION POINT	START Steel stack 22" Dia STOP
HEIGHT ABOVE GROUND LEVEL START	35'
STOP	✓
HEIGHT RELATIVE TO OBSERVER START	15'
STOP	35'
DISTANCE FROM OBSERVER START	80'
STOP	120'
DIRECTION FROM OBSERVER START	W
STOP	~~W~~ SW
DESCRIBE EMISSIONS START	*
STOP	*
EMISSION COLOR START	*
STOP	*
PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: NO ☐ YES ☐	*
IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START	~~Sky~~ *
STOP	~~Sky~~ *
DESCRIBE BACKGROUND START	Sky
STOP	✓
BACKGROUND COLOR START	Grey
STOP	✓
SKY CONDITIONS START	Overcast
STOP	✓
WIND SPEED START	5-10
STOP	✓
WIND DIRECTION START	S
STOP	W
AMBIENT TEMP. START	75
STOP	✓
WET BULB TEMP.	
RH, percent	

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
9/22/90	1045:00	1144:45

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33 * *
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0		40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT)	Jack Johnson
OBSERVER'S SIGNATURE	Jack Johnson
DATE	9/22/90
ORGANIZATION	Radian Corp
CERTIFIED BY	ETA
DATE	5/25/90
VERIFIED BY	
DATE	

COMMENTS

* ~~E~~ wind change ~~to~~ west ~ 1130.
Moved to different location.

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE
TITLE DATE

* no plume observed coming from stack

Run 3

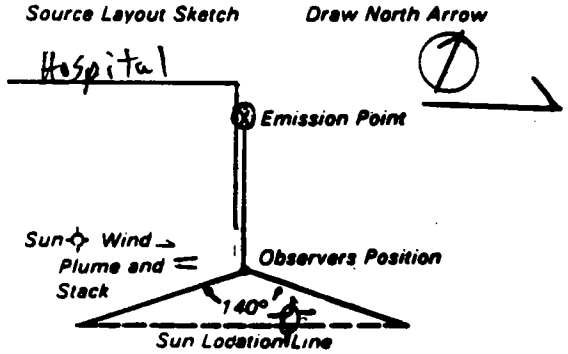
Section 3.12.10 — 6 — April 1983

Visible Emission Observation Form

092290-3

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/22/90
ADDRESS: 1135 Carthage St	START TIME: 1145:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1244:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital Waste Incinerator	OPERATING MODE: charging
CONTROL EQUIPMENT: None	OPERATING MODE: —
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 35' STOP ✓
DISTANCE FROM OBSERVER: START 120' STOP ✓	DIRECTION FROM OBSERVER: START N STOP ✓
DESCRIBE EMISSIONS: START ✱ STOP ✱	
EMISSION COLOR: START ✱ STOP ✱	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: ✱ NO ☐ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START ✱ STOP ✱	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Grey STOP ✓	SKY CONDITIONS: START Overcast STOP ✓
WIND SPEED: START 5-10 STOP ✓	WIND DIRECTION: START W STOP ✓
AMBIENT TEMP: START 75 STOP ✓	WET BULB TEMP: / RH, percent:

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

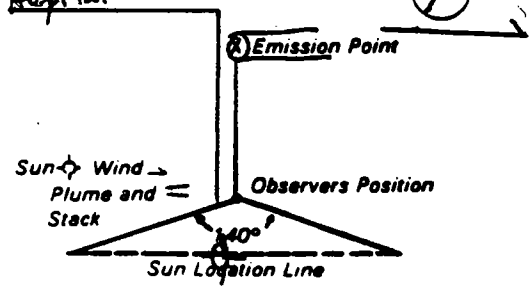
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: ✱ no plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/22/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS — SIGNATURE	CERTIFIED BY: ETA — DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Run 3

Visible Emission Observation Form 092290-4

SOURCE NAME: Am I Central Carolina Hospital	OBSERVATION DATE: 9/22/90	START TIME: 1245:00
ADDRESS: 1135 Carthage St		STOP TIME: 1344:45
CITY: Sanford	STATE: NC	ZIP:
PHONE:	SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital waste Incinerator	OPERATING MODE: Charging	
CONTROL EQUIPMENT: None	OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel stack 22" Dia STOP		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP	HEIGHT RELATIVE TO OBSERVER: START 35' STOP	
DISTANCE FROM OBSERVER: START 120' STOP	DIRECTION FROM OBSERVER: START N STOP	
DESCRIBE EMISSIONS: START lifting STOP		
EMISSION COLOR: START Black STOP	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1 above stack exit STOP		
DESCRIBE BACKGROUND: START SKY STOP		
BACKGROUND COLOR: START Grey STOP	SKY CONDITIONS: START Overcast STOP	
WIND SPEED: START 5-10 STOP	WIND DIRECTION: START W STOP	
AMBIENT TEMP: START 75 STOP	WET BULB TEMP:	RH,percent:

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	5	5	30
1 17	0	0	0	0	47	5	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/22/90
ORGANIZATION: Radian corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY	DATE

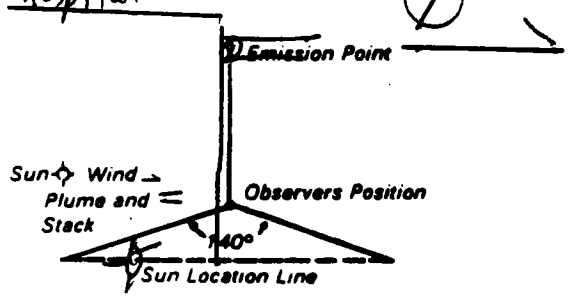
COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE | TITLE | DATE

Visible Emission Observation Form 942290-5

SOURCE NAME: AMF Central Carolina Hospital	OBSERVATION DATE: 9/22/90
ADDRESS: 1135 Carthage St	START TIME: 1345:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1359:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Hospital Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: none / OPERATING MODE: —	
DESCRIBE EMISSION POINT: START lofting STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 35' STOP ✓	
DISTANCE FROM OBSERVER: START 125' STOP ✓ / DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START Grey STOP ✓ / SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START W STOP ✓	
AMBIENT TEMP: START 75 STOP ✓ / WET BULB TEMP: / RH,percent:	

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

End of Test

AVERAGE OPACITY FOR HIGHEST PERIOD:	NUMBER OF READINGS ABOVE % WERE:
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/22/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY:	DATE:
COMMENTS:	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE:	
TITLE: / DATE:	

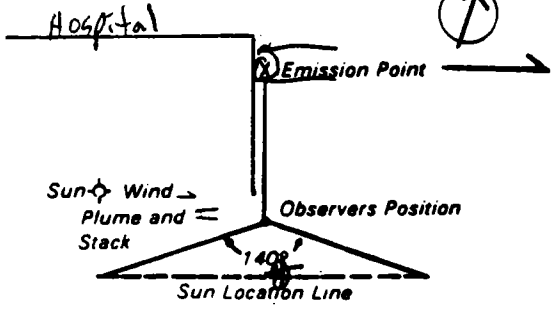
Run 4

Visible Emission Observation Form

092390-1

SOURCE NAME: AmI Central Carolina Hospital		
ADDRESS: 1135 Carthage St.		
CITY: Sanford	STATE: N C	ZIP:
PHONE:	SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging	
CONTROL EQUIPMENT: None	OPERATING MODE: —	
DESCRIBE EMISSION POINT START: Steel Stack, 22" Dia. STOP: ✓		
HEIGHT ABOVE GROUND LEVEL START: 35' STOP: ✓	HEIGHT RELATIVE TO OBSERVER START: 35' STOP: 15'	
DISTANCE FROM OBSERVER START: 130' STOP: 50'	DIRECTION FROM OBSERVER START: N STOP: NE	
DESCRIBE EMISSIONS START: lofting STOP: ✓		
EMISSION COLOR START: Black STOP: ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START: 1' above stack ex STOP: ✓		
DESCRIBE BACKGROUND START: Sky STOP: ✓		
BACKGROUND COLOR START: Blue STOP: ✓	SKY CONDITIONS START: Clear STOP: ✓	
WIND SPEED START: 10-15 STOP: 15-20	WIND DIRECTION START: W STOP: NW	
AMBIENT TEMP. START: 70 STOP: ✓	WET BULB TEMP:	RH, percent:

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
4/23/90	1140:00	~~12:44:45~~ 1238:45

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	25	40	10
1 2	0	0	0	0	32	25	25	25	10	11
2 3	0	0	0	0	33	5	10	5	25	12
3 4	0	0	0	0	34	20	5	5	25	13
4 5	0	0	0	0	35	5	5	0	0	14
5 6	0	0	0	0	36	5	5	5	0	15
6 7	0	0	0	0	37	0	0	0	0	16
7 8	0	0	0	0	38	0	0	5	5	17
8 9	0	0	0	0	39	0	5	5	5	18
9 10	0	0	0	0	40	5	5	5	5	19
10 11	0	0	0	0	41	0	5	10	10	20
11 12	0	0	0	0	42	20	20	40	40	21
12 13	0	0	0	0	43	40	50	50	50	22
13 14	0	0	0	0	44	25	25	25	50	23
14 15	0	0	0	5	45	25	40	25	25	24
15 16	5	25	15	0	46	20	25	25	20	25
16 17	5	0	0	0	47	20	15	10	25	26
17 18	5	0	0	0	48	10	10	10	10	27
18 19	0	0	0	0	49	10	10	10	10	28
19 20	0	0	0	0	50	10	10	5	5	29
0 21	0	0	0	0	51	5	0	20	20	30
1 22	10	5	0	0	52	40	40	50	50	31
2 23	0	0	5	40	53	0	0	0	0	32
3 24	50	0	0	0	54	0	0	0	0	33
4 25	0	0	0	50	55	5	0	5	0	34
5 26	10	20	25	25	56	0	15	25	10	35
6 27	50	40	25	25	57	10	5	5	10	36
7 28	25	25	25	40	58	5	5	0	10	37
8 29	25	25	40	40	59	15	0	5	75	38
9 30	25	25	0	0	60	75	80	80	75	39

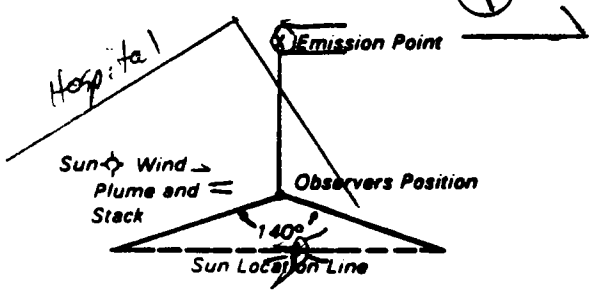
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: twind shifted to NW moved to different location	OBSERVER'S SIGNATURE: Jack Johnson DATE: 9/23/90
	ORGANIZATION: Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form

092390-2

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/23/90
ADDRESS: 1135 Carthage St	START TIME: 1240:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1339:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE:
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓
DISTANCE FROM OBSERVER: START 50' STOP	DIRECTION FROM OBSERVER: START NE STOP ✓
DESCRIBE EMISSIONS: START Lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT: NO ☐ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 0-1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓	SKY CONDITIONS: START Clear STOP ✓
WIND SPEED: START 15-20 STOP 20-25	WIND DIRECTION: START NW STOP ✓
AMBIENT TEMP: START 70 STOP ✓	WET BULB TEMP: / RH, percent:

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	MIN	0	15	30	45	
0	10	25	25	25	31	80	90	40	35	15 10
1	25	10	10	0	32	40	40	40	50	14 11
2	0	0	0	0	33	50	50	40	30	17 12
3	0	0	0	0	34	35	50	35	50	18 13
4	0	0	0	0	35	45	40	40	40	17 14
5	0	0	0	0	36	30	40	0	0	20 15
6	0	0	10	5	37	10	35	20	25	21 16
7	10	15	25	20	38	20	20	10	10	22 17
8	40	75	100	50	39	10	0	0	0	23 18
9	20	20	20	25	40	0	0	0	0	21 19
10	20	20	10	25	41	0	0	0	0	25 20
11	40	25	25	25	42	0	0	5	5	26 21
12	25	25	25	25	43	5	30	60	80	27 22
13	25	20	40	25	44	90	100	90	40	28 23
14	30	20	20	25	45	30	25	25	25	29 24
15	25	25	25	15	46	25	80	90	50	30 25
16	25	25	20	35	47	30	25	25	25	31 26
17	25	25	25	40	48	25	25	20	25	32 27
18	30	25	25	25	49	25	25	25	20	33 28
19	40	25	15	25	50	15	20	5	5	34 29
20	15	10	10	10	51	5	20	0	0	35 30
21	25	10	25	5	52	30	50	15	0	36 31
22	10	0	5	5	53	5	5	10	10	37 32
23	0	0	5	0	54	5	0	10	5	38 33
24	0	5	5	5	55	0	0	0	0	39 34
25	0	5	5	5	56	0	0	0	0	40 35
26	5	5	10	0	57	0	0	5	5	41 36
27	5	5	5	5	58	10	20	40	65	42 37
28	5	5	5	10	59	75	85	100	100	43 38
29	5	5	20	15	60	75	50	25	25	44 39
30										

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/23/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA — DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Run 4

Visible Emission Observation Form

092390 3

SOURCE NAME: AmI Central Carolina Hospital	OBSERVATION DATE: 9/23/90	START TIME: 1340:00
ADDRESS: 1135 Carthage St.		STOP TIME: 1439:45
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: none / OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel stack 22" Dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP NE		
DESCRIBE EMISSIONS: START lofting STOP ✓		
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓		
DESCRIBE BACKGROUND: START SKY STOP ✓		
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP Broken		
WIND SPEED: START 20-25 STOP ✓ / WIND DIRECTION: START ~~NW~~ NW STOP ~~NW~~ NW		
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP. / RH, percent		

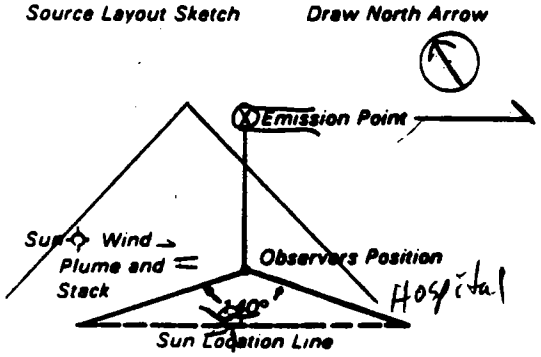
SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
40 1	30	30	30	25	31	40	75	75	40	10
41 2	30	30	25	25	32	40	40	40	40	11
42 3	15	25	25	10	33	30	25	30	40	12
43 4	5	5	5	0	34	50	25	30	50	13
44 5	5	0	5	5	35	25	40	25	30	14
45 6	0	0	5	0	36	20	20	25	40	15
46 7	10	10	0	0	37	0	20	20	20	16
47 8	0	5	5	5	38	10	10	10	5	17
48 9	5	5	10	10	39	5	0	5	5	18
49 10	25	25	40	50	40	5	5	5	5	19
50 11	90	90	25	25	41	5	5	5	85	20
51 12	25	40	25	35	42	5	5	10	40	21
52 13	25	25	25	25	43	40	50	75	90	22
53 14	30	30	25	25	44	90	90	90	100	23
54 15	25	25	25	50	45	100	75	80	75	24
55 16	40	25	25	40	46	75	75	75	60	25
56 17	25	25	30	25	47	60	40	30	25	26
57 18	40	25	30	25	48	30	25	25	25	27
58 19	25	30	30	20	49	25	25	25	20	28 *
59 20	25	20	20	20	50	10	30	25	25	29
0 21	20	15	10	10	51	20	0	0	20	30
1 22	10	15	10	10	52	80	100	50	75	31
2 23	10	10	30	25	53	90	75	80	75	32
3 24	80	90	90	100	54	75	25	50	25	33
4 25	15	15	10	10	55	0	5	5	5	34
5 26	50	100	100	75	56	5	5	5	30	35
6 27	25	25	15	25	57	70	100	100	100	36
7 28	25	30	85	100	58	100	100	90	100	37
8 29	75	40	30	30	59	90	65	50	40	38
9 30	30	40	40	35	60	25	40	30	25	39

AVERAGE OPACITY FOR HIGHEST PERIOD: / NUMBER OF READINGS ABOVE % WERE:

RANGE OF OPACITY READINGS: MINIMUM: / MAXIMUM:

OBSERVER'S NAME (PRINT): Jack Johnson

Source Layout Sketch — Draw North Arrow



COMMENTS: wind shifting to west N28	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/23/90
moved to different location	ORGANIZATION: Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

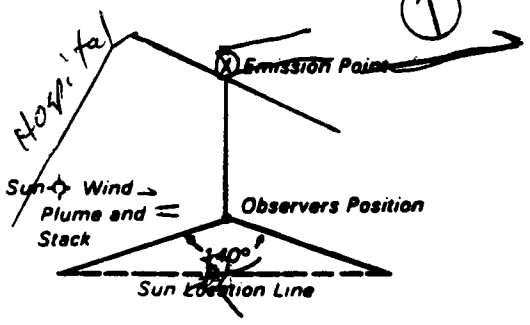
Run 4

Visible Emission Observation Form

092390-4

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/23/90
ADDRESS: 1135 Carthage St	START TIME: 1440:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1539:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE:
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓
DISTANCE FROM OBSERVER: START 50 STOP ✓	DIRECTION FROM OBSERVER: START NE STOP ✓
DESCRIBE EMISSIONS: START lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓	SKY CONDITIONS: START Broken STOP ✓
WIND SPEED: START 20-25 STOP ✓	WIND DIRECTION: START NW STOP ✓
AMBIENT TEMP: START 70 STOP ✓	WET BULB TEMP: / RH, percent:

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	25	30	30	25	31	70	75	65	75	10
1 2	30	25	30	25	32	75	75	75	75	11
2 3	10	25	20	20	33	75	75	75	80	12
3 4	20	25	15	15	34	100	100	85	80	13
4 5	15	15	15	20	35	80	80	75	75	14
5 6	10	30	20	25	36	25	5	0	65	15
6 7	25	10	10	5	37	90	100	80	75	16
7 8	10	15	50	75	38	50	25	5	5	17
8 9	90	90	100	100	39	5	0	5	5	18
9 10	100	75	60	50	40	10	20	25	35	19
10 11	40	40	35	30	41	75	80	90	100	20
11 12	30	25	30	30	42	100	100	100	100	21
12 13	25	25	25	25	43	100	85	65	50	22
13 14	20	20	15	15	44	65	30	50	50	23
14 15	10	10	20	10	45	50	35	40	40	24
15 16	10	15	5	0	46	35	30	40	50	25
16 17	5	15	5	0	47	35	25	35	50	26
17 18	5	5	0	0	48	40	30	30	50	27
18 19	0	0	5	0	49	25	30	30	25	28
19 20	0	0	0	0	50	45	25	25	25	29
0 21	0	0	75	5	51	25	50	80	40	30
1 22	35	35	20	60	52	75	80	90	90	31
2 23	25	40	25	10	53	100	90	90	90	32
3 24	20	0	0	5	54	80	50	40	20	33
4 25	5	5	5	15	55	5	5	0	5	34
5 26	30	50	40	90	56	5	5	10	10	35
6 27	100	100	100	100	57	15	25	40	30	36
7 28	100	100	85	80	58	50	60	50	60	37
8 29	85	80	65	65	59	80	90	90	100	38
30	75	75	75	75	60	100	100	100	100	39

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/23/90
ORGANIZATION: Radian corp	
CERTIFIED BY: ETM	DATE: 5/25/90
VERIFIED BY:	DATE:

COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE / TITLE / DATE

Run 4

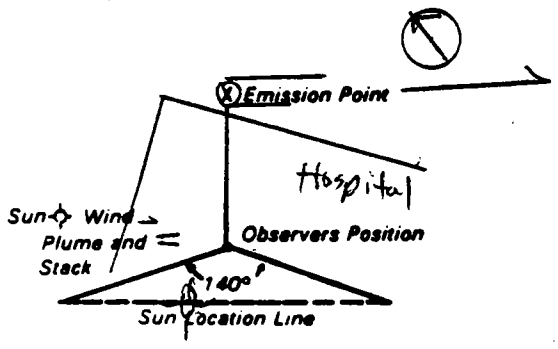
Visible Emission Observation Form

092390-5

SOURCE NAME: AMI Central Caroline Hospital	OBSERVATION DATE: 9/23/90	START TIME: 1540:00	STOP TIME: 1547:45
ADDRESS: 1135 Carthage St			
CITY: Sanford / STATE: NC / ZIP:			
PHONE: / SOURCE ID NUMBER:			
PROCESS EQUIPMENT: Medical waste Incinerator / OPERATING MODE: Charging			
CONTROL EQUIPMENT: none / OPERATING MODE:			
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓			
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓			
DISTANCE FROM OBSERVER: START 55' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP ✓			
DESCRIBE EMISSIONS: START lofting STOP ✓			
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐			
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐			
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓			
DESCRIBE BACKGROUND: START SKY STOP ✓			
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Broken STOP ✓			
WIND SPEED: START 20-25 STOP ✓ / WIND DIRECTION: START NW STOP ✓			
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:			

SEC / MIN	0	15	30	45	MIN
0 1	90	90	90	80	31
1 2	65	60	50	50	32
2 3	50	50	50	60	33
3 4	50	50	40	30	34
4 5	40	30	30	30	35
5 6	25	25	25	30	36
6 7	25	35	25	40	37
7 8	40	25	10	10	38
9					39
10	End				40
11					41
12	Off				42
13					43
14					44
15					45
16	Left				46
17					47
18					48
19					49
20					50
21					51
22					52
23					53
24					54
25					55
26					56
27					57
28					58
29					59
30					60

Source Layout Sketch — Draw North Arrow



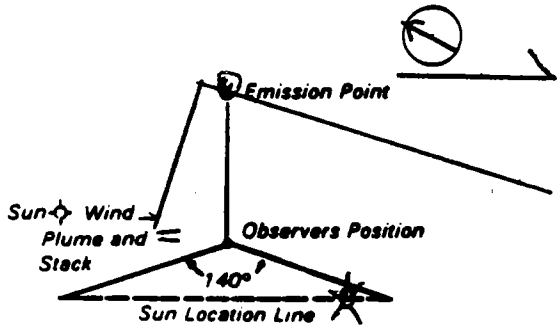
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/23/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form 092490-1

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/24/90
ADDRESS: 1135 Carthage St	START TIME: 1145:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1244:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack STOP 27" Dia	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 15 STOP	
DISTANCE FROM OBSERVER: START 50' STOP / DIRECTION FROM OBSERVER: START NE STOP	
DESCRIBE EMISSIONS: START * STOP *	
EMISSION COLOR: START * STOP * / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: NO ☐ YES ☐ * / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP *	
DESCRIBE BACKGROUND: START Sky STOP	
BACKGROUND COLOR: START Blue STOP / SKY CONDITIONS: START Broken STOP	
WIND SPEED: START 5-10 STOP / WIND DIRECTION: START NW STOP	
AMBIENT TEMP: START 65 STOP 70 / WET BULB TEMP: / RH,percent:	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	12	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

Source Layout Sketch — Drew North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/24/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form

092490-2

SOURCE NAME: Am Central Carolina Hospital	OBSERVATION DATE: 9/24/90
ADDRESS: 1135 Carthage St	START TIME: 1245:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1344:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓	
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP ✓	
DESCRIBE EMISSIONS: START * STOP *	
EMISSION COLOR: START * STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: NO ☐ YES ☐ * / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Broken STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓	
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:	

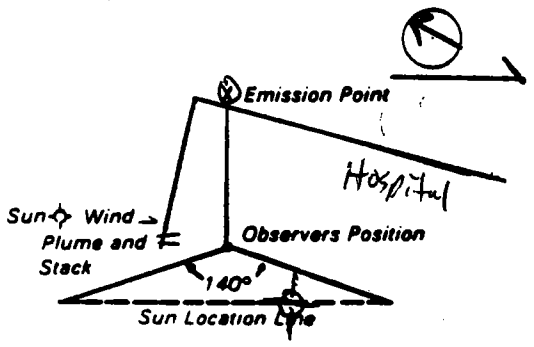
SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
1451	0	0	0	0	31	0	0	0	0	15
462	0	0	0	0	32	0	0	0	0	16
473	0	0	0	0	33	0	0	0	0	17
484	0	0	0	0	34	0	0	0	0	18
495	0	0	0	0	35	0	0	0	0	19
506	0	0	0	0	36	0	0	0	0	20
517	0	0	0	0	37	0	0	0	0	21
528	0	0	0	0	38	0	0	0	0	22
539	0	0	0	0	39	0	0	0	0	23
5410	0	0	0	0	40	0	0	0	0	24
5511	0	0	0	0	41	0	0	0	0	25
5612	0	0	0	0	42	0	0	0	0	26
5713	0	0	0	0	43	0	0	0	0	27
5814	0	0	0	0	44	0	0	0	0	28
5915	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
1026	0	0	0	0	56	0	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
1228	0	0	0	0	58	0	0	0	0	42
1329	0	0	0	0	59	0	0	0	0	43
1430	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD: / NUMBER OF READINGS ABOVE % WERE:

RANGE OF OPACITY READINGS: MINIMUM: / MAXIMUM:

OBSERVER'S NAME (PRINT): Jack Johnson

Source Layout Sketch — Draw North Arrow



COMMENTS: * No plume observed coming from stack

OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/24/90

ORGANIZATION: Radian corp

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE: — CERTIFIED BY: ETA — DATE: 5/25/90

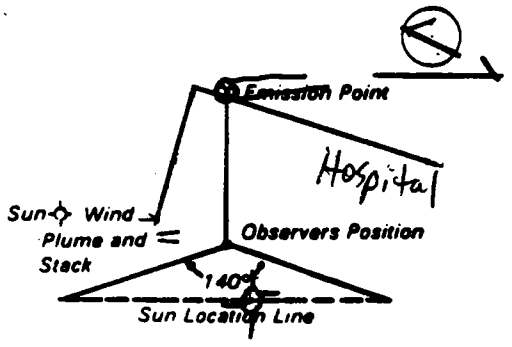
TITLE: — DATE: — VERIFIED BY: — DATE:

Visible Emission Observation Form

092490-3

SOURCE NAME	AMI Central Carolina Hospital
ADDRESS	1135 Carthage St
CITY	Sanford
STATE	NC
ZIP	
PHONE	
SOURCE ID NUMBER	
PROCESS EQUIPMENT	Medical Waste Incinerator
OPERATING MODE	Charging
CONTROL EQUIPMENT	None
OPERATING MODE	—
DESCRIBE EMISSION POINT	START Steel Stack 22" Dia STOP
HEIGHT ABOVE GROUND LEVEL	START 35' STOP
HEIGHT RELATIVE TO OBSERVER	START 15' STOP
DISTANCE FROM OBSERVER	START 50' STOP
DIRECTION FROM OBSERVER	START NE STOP
DESCRIBE EMISSIONS	START lofting STOP
EMISSION COLOR	START Black STOP
PLUME TYPE	CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT	NO ☑ YES ☐
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	START 1' above stack exit STOP
DESCRIBE BACKGROUND	START SKY STOP
BACKGROUND COLOR	START Blue STOP
SKY CONDITIONS	START Clear STOP
WIND SPEED	START 5-10 STOP
WIND DIRECTION	START NW STOP
AMBIENT TEMP	START 70 STOP
WET BULB TEMP	
RH,percent	

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
9/24/90	1345:00	1444:45

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	0	20
51 7	0	0	0	0	37	0	0	15	35	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	5	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	0	0	5	35	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT)	Jack Johnson
OBSERVER'S SIGNATURE	Jack Johnson — DATE 9/24/90
ORGANIZATION	Radian Corp
CERTIFIED BY	ETA — DATE 5/25/90
VERIFIED BY	DATE
COMMENTS	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	TITLE — DATE

Run 5

Section 3.12.10 — 6 — April 1983

Visible Emission Observation Form

092490-4

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/24/90
ADDRESS: 1135 Carthage St	START TIME: 1445:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1544:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE: —	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia. STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 15 STOP ✓	
DISTANCE FROM OBSERVER: START 50' STOP / DIRECTION FROM OBSERVER: START NE STOP	
DESCRIBE EMISSIONS: START lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓	
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
45 1	0	0	0	0	31	0	0	0	0	15
46 2	0	0	0	0	32	0	0	0	0	16
47 3	0	0	0	0	33	0	0	0	0	17
48 4	0	0	0	0	34	0	0	0	0	18
49 5	0	0	0	0	35	0	0	0	0	19
50 6	0	0	0	0	36	0	0	0	25	20
51 7	0	0	0	0	37	0	0	0	0	21
52 8	0	0	0	0	38	0	0	0	0	22
53 9	0	0	0	0	39	0	0	0	0	23
54 10	0	0	0	0	40	0	0	0	0	24
55 11	0	0	0	0	41	0	0	0	0	25
56 12	0	0	0	0	42	0	0	0	0	26
57 13	0	0	0	0	43	0	0	0	0	27
58 14	0	0	0	0	44	0	0	0	0	28
59 15	0	0	0	0	45	0	0	0	0	29
0 16	0	0	0	0	46	0	0	0	0	30
1 17	0	0	0	0	47	0	0	0	0	31
2 18	0	0	0	0	48	0	0	0	0	32
3 19	0	0	0	0	49	0	0	0	0	33
4 20	0	0	0	0	50	0	0	0	0	34
5 21	0	0	0	0	51	0	0	0	0	35
6 22	0	0	0	0	52	0	0	0	0	36
7 23	0	0	0	0	53	0	0	0	0	37
8 24	0	0	0	0	54	0	0	0	0	38
9 25	0	0	0	0	55	0	0	0	0	39
10 26	0	0	0	0	56	15	0	0	0	40
11 27	0	0	0	0	57	0	0	0	0	41
12 28	0	0	0	0	58	0	0	0	0	42
13 29	0	0	0	0	59	0	0	0	0	43
14 30	0	0	0	0	60	0	0	0	0	44

AVERAGE OPACITY FOR HIGHEST PERIOD: / NUMBER OF READINGS ABOVE % WERE:

RANGE OF OPACITY READINGS — MINIMUM: / MAXIMUM:

OBSERVER'S NAME (PRINT): Jack Johnson

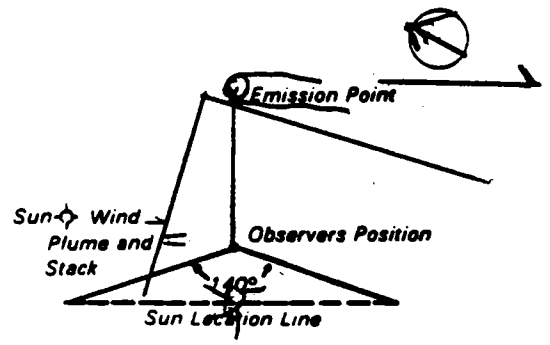
OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/24/90

ORGANIZATION: Radian corp.

CERTIFIED BY: ETA / DATE: 5/25/90

VERIFIED BY: / DATE:

Source Layout Sketch — Draw North Arrow



COMMENTS:

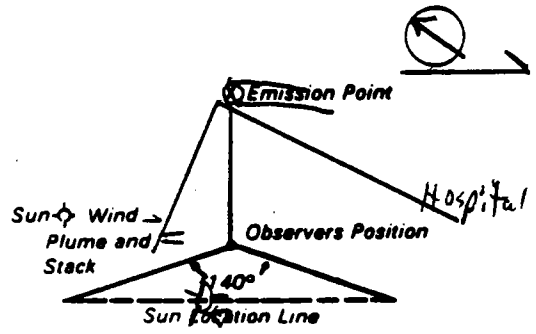
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE: / TITLE: / DATE:

Visible Emission Observation Form 092490-5

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/24/90
ADDRESS: 1135 Carthage St	START TIME: 1545:00
	STOP TIME: 1551:45
CITY: Sanford	STATE: NC ZIP:
PHONE:	SOURCE ID NUMBER:
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE:
DESCRIBE EMISSION POINT: START Lofting STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓
DISTANCE FROM OBSERVER: START 50' STOP ✓	DIRECTION FROM OBSERVER: START NE STOP ✓
DESCRIBE EMISSIONS: START lofting STOP ✓	
EMISSION COLOR: START Black STOP ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT: NO ☐ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓	SKY CONDITIONS: START clear STOP ✓
WIND SPEED: START 5-10 STOP ✓	WIND DIRECTION: START NW STOP ✓
AMBIENT TEMP: START 70 STOP ✓	WET BULB TEMP: RH,percent

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	20	0	36				
7	0	0	0	0	37				
8	End of Test				38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
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25					55				
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27					57				
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29					59				
30					60				

Source Layout Sketch — Draw North Arrow

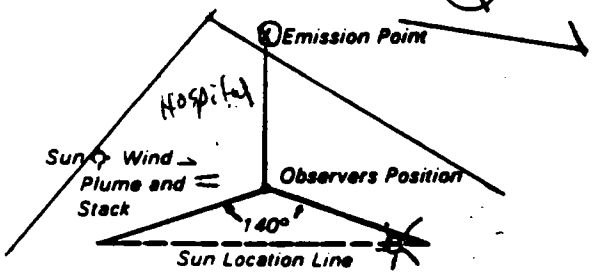


AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson DATE: 9/24/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA DATE: 5/25/93
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/25/90	START TIME: 1010:00
ADDRESS: 1135 Carthage St		STOP TIME: 1109:44
CITY: Sanford	STATE: NC	ZIP:
PHONE:	SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging	
CONTROL EQUIPMENT: None	OPERATING MODE: —	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia.	STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35'	STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP
DISTANCE FROM OBSERVER: START 50'	STOP	DIRECTION FROM OBSERVER: START NE STOP ✓
DESCRIBE EMISSIONS: START *	STOP *	
EMISSION COLOR: START *	STOP *	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT: NO ☐ YES ☐ *		IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START *	STOP *	
DESCRIBE BACKGROUND: START Sky	STOP ✓	
BACKGROUND COLOR: START Blue	STOP ✓	SKY CONDITIONS: START Clear STOP ✓
WIND SPEED: START 5-10	STOP ✓	WIND DIRECTION: START NW STOP ✓
AMBIENT TEMP: START 65	STOP ✓	WET BULB TEMP: RH,percent

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
10 1	0	0	0	0	31	0	0	0	0	40
11 2	0	0	0	0	32	0	0	0	0	41
12 3	0	0	0	0	33	0	0	0	0	42
13 4	0	0	0	0	34	0	0	0	0	43
14 5	0	0	0	0	35	0	0	0	0	44
15 6	0	0	0	0	36	0	0	0	0	45
16 7	0	0	0	0	37	0	0	0	0	46
17 8	0	0	0	0	38	0	0	0	0	47
18 9	0	0	0	0	39	0	0	0	0	48
19 10	0	0	0	0	40	0	0	0	0	49
20 11	0	0	0	0	41	0	0	0	0	50
21 12	0	0	0	0	42	0	0	0	0	51
22 13	0	0	0	0	43	0	0	0	0	52
23 14	0	0	0	0	44	0	0	0	0	53
24 15	0	0	0	0	45	0	0	0	0	54
25 16	0	0	0	0	46	0	0	0	0	55
26 17	0	0	0	0	47	0	0	0	0	56
27 18	0	0	0	0	48	0	0	0	0	57
28 19	0	0	0	0	49	0	0	0	0	58
29 20	0	0	0	0	50	0	0	0	0	59
30 21	0	0	0	0	51	0	0	0	0	0
31 22	0	0	0	0	52	0	0	0	0	1
32 23	0	0	0	0	53	0	0	0	0	2
33 24	0	0	0	0	54	0	0	0	0	3
34 25	0	0	0	0	55	0	0	0	0	4
35 26	0	0	0	0	56	0	0	0	0	5
36 27	0	0	0	0	57	0	0	0	0	6
37 28	0	0	0	0	58	0	0	0	0	7
38 29	0	0	0	0	59	0	0	0	0	8
39 30	0	0	0	0	60	0	0	0	0	9

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/25/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA — DATE: 5/25/90
TITLE — DATE	VERIFIED BY — DATE

Visible Emission Observation Form

042490-2

SOURCE NAME: HMI Central Carolina Hospital	OBSERVATION DATE: 9/24/90
ADDRESS: 1135 Carthage St	START TIME: 1110:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1209:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: none / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 15' STOP	
DISTANCE FROM OBSERVER: START 50' STOP / DIRECTION FROM OBSERVER: START NE STOP	
DESCRIBE EMISSIONS: START * STOP *	
EMISSION COLOR: START * STOP * / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: * NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP *	
DESCRIBE BACKGROUND: START Sky STOP	
BACKGROUND COLOR: START Blue STOP / SKY CONDITIONS: START Clear STOP	
WIND SPEED: START 5-10 STOP / WIND DIRECTION: START NW STOP	
AMBIENT TEMP: START 70 STOP / WET BULB TEMP: / RH,percent:	

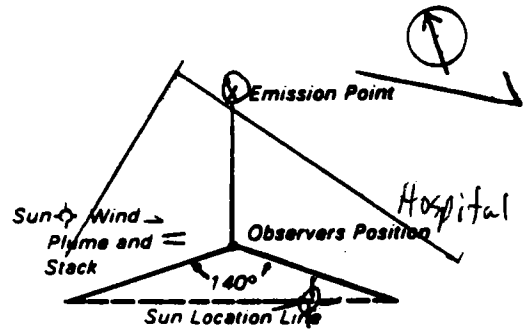
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11 2	0	0	0	0	32	0	0	0	0	41
12 3	0	0	0	0	33	0	0	0	0	42
13 4	0	0	0	0	34	0	0	0	0	43
14 5	0	0	0	0	35	0	0	0	0	44
15 6	0	0	0	0	36	0	0	0	0	45
16 7	0	0	0	0	37	0	0	0	0	46
17 8	0	0	0	0	38	0	0	0	0	47
18 9	0	0	0	0	39	0	0	0	0	48
19 10	0	0	0	0	40	0	0	0	0	49
20 11	0	0	0	0	41	0	0	0	0	50
21 12	0	0	0	0	42	0	0	0	0	51
22 13	0	0	0	0	43	0	0	0	0	52
23 14	0	0	0	0	44	0	0	0	0	53
24 15	0	0	0	0	45	0	0	0	0	54
25 16	0	0	0	0	46	0	0	0	0	55
26 17	0	0	0	0	47	0	0	0	0	56
27 18	0	0	0	0	48	0	0	0	0	57
28 19	0	0	0	0	49	0	0	0	0	58
29 20	0	0	0	0	50	0	0	0	0	59
30 21	0	0	0	0	51	0	0	0	0	0
31 22	0	0	0	0	52	0	0	0	0	1
32 23	0	0	0	0	53	0	0	0	0	2
33 24	0	0	0	0	54	0	0	0	0	3
34 25	0	0	0	0	55	0	0	0	0	4
35 26	0	0	0	0	56	0	0	0	0	5
36 27	0	0	0	0	57	0	0	0	0	6
37 28	0	0	0	0	58	0	0	0	0	7
38 29	0	0	0	0	59	0	0	0	0	8
39 30	0	0	0	0	60	0	0	0	0	9

AVERAGE OPACITY FOR HIGHEST PERIOD: / NUMBER OF READINGS ABOVE % WERE:

RANGE OF OPACITY READINGS: MINIMUM: / MAXIMUM:

OBSERVER'S NAME (PRINT): Jack Johnson

Source Layout Sketch — Draw North Arrow



COMMENTS: * No plume observed coming from stack.

OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/24/90

ORGANIZATION: Radian corp

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE

CERTIFIED BY: EIA — DATE: 5/25/90

TITLE: — DATE:

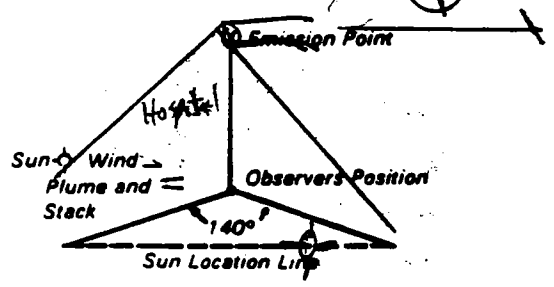
VERIFIED BY: — DATE:

Section 3.12.10 Run 6 April 1983

Visible Emission Observation Form 092490-3

SOURCE NAME: AmE Central Carolina Hospital	OBSERVATION DATE: 9/24/90	START TIME: 1210:00
ADDRESS: 1135 Carthage St		STOP TIME: 1309:44
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: none / OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel stack 22" Dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓		
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START NE STOP ✓		
DESCRIBE EMISSIONS: START lofting STOP ✓		
EMISSION COLOR: START Black STOP ✓ / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑ ✓		
WATER DROPLETS PRESENT: NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓		
DESCRIBE BACKGROUND: START SKY STOP ✓		
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP ✓		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓		
AMBIENT TEMP: START 70 STOP ✓ / WET BULB TEMP: / RH,percent:		

Source Layout Sketch — Draw North Arrow



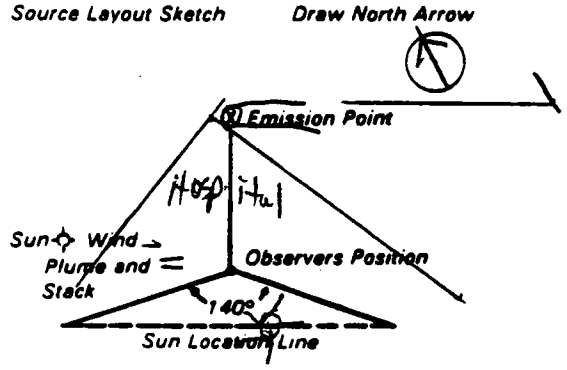
SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
1 3	0	0	0	0	33	0	0	0	0	32
1 4	0	0	0	0	34	0	0	0	0	33
1 5	0	0	0	0	35	0	0	0	0	34
1 6	0	0	0	0	36	0	0	0	0	35
1 7	0	0	0	0	37	0	0	0	0	36
1 8	0	0	0	0	38	0	0	0	0	37
1 9	0	0	0	0	39	0	0	0	0	38
1 10	0	0	0	0	40	0	0	0	0	39
1 11	0	0	0	0	41	0	0	0	0	40
1 12	0	0	0	0	42	0	0	0	0	41
1 13	0	0	0	0	43	0	0	0	0	42
1 14	0	0	0	0	44	0	0	0	0	43
1 15	0	0	0	0	45	0	0	0	0	44
1 16	0	0	0	0	46	0	0	0	0	45
1 17	0	0	0	0	47	0	0	0	0	46
1 18	0	0	0	0	48	0	0	0	0	47
1 19	0	0	0	0	49	0	0	0	0	48
1 20	0	0	0	0	50	0	0	0	0	49
1 21	0	0	0	0	51	0	0	0	0	50
1 22	0	0	0	0	52	0	10	0	0	51
1 23	0	0	0	0	53	0	0	0	0	52
1 24	0	0	0	0	54	0	0	0	0	53
1 25	0	0	0	0	55	0	0	0	0	54
1 26	0	0	0	0	56	0	0	0	0	55
1 27	0	0	0	0	57	0	0	0	0	56
1 28	0	0	0	0	58	0	0	0	0	57
1 29	0	0	0	0	59	0	0	0	0	58
1 30	0	0	0	0	60	0	0	0	0	59

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: One episode @ 1301.	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/24/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: EPA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form 042440-4

SOURCE NAME	ANI Central Carolina Hospital
ADDRESS	1135 Carthage St
CITY	Sanford
STATE	NC
ZIP	
PHONE	
SOURCE ID NUMBER	
PROCESS EQUIPMENT	Medical Waste Incinerator
OPERATING MODE	Charging
CONTROL EQUIPMENT	None
OPERATING MODE	
DESCRIBE EMISSION POINT	START Steel Stack 22" Dia STOP
HEIGHT ABOVE GROUND LEVEL	START 35' STOP
HEIGHT RELATIVE TO OBSERVER	START 15' STOP
DISTANCE FROM OBSERVER	START 50' STOP
DIRECTION FROM OBSERVER	START NE STOP
DESCRIBE EMISSIONS	START lofting STOP
EMISSION COLOR	START Black STOP
PLUME TYPE	CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT	NO ☑ YES ☐
IF WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	START 1' above stack OP STOP
DESCRIBE BACKGROUND	START SKY STOP
BACKGROUND COLOR	START Blue STOP
SKY CONDITIONS	START Clear STOP
WIND SPEED	START 5-10 STOP
WIND DIRECTION	START N STOP
AMBIENT TEMP	START 70 STOP
WET BULB TEMP	
RH, percent	

Source Layout Sketch — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
9/24/90	1310:00	1409:45

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
10 1	0	0	0	0	31	0	0	0	0	40
11 2	0	0	0	0	32	0	0	0	0	41
12 3	0	0	0	0	33	0	0	0	0	42
13 4	0	0	0	0	34	0	0	0	0	43
14 5	0	0	0	0	35	0	0	0	0	44
15 6	0	0	0	0	36	0	0	0	0	45
16 7	0	0	0	0	37	0	0	0	0	46
17 8	0	0	0	0	38	0	0	0	0	47
18 9	0	0	0	0	39	0	0	0	0	48
19 10	0	0	0	0	40	0	0	0	0	49
20 11	0	0	0	0	41	0	0	0	0	50
21 12	0	0	0	0	42	0	0	0	0	51
22 13	0	0	0	0	43	0	0	0	0	52
23 14	0	0	0	0	44	0	0	0	0	53
24 15	0	0	0	0	45	0	0	0	0	54
25 16	0	0	0	0	46	0	0	0	0	55
26 17	0	0	0	0	47	0	0	0	0	56
27 18	0	0	0	0	48	0	0	0	0	57
28 19	0	0	0	0	49	0	0	0	0	58
29 20	0	0	0	0	50	0	0	0	0	59
30 21	35	0	0	0	51	0	0	0	35	0
31 22	0	0	0	0	52	0	25	15	15	1
32 23	0	0	0	0	53	0	0	0	0	2
33 24	0	0	0	0	54	0	0	0	0	3
34 25	0	0	0	0	55	0	0	0	0	4
35 26	0	0	0	0	56	0	0	0	0	5
36 27	0	0	0	0	57	0	0	0	0	6
37 28	0	0	0	0	58	0	0	0	0	7
38 29	0	0	0	0	59	0	0	35	0	8
39 30	0	0	0	0	60	0	0	0	0	9

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT)	Jack Johnson
OBSERVER'S SIGNATURE	Jack Johnson
DATE	9/24/90
ORGANIZATION	Radian Corp
CERTIFIED BY	ETA
DATE	5/25/91
VERIFIED BY	
DATE	
COMMENTS	
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	
TITLE	
DATE	

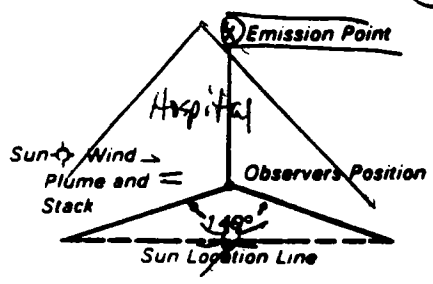
Visible Emission Observation Form

(D) 092490-5

SOURCE NAME AMI Central Carolina Hospital	**OBSERVATION DATE** 9/24/90	**START TIME** 1410:00 / **STOP TIME** 1415:45
ADDRESS 1135 Carthage St.		
CITY Sanford / **STATE** NC / **ZIP**		
PHONE / **SOURCE ID NUMBER**		
PROCESS EQUIPMENT Medical waste Incinerator / **OPERATING MODE** Charging		
CONTROL EQUIPMENT None / **OPERATING MODE**		
DESCRIBE EMISSION POINT START Steel stack 22" dia STOP ✓		
HEIGHT ABOVE GROUND LEVEL START 35' STOP ✓ / **HEIGHT RELATIVE TO OBSERVER** START 15' STOP ✓		
DISTANCE FROM OBSERVER START 50' STOP ✓ / **DIRECTION FROM OBSERVER** START NE STOP ✓		
DESCRIBE EMISSIONS START lofting STOP ✓		
EMISSION COLOR START Black STOP ✓ / **PLUME TYPE** CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☒		
WATER DROPLETS PRESENT NO ☒ YES ☐ / **IF WATER DROPLET PLUME** ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START 1' above stack ex. STOP ✓		
DESCRIBE BACKGROUND START SKY STOP ✓		
BACKGROUND COLOR START Blue STOP ✓ / **SKY CONDITIONS** START Clear STOP ✓		
WIND SPEED START 5-10 STOP ✓ / **WIND DIRECTION** START NE STOP ✓		
AMBIENT TEMP START 70 STOP ✓ / **WET BULB TEMP** / **RH, percent**		

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
10 1	0	0	0	0	31				
11 2	0	0	0	0	32				
12 3	0	0	0	0	33				
13 4	0	0	0	0	34				
14 5	0	0	0	0	35				
15 6	0	0	0	0	36				
7		End			37				
8					38				
9		VO			39				
10					40				
11		40%			41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD	**NUMBER OF READINGS ABOVE % WERE**
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT) Jack Johnson	
COMMENTS	**OBSERVER'S SIGNATURE** Jack Johnson / **DATE** 9/24/90
	ORGANIZATION Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	**CERTIFIED BY** ETA / **DATE** 5/25/90
TITLE / **DATE**	**VERIFIED BY** / **DATE**

Run 8

VISIBLE EMISSION OBSERVATION FORM

No. 092790-1

COMPANY NAME: AMI Central Carolina Hospital		
STREET ADDRESS: 1135 Carthage St		
CITY: Sanford	STATE: NC	ZIP:
PHONE (KEY CONTACT):	SOURCE ID NUMBER:	

PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE: —

DESCRIBE EMISSION POINT: Steel Stack, 22" Dia.

HEIGHT ABOVE GROUND LEVEL: 35'	HEIGHT RELATIVE TO OBSERVER: Start 15' End ✓
DISTANCE FROM OBSERVER: Start 50' End ✓	DIRECTION FROM OBSERVER: Start NE End ✓

DESCRIBE EMISSIONS: Start lofting End ✓

EMISSION COLOR: Start Black End ✓	IF WATER DROPLET PLUME: Attached ☐ Detached ☐

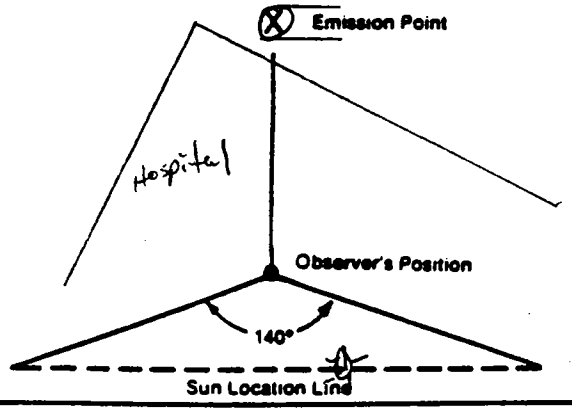
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: Start 1' above stack exit End ✓

DESCRIBE PLUME BACKGROUND: SKY

BACKGROUND COLOR: Start ~~1' above stack exit~~ SKY Blue End ✓	SKY CONDITIONS: Start Clear End ✓	
WIND SPEED: Start 5-10 End ✓	WIND DIRECTION: Start NW End NW	
AMBIENT TEMP: Start 80 End ✓	WET BULB TEMP:	RH, percent:

Stack with Plume
Sun
Wind

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION:

OBSERVATION DATE	START TIME	END TIME
9/27/90	1345:00	—

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1					31				
2					32				
3					33				
4					34				
5					35				
6					36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45	0	0	0	0
16					46	5	5	5	5
17					47	5	5	5	5
18					48	5	0	0	0
19					49	0	0	0	0
20					50	0	0	0	0
21					51	0	0	0	0
22					52	0	0	0	0
23					53	0	0	0	0
24					54	0	0	0	0
25					55	0	0	0	0
26					56	0	0	0	0
27					57	0	0	0	0
28					58	0	0	0	0
29					59	0	0	0	0
30					60	0	0	0	0

OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/27/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
CONTINUED ON VEO FORM NUMBER:	

092790-2

Run 8

VISIBLE EMISSION OBSERVATION FORM

No. 092790-2

COMPANY NAME	AMI Central Carolina Hospital
STREET ADDRESS	1135 Carthage St
CITY	Sanford
STATE	NC
ZIP	
PHONE (KEY CONTACT)	
SOURCE ID NUMBER	

PROCESS EQUIPMENT	Medical Waste Incinerator
OPERATING MODE	Charging
CONTROL EQUIPMENT	None
OPERATING MODE	—

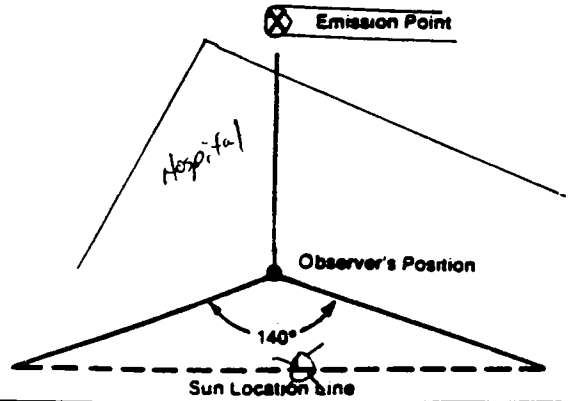
DESCRIBE EMISSION POINT	Steel Stack, 22" Dia
HEIGHT ABOVE GROUND LEVEL	35'
HEIGHT RELATIVE TO OBSERVER	Start 15' End ✓
DISTANCE FROM OBSERVER	Start NE End ✓
DIRECTION FROM OBSERVER	Start 50' End ✓

DESCRIBE EMISSIONS	Start Lofting End ✓
EMISSION COLOR	Start Black End ✓
IF WATER DROPLET PLUME	Attached ☐ Detached ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	Start 1' above stack exit End ✓

DESCRIBE PLUME BACKGROUND	Start SKY End ✓		
BACKGROUND COLOR	Start Blue End ✓	SKY CONDITIONS	Start Clear End ✓
WIND SPEED	Start 5-10 End ✓	WIND DIRECTION	Start NW End ~~SE~~ NW
AMBIENT TEMP	Start 80 End ✓	WET BULB TEMP	RH, percent

Stack with Plume
Sun
Wind

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION

Wind shifted to S.E. ~ 1420

Back to NW ~ 1450

OBSERVATION DATE	START TIME	END TIME
9/27/90	1345	—

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	5	5	5	31	15	10	0	0
2	5	5	5	10	32	15	25	10	20
3	15	10	15	10	33	15	15	15	10
4	10	5	5	5	34	10	10	5	5
5	5	0	0	0	35	5	5	5	5
6	0	0	0	0	36	5	5	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	10
10	0	0	0	0	40	20	20	15	15
11	0	0	0	0	41	20	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	5	5	0
15	0	10	5	5	45	5	10	5	0
16	5	0	0	0	46	0	0	0	0
17	0	0	0	40	47	0	0	0	0
18	25	25	15	20	48	0	0	0	0
19	5	5	5	5	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	5
22	0	0	0	0	52	5	5	5	0
23	0	0	0	0	53	0	5	5	5
24	0	0	0	0	54	5	5	0	0
25	0	0	0	25	55	5	5	5	5
26	30	40	0	~~35~~ 25	56	5	5	5	5
27	0	5	0	0	57	5	5	5	5
28	0	0	0	0	58	5	5	5	5
29	0	0	0	0	59	5	5	5	5
30	0	5	0	20	60	5	10	25	25

OBSERVER'S NAME (PRINT)	Jack Johnson
OBSERVER'S SIGNATURE	Jack Johnson
DATE	9/27/90
ORGANIZATION	Radian Corp.
CERTIFIED BY	ETA
DATE	5/25/90
CONTINUED ON VEO FORM NUMBER	

Run 3

VISIBLE EMISSION OBSERVATION FORM

No. 092790-3

COMPANY NAME: AMI Central Carolina Hospital		
STREET ADDRESS: 1135 Carthage St		
CITY: Sanford	STATE: NC	ZIP:
PHONE (KEY CONTACT): ~~medical~~	SOURCE ID NUMBER:	

PROCESS EQUIPMENT: medical waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE:

DESCRIBE EMISSION POINT: Steel Stack, 22" Dia.

HEIGHT ABOVE GROUND LEVEL: 35'	HEIGHT RELATIVE TO OBSERVER: Start 15' End ✓
DISTANCE FROM OBSERVER: Start 50' End ✓	DIRECTION FROM OBSERVER: Start NE End ✓

DESCRIBE EMISSIONS: Start lofting End ✓

EMISSION COLOR: Start Black End ✓	IF WATER DROPLET PLUME: Attached ☐ Detached ☐

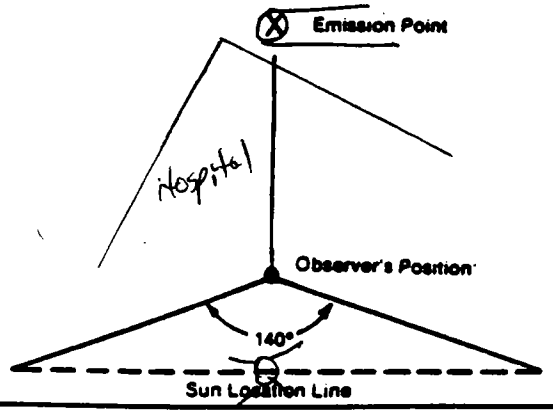
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: Start 1' above stack exit End ✓

DESCRIBE PLUME BACKGROUND: Start SKY End ✓

BACKGROUND COLOR: Start Blue End ✓	SKY CONDITIONS: Start Clear End ✓	
WIND SPEED: Start 5-10 End ✓	WIND DIRECTION: Start ~~SE~~ NW End NW	
AMBIENT TEMP: Start 80 End ✓	WET BULB TEMP	RH, percent

Stack with Plume
Sun
Wind

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION:

OBSERVATION DATE: 9/27/90 — START TIME: 1345 — END TIME: —

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
15[PD]	25	50	25	5~~5~~	31	20	5	5	0
2	5	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	5	5	5	5	37	5	5	5	5
8	5	5	5	15	38	0	5	20	20
9	15	5	5	0	39	20	20	20	25
10	5	5	5	20	40	25	5	5	5
11	20	50	5	5	41	5	5	5	5
12	5	5	5	5	42	25	30	50	5
13	5	5	5	5	43	5	5	5	5
14	5	5	5	5	44	5	5	5	5
15	5	5	0	0	45	5	5	5	5
16	5	0	0	0	46	0	5	25	50
17	0	0	0	0	47	25	5	0	0
18	0	5	5	5	48	0	0	0	0
19	5	5	5	5	49	0	0	0	0
20	20	25	25	25	50	0	0	0	0
21	5	5	5	5	51	0	5	5	5
22	0	5	0	5	52	5	5	5	5
23	0	0	0	5	53	5	5	0	0
24	5	5	0	5	54	0	0	0	15
25	5	5	5	5	55	20	40	0	0
26	5	5	5	5	56	0	0	0	5
27	5	5	0	5	57	5	5	5	5
28	5	5	5	5	58	5	0	0	0
29	5	5	5	5	59	0	5	5	5
30	25	0	0	50	60	5	20	5	5

OBSERVER'S NAME (PRINT): Jack Johnson

OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/27/90

ORGANIZATION: ~~ETA~~ Radian

CERTIFIED BY: ETA — DATE: 5/25/90

CONTINUED ON VEO FORM NUMBER:

092790-4

Run 3

VISIBLE EMISSION OBSERVATION FORM

No. 042798 4

COMPANY NAME: AMI Central Carolina Hospital		
STREET ADDRESS: 1135 Carthage St		
CITY: Sanford	STATE: NC	ZIP:
PHONE (KEY CONTACT):	SOURCE ID NUMBER:	

PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE: —

DESCRIBE EMISSION POINT: Steel Stack 22" Dia

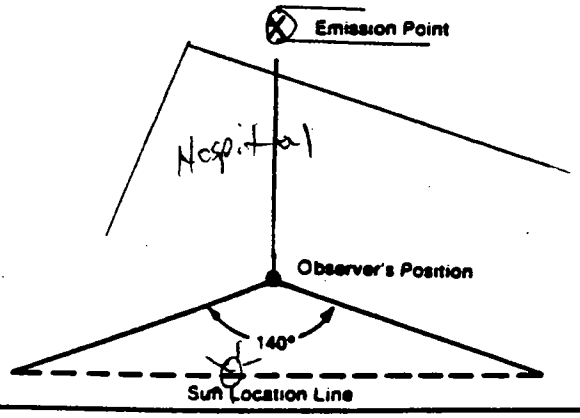
HEIGHT ABOVE GROUND LEVEL: 35'	HEIGHT RELATIVE TO OBSERVER: Start 15' End ✓
DISTANCE FROM OBSERVER: Start 50' End ✓	DIRECTION FROM OBSERVER: Start NE End ✓

DESCRIBE EMISSIONS: Start lofting End ✓	
EMISSION COLOR: Start Black End ✓	IF WATER DROPLET PLUME: Attached ☐ Detached ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: Start 1' above stack ext End ✓	

DESCRIBE PLUME BACKGROUND: Start SKY End ✓		
BACKGROUND COLOR: Start Blue End ✓	SKY CONDITIONS: Start Clear End ✓	
WIND SPEED: Start 5-10 End ✓	WIND DIRECTION: Start NW End ✓	
AMBIENT TEMP: Start 80 End ✓	WET BULB TEMP	RH, percent

Stack with Plume ⊂
Sun ✦
Wind →

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION

OBSERVATION DATE	START TIME	END TIME
9/27/90	1345	—

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	25	25	5	5
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	5	0	5	0
6	5	5	10	5	36	0	0	5	5
7	5	5	5	5	37	10	10	10	15
8	5	20	25	25	38	15	25	25	25
9	5	5	5	10	39	50	50	70	5
10	10	15	25	50	40	5	5	10	5
11	5	5	5	5	41	5	5	5	5
12	5	5	5	5	42	5	0	25	10
13	5	5	5	5	43	25	40	5	5
14	5	5	5	5	44	10	5	5	5
15	5	25	0	5	45	5	5	0	5
16	0	0	0	0	46	0	0	5	0
17	0	0	0	0	47	5	5	5	0
18	0	0	0	0	48	5	5	5	0
19	5	5	5	5	49	0	5	5	5
20	5	5	5	5	50	5	5	5	5
21	10	15	20	20	51	5	5	5	5
22	25	25	25	25	52	15	25	25	25
23	25	50	5	5	53	25	35	5	5
24	5	5	5	5	54	5	5	5	40
25	5	5	5	5	55	50	70	20	5
26	5	5	5	5	56	5	10	5	5
27	5	5	5	5	57	5	5	5	5
28	5	5	5	5	58	5	5	5	15
29	5	5	5	5	59	5	5	5	5
30	5	5	0	40	60	5	0	0	0

OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/27/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
CONTINUED ON VEO FORM NUMBER	

Run 8

VISIBLE EMISSION OBSERVATION FORM

No. 042790-5

COMPANY NAME: AMI Central Carolina Hospital		
STREET ADDRESS: 1135 Carthage St		
CITY: Sanford	STATE: NC	ZIP:
PHONE (KEY CONTACT):	SOURCE ID NUMBER:	

PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging
CONTROL EQUIPMENT: None	OPERATING MODE: —

DESCRIBE EMISSION POINT: Steel Stack, 22" Dia

HEIGHT ABOVE GROUND LEVEL: ~~99~~ ~~50'~~ 35'	HEIGHT RELATIVE TO OBSERVER: Start ~~15~~ ~~35~~ ~~99~~ End ✓
DISTANCE FROM OBSERVER: Start 50' End ✓	DIRECTION FROM OBSERVER: Start NE End ✓

DESCRIBE EMISSIONS: Start lofting End ✓

EMISSION COLOR: Start Black End ✓	IF WATER DROPLET PLUME: Attached ☐ Detached ☐

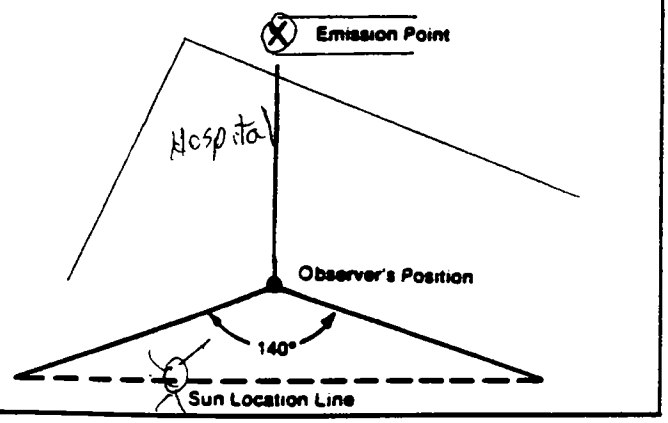
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: Start 1' above stack exit End ✓

DESCRIBE PLUME BACKGROUND: Start Sky End ✓

BACKGROUND COLOR: Start Blue End ✓	SKY CONDITIONS: Start Clear End ✓	
WIND SPEED: Start 5-10 End ✓	WIND DIRECTION: Start NW End ✓	
AMBIENT TEMP: Start 90 End 75	WET BULB TEMP	RH, percent

Stack with Plume
Sun
Wind

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION:

OBSERVATION DATE	START TIME	END TIME
9/27/90	1345	1750:45

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
17,0	0	0	0	0	31	70	70	40	40
2	0	0	0	0	32	25	25	0	5
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	5	5	5	37	0	0	0	0
8	5	5	5	5	38	0	0	0	0
9	5	5	5	5	39	0	0	0	0
10	5	10	10	10	40	0	0	0	5
11	20	20	20	25	41	0	5	5	5
12	25	25	5	5	42	5	5	5	5
13	5	25	40	40	43	5	10	10	5
14	50	80	5	5	44	5	5	10	0
15	5	50	5	5	45	25	10	10	0
16	5	25	20	5	46	0	0	0	5
17	5	0	0	0	47	0	5	0	5
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51				
22	0	0	0	0	52	EVP			
23	0	0	0	0	53				
24	0	0	0	5	54				
25	5	5	5	5	55				
26	5	5	5	5	56				
27	5	5	5	10	57				
28	10	10	10	10	58				
29	5	5	5	0	59				
30	15	25	50	50	60				

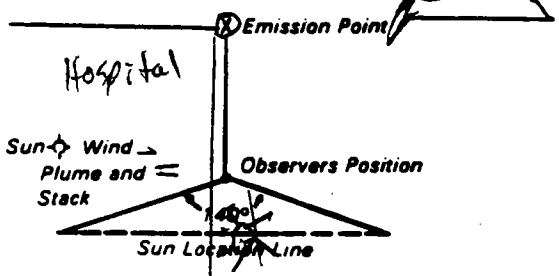
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 9/27/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90

CONTINUED ON VEO FORM NUMBER:

Visible Emission Observation Form 092890-1

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/28/90
ADDRESS: 1135 Carthage St	START TIME: 1100:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1144:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP	
HEIGHT ABOVE GROUND LEVEL: START 35 STOP / HEIGHT RELATIVE TO OBSERVER: START 35' STOP	
DISTANCE FROM OBSERVER: START 120 STOP / DIRECTION FROM OBSERVER: START N STOP	
DESCRIBE EMISSIONS: START * STOP	
EMISSION COLOR: START * STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: * NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP	
DESCRIBE BACKGROUND: START Sky STOP	
BACKGROUND COLOR: START Blue/white STOP / SKY CONDITIONS: START Scattered STOP	
WIND SPEED: START 5-10 STOP / WIND DIRECTION: START W STOP	
AMBIENT TEMP: START 70 STOP 75 / WET BULB TEMP: / RH,percent:	

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

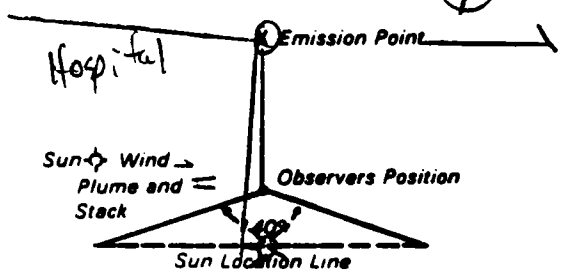
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * NO plume observed coming From stack	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/28/90
	ORGANIZATION: ~~TEA~~ Radian Corp.
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: EPA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Run 9

Visible Emission Observation Form 092890-2

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/28/90	START TIME: 1200:00
ADDRESS: 1135 Carthage St		STOP TIME: 1259:45
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: None / OPERATING MODE:		
DESCRIBE EMISSION POINT: START / STOP		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 35' STOP 15		
DISTANCE FROM OBSERVER: START 120' STOP / DIRECTION FROM OBSERVER: START N STOP N		
DESCRIBE EMISSIONS: START * STOP		
EMISSION COLOR: START * STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐		
WATER DROPLETS PRESENT: NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP		
DESCRIBE BACKGROUND: START Sky STOP ✓		
BACKGROUND COLOR: START Blue/white STOP white / SKY CONDITIONS: START Scattered STOP overcast		
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START W STOP NW		
AMBIENT TEMP: START 75 STOP ✓ / WET BULB TEMP: / RH,percent:		

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

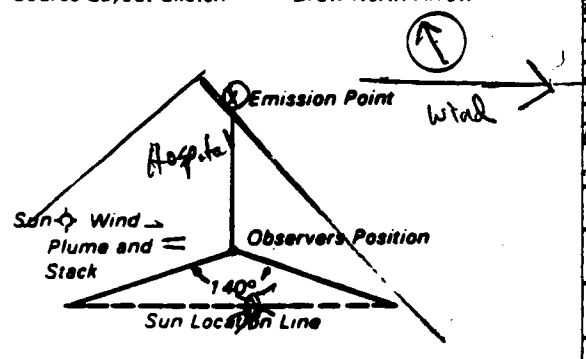
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: Wind shifted to NW ~1230; moved to different location	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/28/90
	ORGANIZATION: Pulian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/91
TITLE / DATE	VERIFIED BY / DATE

* No plume observed coming from stack.

Visible Emission Observation Form 092890-3

SOURCE NAME: AMI Central Carolina Hosp. #1	OBSERVATION DATE: 09/28/90
ADDRESS: 1135 Carthage St.	START TIME: 13:00:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1349:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15 STOP ✓	
DISTANCE FROM OBSERVER: START 50' STOP / DIRECTION FROM OBSERVER: START N STOP NE	
DESCRIBE EMISSIONS: START * STOP	
EMISSION COLOR: START * STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ *INTERMITTENT ☐	
WATER DROPLETS PRESENT: * NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START White STOP ✓ / SKY CONDITIONS: START Overcast STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓	
AMBIENT TEMP: START 75 STOP ✓ / WET BULB TEMP: / RH,percent:	

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	0	0	0	0	47	0	0	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	0	0	0	0	59

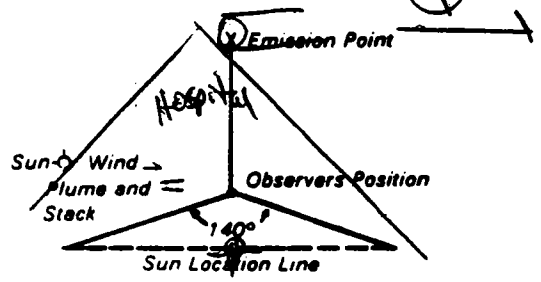
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * no plume observed coming from stack,	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 9/28/90
	ORGANIZATION: Radian corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Section 3.12.10 Run 6 April 1983

Visible Emission Observation Form 092890-4

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 9/28/90
ADDRESS: 1135 Carthage St.	START TIME: 1400:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: 1459:45
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical waste Incinerator	OPERATING MODE: charging
CONTROL EQUIPMENT: None	OPERATING MODE:
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓	HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓
DISTANCE FROM OBSERVER: START ~~120~~ 50' STOP ✓	DIRECTION FROM OBSERVER: START NE STOP ✓
DESCRIBE EMISSIONS: START loft fray STOP ✓	
EMISSION COLOR: START Black STOP ✓	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP ✓	
DESCRIBE BACKGROUND: START SKY STOP ✓	
BACKGROUND COLOR: START white STOP ✓	SKY CONDITIONS: START overcast STOP ✓
WIND SPEED: START 5-10 STOP ✓	WIND DIRECTION: START NW STOP ✓
AMBIENT TEMP: START 75 STOP ✓	WET BULB TEMP: / RH,percent:

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45	
0 1	0	0	0	0	31	0	0	0	0	30
1 2	0	0	0	0	32	0	0	0	0	31
2 3	0	0	0	0	33	0	0	0	0	32
3 4	0	0	0	0	34	0	0	0	0	33
4 5	0	0	0	0	35	0	0	0	0	34
5 6	0	0	0	0	36	0	0	0	0	35
6 7	0	0	0	0	37	0	0	0	0	36
7 8	0	0	0	0	38	0	0	0	0	37
8 9	0	0	0	0	39	0	0	0	0	38
9 10	0	0	0	0	40	0	0	0	0	39
10 11	0	0	0	0	41	0	0	0	0	40
11 12	0	0	0	0	42	0	0	0	0	41
12 13	0	0	0	0	43	0	0	0	0	42
13 14	0	0	0	0	44	0	0	0	0	43
14 15	0	0	0	0	45	0	0	0	0	44
15 16	0	0	0	0	46	0	0	0	0	45
16 17	20	25	0	0	47	0	5	0	0	46
17 18	0	0	0	0	48	0	0	0	0	47
18 19	0	0	0	0	49	0	0	0	0	48
19 20	0	0	0	0	50	0	0	0	0	49
20 21	0	0	0	0	51	0	0	0	0	50
21 22	0	0	0	0	52	0	0	0	0	51
22 23	0	0	0	0	53	0	0	0	0	52
23 24	0	0	0	0	54	0	0	0	0	53
24 25	0	0	0	0	55	0	0	0	0	54
25 26	0	0	0	0	56	0	0	0	0	55
26 27	0	0	0	0	57	0	0	0	0	56
27 28	0	0	0	0	58	0	0	0	0	57
28 29	0	0	0	0	59	0	0	0	0	58
29 30	0	0	0	0	60	20	0	0	0	59

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/28/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA — DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

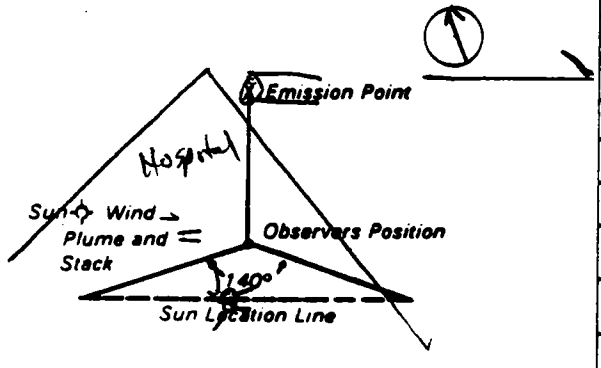
Visible Emission Observation Form

092890-5

SOURCE NAME: AMI Central Carolina Hospital		OBSERVATION DATE: 9/28/90	START TIME: 1500:00 / STOP TIME: 1505:45
ADDRESS: 1135 Carthage St.			
CITY: Sanford	STATE: NC / ZIP:		
PHONE:	SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: Charging		
CONTROL EQUIPMENT: None	OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP			
HEIGHT ABOVE GROUND LEVEL: START 35' STOP	HEIGHT RELATIVE TO OBSERVER: START 15' STOP		
DISTANCE FROM OBSERVER: START 50' STOP	DIRECTION FROM OBSERVER: START NE STOP		
DESCRIBE EMISSIONS: START Lofting STOP			
EMISSION COLOR: START Black STOP	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐		
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP			
DESCRIBE BACKGROUND: START SKY STOP			
BACKGROUND COLOR: START White STOP	SKY CONDITIONS: START Clear STOP		
WIND SPEED: START 5-10 STOP	WIND DIRECTION: START NW STOP		
AMBIENT TEMP: START 75 STOP	WET BULB TEMP: / RH,percent		

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
0 1	0	0	35	0	31				
1 2	0	0	0	0	32				
2 3	0	0	0	0	33				
3 4	0	0	0	0	34				
4 5	0	0	0	0	35				
5 6	0	0	0	0	36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Source Layout Sketch — Draw North Arrow

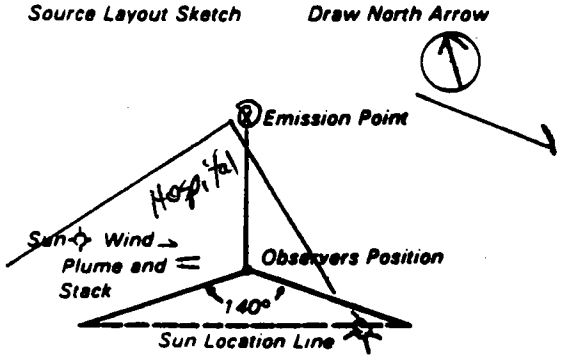


AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson — DATE: 9/28/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA — DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Visible Emission Observation Form CCH-100290-1

SOURCE NAME: HMI Central Carolina Hospital	OBSERVATION DATE: 10/2/90
ADDRESS: 1135 Carthage St	START TIME: 1015:00
CITY: Sanford / STATE: NC / ZIP:	STOP TIME: —
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Chargery	
CONTROL EQUIPMENT: None / OPERATING MODE: —	
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia STOP ✓	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP ✓ / HEIGHT RELATIVE TO OBSERVER: START 15' STOP ✓	
DISTANCE FROM OBSERVER: START 50' STOP ✓ / DIRECTION FROM OBSERVER: START N STOP ✓	
DESCRIBE EMISSIONS: START * STOP	
EMISSION COLOR: START * STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☐	
WATER DROPLETS PRESENT: * NO ☐ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START * STOP	
DESCRIBE BACKGROUND: START Sky STOP ✓	
BACKGROUND COLOR: START Blue STOP ✓ / SKY CONDITIONS: START Clear STOP ✓	
WIND SPEED: START 5-10 STOP ✓ / WIND DIRECTION: START NW STOP ✓	
AMBIENT TEMP: START 65 STOP 70 / WET BULB TEMP. / RH, percent	

Source Layout Sketch — Draw North Arrow



SEC / MIN	0	15	30	45	MIN	0	15	30	45
1	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	1100	0	0	0	0

AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
OBSERVER'S SIGNATURE: Jack Johnson	DATE: 10/2/90
ORGANIZATION: Radian Corp	
CERTIFIED BY: ETA	DATE: 5/25/90
VERIFIED BY:	DATE:

COMMENTS: * no plume observed coming from stack.

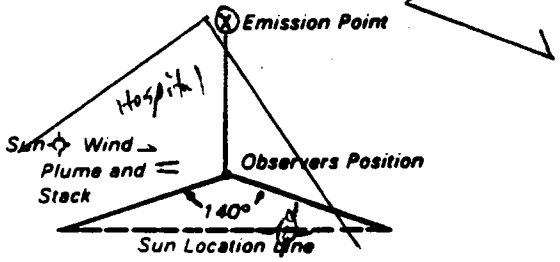
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS
SIGNATURE / TITLE / DATE

Visible Emission Observation Form CCH 100290-2 moved

SOURCE NAME: AmI central carolina Hospital	OBSERVATION DATE: 10/2/90
ADDRESS: 1135 Carthage St	START TIME: ~~1015~~ 1101
CITY: Sanford STATE: NC ZIP:	STOP TIME:
PHONE:	SOURCE ID NUMBER:
PROCESS EQUIPMENT: Medical waste Incinerator	OPERATING MODE: charging
CONTROL EQUIPMENT: none	OPERATING MODE:
DESCRIBE EMISSION POINT: Dia START Steel Stack 22 STOP	
HEIGHT ABOVE GROUND LEVEL START 35' STOP	HEIGHT RELATIVE TO OBSERVER START 15' STOP
DISTANCE FROM OBSERVER START 50' STOP	DIRECTION FROM OBSERVER START N STOP NE
DESCRIBE EMISSIONS START * STOP	
EMISSION COLOR START * STOP	PLUME TYPE CONTINUOUS ☐ FUGITIVE ☐ * INTERMITTENT ☐
WATER DROPLETS PRESENT * NO ☐ YES ☐	IF WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START * STOP	
DESCRIBE BACKGROUND START SKY STOP	
BACKGROUND COLOR START Blue STOP	SKY CONDITIONS START Clear STOP
WIND SPEED START 5-10 STOP	WIND DIRECTION START NW STOP
AMBIENT TEMP START 70 STOP	WET BULB TEMP: RH,percent:

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1101	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	1260	0	0	0	0

Source Layout Sketch — Draw North Arrow



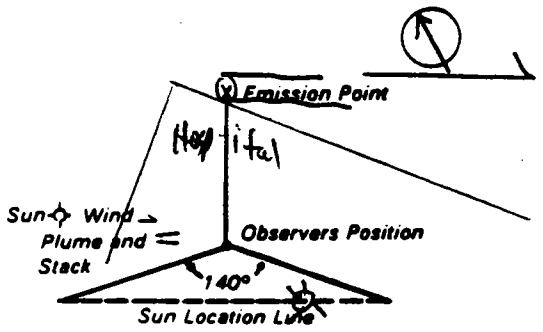
AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: * No plume observed coming from stack	OBSERVER'S SIGNATURE: Jack Johnson DATE: 10/2/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA DATE: 5/25/90
TITLE: DATE:	VERIFIED BY: DATE:

Visible Emission Observation Form CCH 100290-3

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 10/2/90	START TIME: 1201:00
ADDRESS: 1135 Carthage St		STOP TIME: —
CITY: Sanford / STATE: NC / ZIP:		
PHONE: / SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator / OPERATING MODE: Charging		
CONTROL EQUIPMENT: None / OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel Stack 22" dia STOP		
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 15' STOP		
DISTANCE FROM OBSERVER: START 50 STOP / DIRECTION FROM OBSERVER: START NE STOP		
DESCRIBE EMISSIONS: START lofting STOP		
EMISSION COLOR: START Black STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑		
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP		
DESCRIBE BACKGROUND: START SKY STOP		
BACKGROUND COLOR: START Blue STOP / SKY CONDITIONS: START Clear STOP		
WIND SPEED: START 5-10 STOP / WIND DIRECTION: START NW STOP		
AMBIENT TEMP: START 70 STOP / WET BULB TEMP: / RH,percent:		

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1201	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	5	0
16	0	0	0	0	46	35	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	1380	0	0	0	0

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS: MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS: 1 episode ~ 1245	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 10/2/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

Run 10

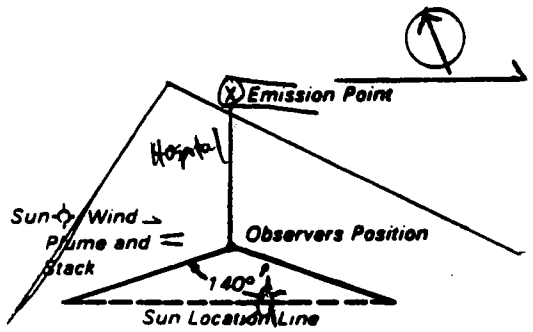
Visible Emission Observation Form

CCH 100290-4

SOURCE NAME: AMI Central Carolina Hospital	OBSERVATION DATE: 10/2/90
ADDRESS: 1135 Carthage St	START TIME: 1301:00
	STOP TIME: —
CITY: Sanford / STATE: NC / ZIP:	
PHONE: / SOURCE ID NUMBER:	
PROCESS EQUIPMENT: Medical waste Incinerator / OPERATING MODE: Charging	
CONTROL EQUIPMENT: None / OPERATING MODE:	
DESCRIBE EMISSION POINT: START Steel Stack 22" dia. STOP	
HEIGHT ABOVE GROUND LEVEL: START 35' STOP / HEIGHT RELATIVE TO OBSERVER: START 15' STOP	
DISTANCE FROM OBSERVER: START 50' STOP / DIRECTION FROM OBSERVER: START NE STOP	
DESCRIBE EMISSIONS: START lofting STOP	
EMISSION COLOR: START Black STOP / PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑	
WATER DROPLETS PRESENT: NO ☑ YES ☐ / IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐	
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1' above stack exit STOP	
DESCRIBE BACKGROUND: START Sky STOP	
BACKGROUND COLOR: START Blue STOP / SKY CONDITIONS: START Clear STOP	
WIND SPEED: START 5-10 STOP / WIND DIRECTION: START NW STOP	
AMBIENT TEMP: START 70 STOP 75 / WET BULB TEMP: / RH,percent:	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	35	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	10	5	0	1488 60	0	0	0	0

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD	NUMBER OF READINGS ABOVE % WERE
RANGE OF OPACITY READINGS MINIMUM	MAXIMUM
OBSERVER'S NAME (PRINT): Jack Johnson	
COMMENTS	OBSERVER'S SIGNATURE: Jack Johnson / DATE: 5/25/90
	ORGANIZATION: Radian Corp
I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE	CERTIFIED BY: ETA / DATE: 5/25/90
TITLE / DATE	VERIFIED BY / DATE

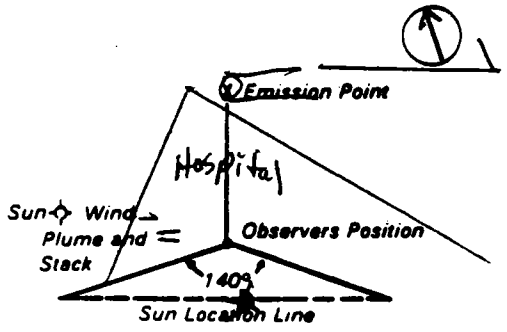
Run D

Visible Emission Observation Form CC# 100290-5

SOURCE NAME: AMI Central Carolina Hospital		OBSERVATION DATE: 10/2/90	START TIME: 1401:00
ADDRESS: 1135 Carthage St.			STOP TIME: 1420:45
CITY: Sanford	STATE: NC ZIP:		
PHONE:	SOURCE ID NUMBER:		
PROCESS EQUIPMENT: Medical Waste Incinerator	OPERATING MODE: charging		
CONTROL EQUIPMENT: None	OPERATING MODE:		
DESCRIBE EMISSION POINT: START Steel Stack 22" Dia. STOP			
HEIGHT ABOVE GROUND LEVEL: START 35' STOP	HEIGHT RELATIVE TO OBSERVER: START 15' STOP		
DISTANCE FROM OBSERVER: START 50' STOP	DIRECTION FROM OBSERVER: START NE STOP		
DESCRIBE EMISSIONS: START lofting STOP			
EMISSION COLOR: START Black STOP	PLUME TYPE: CONTINUOUS ☐ FUGITIVE ☐ INTERMITTENT ☑		
WATER DROPLETS PRESENT: NO ☑ YES ☐	IF WATER DROPLET PLUME: ATTACHED ☐ DETACHED ☐		
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: START 1 above stack exit STOP			
DESCRIBE BACKGROUND: START SKY STOP			
BACKGROUND COLOR: START Blue STOP	SKY CONDITIONS: START Clear STOP		
WIND SPEED: START 5-10 STOP	WIND DIRECTION: START NW STOP		
AMBIENT TEMP: START 75 STOP	WET BULB TEMP:	RH,percent:	

SEC / MIN	0	15	30	45	SEC / MIN	0	15	30	45
1401	0	0	0	0	31				
2	0	0	0	0	32				
3	0	0	0	0	33				
4	0	0	0	0	34				
5	0	0	0	0	35				
6	0	0	0	0	36				
7	0	0	0	0	37				
8	0	0	0	0	38				
9	0	0	0	0	39				
10	0	0	0	0	40				
11	0	0	0	0	41				
12	0	0	0	0	42				
13	0	0	0	0	43				
14	0	0	0	0	44				
15	0	0	0	0	45				
16	0	0	0	0	46				
17	0	0	0	0	47				
18	0	0	0	0	48				
19	0	0	0	0	49				
20	0	0	0	0	50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

Source Layout Sketch — Draw North Arrow



AVERAGE OPACITY FOR HIGHEST PERIOD

NUMBER OF READINGS ABOVE % WERE

RANGE OF OPACITY READINGS MINIMUM MAXIMUM

OBSERVER'S NAME (PRINT): Jack Johnson

COMMENTS

OBSERVER'S SIGNATURE: Jack Johnson DATE: 10/2/90

ORGANIZATION: Radian Corp.

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS SIGNATURE

CERTIFIED BY: ETA DATE: 5/25/90

TITLE DATE

VERIFIED BY DATE

FIELD DATA

Red Bag waste
pretty much overloaded
top to bottom

PLANT Central Carolina Hospital
DATE 9-27-90
SAMPLING LOCATION stack
SAMPLE TYPE PSD - Organic #
RUN NUMBER PSD1
OPERATOR JMcD
AMBIENT TEMPERATURE 80°F
BAROMETRIC PRESSURE 29.65
STATIC PRESSURE, (P_s) -0.01
FILTER NUMBER (s) ~~2649~~ #E / Gelman #450 (organics)

PROBE LENGTH AND TYPE
NOZZLE I.D. 0.312
ASSUMED MOISTURE, % 13%
SAMPLE BOX NUMBER N/A
METER BOX NUMBER N32
METER $\Delta H_@$ 1.92
C FACTOR
PROBE HEATER SETTING N/A
HEATER BOX SETTING N/A
REFERENCE Δp
γ = 1.0002

SCHEMATIC OF TRAVERSE POINT LAYOUT

READ AND RECORD ALL DATA EVERY ~~2~~ 2½ MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	SAMPLE BOX TEMPERATURE, °F	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F		Impactor outlet	Filter outlet
	0 / 1414	202.026									
B2	2½ / 1416.5	202.83	0.057	0.22		~~707~~ 826	79	78	6	~~244~~ 258	54 126
	5 / 1419	203.49				846	78	77	6	252	~~43~~ 125
	7½ / 1421.5	204.15				883	78	78	7	244	~~53~~ 125
	10/off / 1424	204.83				839	79	79	7	240	126

COMMENTS:

FIELD DATA

* initial leak check (through probe 0.002 @ 12" Hg) (through impactor 0.000 @ 1.5" Hg)

PLANT Central Carolina Hospital
DATE 9-25-90
SAMPLING LOCATION Stack
SAMPLE TYPE PSD
RUN NUMBER PSD-2
OPERATOR TmcD
AMBIENT TEMPERATURE 85°F
BAROMETRIC PRESSURE 30.11
STATIC PRESSURE, (P_s) -0.1
FILTER NUMBER (s) Set # L

PROBE LENGTH AND TYPE
NOZZLE I.D. 0.312
ASSUMED MOISTURE, % 13
SAMPLE BOX NUMBER N/A
METER BOX NUMBER N32
METER $\Delta H_@$ 1.52
C FACTOR N/A
PROBE HEATER SETTING N/A
HEATER BOX SETTING N/A
REFERENCE Δp N/A

final leak check through probe 0.002 @ 12" Hg

High load Rate & Rate
upper stages discolored
lower stages better
last couple pretty good

SCHEMATIC OF TRAVERSE POINT LAYOUT

$\gamma = 1.0002$
$K = 3.92$

READ AND RECORD ALL DATA EVERY 5 MINUTES

TRAVERSE POINT NUMBER	SAMPLING TIME, min / CLOCK TIME (24-hr CLOCK)	GAS METER READING (V_m), ft^3	VELOCITY HEAD (Δp_s), in. H_2O	ORIFICE PRESSURE DIFFERENTIAL (ΔH), in. H_2O		STACK TEMPERATURE (T_s), °F	DRY GAS METER TEMPERATURE		PUMP VACUUM, in. Hg	~~SAMPLE BOX~~ TEMPERATURE, °F Impactor Outlet	IMPINGER TEMPERATURE, °F
				DESIRED	ACTUAL		INLET ($T_{m\,in}$), °F	OUTLET ($T_{m\,out}$), °F			
	0 1252	380.002									
B 2	5 1257	381.53	0.076		0.30	(672) 815	78	77	3	200	53
	10 ~~12~~/1302	383.14				802	78	77	3.5	201	52
	15 1307	384.69				779	79	78	3.5	218	65
	20 1312	386.35				825	77	77	3.5	234	71
	25 1317	387.86				804	77	77	4	261	72
	30 off 1322	389.366				988	79	79	4.5	277	70
		9.364					77.75				

COMMENTS:

EPA (Mar) 235
4-72

METHOD 5
FIELD DATA

RUN PSD 3
PAGE 1 OF 1

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE		HEIGHT OF LOCATION (ft)	~5'
DATE	9-26-90	NOZZLE I.D. (in)	0.312	DUCT DIMENSIONS	18'
SAMPLING LOCATION	stack	METER BOX NUMBER	9	FILTER NUMBER	set 0 (zero)
SAMPLE TYPE	PSD	METER ▲ H@	1.83	ASSUMED MOISTURE (%)	13%
RUN NUMBER	PSD 3	Yd	1.0070	MOISTURE METHOD	
OPERATOR	TMD	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	80°F	PROBE HEATER SETTING	N/A	O2/CO2 METHOD	
BAROMETRIC PRESSURE	29.78	HEATER BOX SETTING	N/A	O2	
STATIC PRESSURE (Ps)	-0.1	filter set 0 (zero)		CO2	
INITIAL LEAKCHECK	.015 @ 15"			FINAL LEAKCHECK	

* Red bag waste
Run during 1 charge ~~cycle~~

1st couple of stages looked new
middle stages progressively heavier though still light
stage 7 still light but good
stage 8 a little heavy but good
stage 9 pretty well black

15.5 lcl

READ AND RECORD ALL DATA EVERY 2½ MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲ Pe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter outlet Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
	0	1045	158.575								
A-2	2½/off	1047.5	159.315	.076	672 1122	0.29	146	75	75	40	0
		PSD 4 on reverse side									

COMMENTS:

METHOD 5
FIELD DATA

RUN PSD 4
PAGE 1 OF 1

PLANT	CENTRAL CAROLINA Hospital
DATE	9-26-90
SAMPLING LOCATION	stack
SAMPLE TYPE	PSD
RUN NUMBER	PSD 4
OPERATOR	TMD

Red bag WASTE
Run during loading cycle

all stages looked slightly heavy, piles starting to break up

Box N 32
Y = 1.0002
ΔH@ = 1.92

Initial leak check 0.008 @ 0" Hg

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (ΔPe), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (ΔH, in. H2O)	Filter outlet Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
	0	1315	470.392								
B2	2½5	1320	471.97	0.076	(672) 832	0.30	159	83	83	42	1
	10	1325	473.59		781	↓	159	84	83	44	1
	15/off	1330	475.116		706	↓	173	85	84	54	1
						↓					

COMMENTS:

Revision: 5/90

~~METHOD 5~~ PSD
FIELD DATA

RUN PSD 5
PAGE 1 OF 1

PLANT	Central Carolina Hospital	PROBE LENGTH AND TYPE		HEIGHT OF LOCATION (ft)	25'
DATE	9-27-90	NOZZLE I.D. (in)	0.312	DUCT DIMENSIONS	18"
SAMPLING LOCATION	stack	METER BOX NUMBER	9	FILTER NUMBER	Set J
SAMPLE TYPE	PSD	METER ▲ H@	1.83	ASSUMED MOISTURE (%)	13
RUN NUMBER	PSD 5	Yd	1.0070	MOISTURE METHOD	
OPERATOR	TMcD	K FACTOR		MOISTURE DATA	
AMBIENT TEMPERATURE	80°F	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE	29.78	HEATER BOX SETTING		O2	
STATIC PRESSURE (Ps)	-0.1			CO2	
INITIAL LEAKCHECK	0.012@ 1" Hg			FINAL LEAKCHECK	

High Rat load
(2nd Run @ this condition)

(Observations on recovery on back)

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter outlet Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter		Impinger Exit	
								Inlet (Tm out)	Outlet (Tm out)		
	0	1145	299.700								
A 2	5	1150	301.24	0.036 0.09	812	0.30	308	80	50	65	0
	10	1155	302.78	0.109	813		348	82	81	63	0
	15	1200	304.39	0.11	784		328	85	81	60	0
	20	1205	305.88	0.115	705		311	86	83	61	0
	25	1210	307.40	0.109	799		294	92	85	59	1
	30	1215	308.94	0.107	759		282	95	87	62	1
	35	1220	310.52	0.096	770		282	97	88	60	1
	40	1225	312.12	0.101	842		274	99	90	61	1
	45/off	1230	313.648	0.095	814		269	98	92	59	1

COMMENTS:

Revision: 5/90

PSD 5 / Filter Set J
pre impacter rinse clear
0 stages some big particles
1 stage hardly looked used
2 stage very slight discoloring
3 " progressively heavier discoloring
4 " " " "
5 " " " "
6 " starting to see piles though barely
7 " small but distinct piles
8 " good piles
9 " grey discoloring (heavy) directly under holes

METHOD 5
FIELD DATA

RUN _____
PAGE ___ OF _____

PLANT	
DATE	
SAMPLING LOCATION	
SAMPLE TYPE	
RUN NUMBER	
OPERATOR	

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter Temperature (deg. F)	Temperature (deg. F)			Pump Vacuum (in. Hg)
								Dry Gas Meter			
								Inlet (Tm out)	Outlet (Tm out)	Impinger Exit	

COMMENTS:

METHOD 5
FIELD DATA

RUN PSD 6
PAGE 1 OF 1

PLANT	ICH	PROBE LENGTH AND TYPE		HEIGHT OF LOCATION (ft)	25'
DATE	10-2-90	NOZZLE I.D. (in)	0.312	DUCT DIMENSIONS	18"
SAMPLING LOCATION	STACK	METER BOX NUMBER	9	FILTER NUMBER	Set
SAMPLE TYPE	PSD	METER ▲ H@	1.83	ASSUMED MOISTURE (%)	9%
RUN NUMBER	PSD 6	Yd	1.0070	MOISTURE METHOD	
OPERATOR	TMD	K FACTOR	4.14	MOISTURE DATA	
AMBIENT TEMPERATURE	85°F	PROBE HEATER SETTING		O2/CO2 METHOD	
BAROMETRIC PRESSURE		HEATER BOX SETTING		O2	
STATIC PRESSURE (Ps)	-0.1			CO2	
INITIAL LEAKCHECK	0.004 @ 0" Hg			FINAL LEAKCHECK	

Run @ Low RAT load
1st stage - very clean
2nd through 5th - progressively more discolored
6th through 8th - " better piles
9th stage - fairly well grey & solid

READ AND RECORD ALL DATA EVERY 5 MINUTES

Traverse Point Number	Sampling Time (min)	Clock Time (24-hr)	Gas Meter Reading (Vm), cu.ft	Velocity Head (▲Ps), in. H2O	Flue Gas Temperature (deg. F)	Orifice Pressure Differential (▲H, in. H2O)	Filter outlet Temperature (deg. F)	Temperature (deg. F) Dry Gas Meter Inlet (Tm out)	Dry Gas Meter Outlet (Tm out)	Impinger Exit	Pump Vacuum (in. Hg)
	0	1100	398.500								
A 2	5	1105	400.05	0.0716	652	0.30	274	80	79	64	0
	10	1110	401.62		711		285	80	79	62	0
	15	1115	403.16		701		281	81	80	60	0
	20	1120	404.71		688		280	85	82	60	0
	25	1125	406.25		760		282	86	83	59	0
	30	1130	407.82		721		284	87	84	63	0
	35	1135	409.42		710		290	92	85	65	0
	40	1140	410.95		730		295	91	87	64	0
	45	1145	412.49		716		295	92	88	66	0
	50	1150	414.07		689		298	93	89	65	0
	55	1155	415.56		820		303	98	92	64	0
	60/off	~~1120~~ 1200	417.174		782		310	101	97	65	0

COMMENTS:

Revision: 5/90

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:00:04	14.0011	1059	872	1.6	1.5	1.6	27.7
14:00:34	14.0094	1000	875	-0.2	1.5	1.6	.
14:01:04	14.0178	878	851	1.2	1.5	1.6	.
14:01:34	14.0261	969	879	1.6	1.5	1.6	.
14:02:04	14.0344	1026	988	1.6	1.5	1.6	.
14:02:34	14.0428	1067	1081	1.6	1.5	1.6	.
14:03:04	14.0511	1100	1123	1.6	1.5	1.6	.
14:03:34	14.0594	1123	1122	1.6	1.5	1.6	.
14:04:04	14.0678	1136	1102	1.6	1.5	1.6	.
14:04:34	14.0761	1149	1082	1.6	1.5	1.6	.
14:05:04	14.0844	1162	1058	1.6	1.5	1.6	.
14:05:34	14.0928	1176	1037	1.6	1.5	1.6	.
14:06:04	14.1011	1186	1017	1.6	1.5	1.6	.
14:06:34	14.1094	1193	1000	1.6	1.5	1.6	.
14:07:04	14.1178	1200	985	1.6	1.5	1.6	.
14:07:34	14.1261	1203	976	1.6	1.5	1.6	.
14:08:04	14.1344	1205	962	1.6	1.5	1.6	.
14:08:34	14.1428	1213	955	1.6	1.5	1.6	.
14:09:04	14.1511	1219	952	1.6	1.5	1.6	.
14:09:34	14.1594	1226	948	1.6	1.5	1.6	.
14:10:04	14.1678	1230	945	1.6	1.5	1.6	.
14:10:34	14.1761	1237	943	1.6	1.5	1.6	.
14:11:04	14.1844	1247	946	1.6	1.5	1.6	.
14:11:34	14.1928	1246	941	1.6	1.5	1.6	.
14:12:03	14.2008	1251	940	1.6	1.5	1.6	.
14:12:33	14.2092	1262	943	1.6	1.5	1.6	.
14:13:03	14.2175	1259	942	1.6	1.5	1.6	.
14:13:33	14.2258	1260	943	1.6	1.5	1.6	.
14:14:03	14.2342	1264	944	1.6	1.5	1.6	.
14:14:33	14.2425	1261	945	1.2	1.5	1.6	.
14:15:03	14.2508	1144	939	0.8	1.5	1.6	25.0
14:15:33	14.2592	1123	1047	1.6	1.5	1.6	.
14:16:03	14.2675	1126	1242	1.6	1.5	1.6	.
14:16:33	14.2758	1118	1334	1.6	1.5	1.6	.
14:17:03	14.2842	1116	1341	1.6	1.5	1.6	.
14:17:33	14.2925	1115	1321	1.6	1.5	1.6	.
14:18:03	14.3008	1121	1296	1.6	1.5	1.6	.
14:18:33	14.3092	1117	1272	1.6	1.5	1.6	.
14:19:03	14.3175	1113	1253	1.6	1.5	1.6	.
14:19:33	14.3258	1113	1238	1.6	1.5	1.6	.
14:20:02	14.3339	1123	1230	1.6	1.5	1.6	.
14:20:32	14.3422	1127	1222	1.6	1.5	1.6	.
14:21:02	14.3506	1138	1214	1.6	1.5	1.6	.
14:21:32	14.3589	1149	1213	1.6	1.5	1.6	.
14:22:02	14.3672	1154	1209	1.6	1.5	1.6	.
14:22:32	14.3756	1156	1206	1.6	1.5	1.6	.
14:23:02	14.3839	1152	1206	1.6	1.5	1.6	.
14:23:32	14.3922	1148	1203	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:24:02	14.4006	1153	1203	1.6	1.5	1.6	.
14:24:32	14.4089	1168	1203	1.6	1.5	1.6	.
14:25:02	14.4172	1176	1196	1.6	1.5	1.6	.
14:25:32	14.4256	1187	1191	1.6	1.5	1.6	.
14:26:02	14.4339	1190	1185	1.6	1.5	1.6	.
14:26:32	14.4422	1191	1181	1.6	1.5	1.6	.
14:27:02	14.4506	1196	1181	1.6	1.5	1.6	.
14:27:32	14.4589	1199	1180	1.6	1.5	1.6	.
14:28:02	14.4672	1199	1180	1.6	1.5	1.6	.
14:28:32	14.4756	1206	1182	1.6	1.5	1.6	.
14:29:02	14.4839	1208	1185	1.6	1.5	1.6	.
14:29:32	14.4922	1212	1186	1.6	1.5	1.6	.
14:30:02	14.5006	1210	1188	0.7	1.5	1.6	27.7
14:30:32	14.5089	1145	1188	1.6	1.5	1.6	.
14:31:02	14.5172	1166	1324	1.6	1.5	1.6	.
14:31:31	14.5253	1214	1457	1.6	1.5	1.6	.
14:32:01	14.5336	1207	1493	1.6	1.5	1.6	.
14:32:31	14.5419	1192	1470	1.6	1.5	1.6	.
14:33:01	14.5503	1186	1436	1.6	1.5	1.6	.
14:33:31	14.5586	1184	1410	1.6	1.5	1.6	.
14:34:01	14.5669	1189	1391	1.6	1.5	1.6	.
14:34:31	14.5753	1195	1372	1.6	1.5	1.6	.
14:35:01	14.5836	1209	1357	1.6	1.5	1.6	.
14:35:31	14.5919	1218	1336	1.6	1.5	1.6	.
14:36:01	14.6003	1225	1325	1.6	1.5	1.6	.
14:36:31	14.6086	1226	1310	1.6	1.5	1.6	.
14:37:01	14.6169	1232	1298	1.6	1.5	1.6	.
14:37:31	14.6253	1231	1288	1.6	1.5	1.6	.
14:38:01	14.6336	1241	1279	1.6	1.5	1.6	.
14:38:31	14.6419	1250	1272	1.6	1.5	1.6	.
14:39:13	14.6536	1260	1266	1.6	1.5	1.6	.
14:39:43	14.6619	1270	1260	1.6	1.5	1.6	.
14:40:13	14.6703	1271	1253	1.6	1.5	1.6	.
14:40:58	14.6828	1277	1250	1.6	1.5	1.6	.
14:41:28	14.6911	1282	1244	1.6	1.5	1.6	.
14:41:58	14.6994	1284	1242	1.6	1.5	1.6	.
14:42:28	14.7078	1289	1238	1.6	1.5	1.6	.
14:42:58	14.7161	1292	1237	1.6	1.5	1.6	.
14:43:28	14.7244	1296	1238	1.6	1.5	1.6	.
14:43:57	14.7325	1301	1238	1.6	1.5	1.6	.
14:44:27	14.7408	1305	1240	1.6	1.5	1.6	.
14:44:57	14.7492	1309	1242	1.6	1.5	1.6	.
14:45:27	14.7575	1260	1237	0.7	1.5	1.6	53.9
14:45:57	14.7658	1209	1310	1.6	1.5	1.6	.
14:46:27	14.7742	1236	1472	1.6	1.5	1.6	.
14:46:57	14.7825	1261	1534	1.6	1.5	1.6	.
14:47:27	14.7908	1248	1518	1.6	1.5	1.6	.
14:47:57	14.7992	1240	1482	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:48:27	14.8075	1248	1454	1.6	1.5	1.6	.
14:48:57	14.8158	1247	1431	1.6	1.5	1.6	.
14:49:27	14.8242	1252	1413	1.6	1.5	1.6	.
14:49:57	14.8325	1255	1395	1.6	1.5	1.6	.
14:50:27	14.8408	1257	1380	1.6	1.5	1.6	.
14:50:57	14.8492	1259	1369	1.6	1.5	1.6	.
14:51:27	14.8575	1266	1365	1.6	1.5	1.6	.
14:51:57	14.8658	1267	1362	1.6	1.5	1.6	.
14:52:27	14.8742	1268	1360	1.6	1.5	1.6	.
14:52:57	14.8825	1271	1357	1.6	1.5	1.6	.
14:53:27	14.8908	1274	1356	1.6	1.5	1.6	.
14:53:57	14.8992	1277	1357	1.6	1.5	1.6	.
14:54:27	14.9075	1277	1358	1.6	1.5	1.6	.
14:54:56	14.9156	1284	1360	1.6	1.5	1.6	.
14:55:26	14.9239	1288	1358	1.6	1.5	1.6	.
14:55:56	14.9322	1293	1359	1.6	1.5	1.6	.
14:56:26	14.9406	1295	1361	1.6	1.5	1.6	.
14:56:56	14.9489	1297	1362	1.6	1.5	1.6	.
14:57:26	14.9572	1303	1364	1.6	1.5	1.6	.
14:57:56	14.9656	1307	1365	1.6	1.5	1.6	.
14:58:26	14.9739	1311	1364	1.6	1.5	1.6	.
14:58:56	14.9822	1315	1364	1.6	1.5	1.6	.
14:59:26	14.9906	1319	1365	1.6	1.5	1.6	.
14:59:56	14.9989	1323	1366	1.6	1.5	1.6	.
15:00:26	15.0072	1326	1367	1.6	1.5	1.6	.
15:00:56	15.0156	1326	1368	1.6	1.5	1.6	.
15:01:26	15.0239	1330	1369	1.6	1.5	1.6	.
15:01:56	15.0322	1328	1369	1.6	1.5	1.6	.
15:02:26	15.0406	1312	1365	1.6	1.5	1.6	.
15:02:56	15.0489	1319	1369	1.6	1.5	1.6	.
15:03:26	15.0572	1313	1366	1.6	1.5	1.6	.
15:03:56	15.0656	1316	1366	1.6	1.5	1.6	.
15:04:25	15.0736	1318	1367	1.6	1.5	1.6	.
15:04:55	15.0819	1316	1367	1.6	1.5	1.6	.
15:05:25	15.0903	1310	1368	1.6	1.5	1.6	.
15:05:55	15.0986	1315	1369	1.6	1.5	1.6	.
15:06:25	15.1069	1327	1368	1.6	1.5	1.6	.
15:06:55	15.1153	1327	1362	1.6	1.5	1.6	.
15:07:25	15.1236	1326	1361	1.6	1.5	1.6	.
15:07:55	15.1319	1327	1358	1.6	1.5	1.6	.
15:08:25	15.1403	1333	1359	1.6	1.5	1.6	.
15:08:55	15.1486	1336	1358	1.6	1.5	1.6	.
15:09:25	15.1569	1343	1358	1.6	1.5	1.6	.
15:09:55	15.1653	1345	1353	1.6	1.5	1.6	.
15:10:25	15.1736	1347	1349	1.6	1.5	1.6	.
15:10:55	15.1819	1349	1347	1.6	1.5	1.6	.
15:11:25	15.1903	1349	1346	1.6	1.5	1.6	.
15:11:55	15.1986	1353	1343	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:12:25	15.2069	1352	1340	1.6	1.5	1.6	.
15:12:55	15.2153	1354	1338	1.6	1.5	1.6	.
15:13:25	15.2236	1354	1337	1.6	1.5	1.6	.
15:13:55	15.2319	1359	1338	1.6	1.5	1.6	.
15:14:25	15.2403	1364	1335	1.6	1.5	1.6	.
15:14:54	15.2483	1368	1332	1.4	1.5	1.6	.
15:15:24	15.2567	1321	1332	1.0	1.5	1.6	26.9
15:15:54	15.2650	1277	1446	1.6	1.5	1.6	.
15:16:24	15.2733	1299	1571	1.6	1.5	1.6	.
15:16:54	15.2817	1316	1597	1.6	1.5	1.6	.
15:17:24	15.2900	1331	1582	1.6	1.5	1.6	.
15:17:54	15.2983	1343	1550	1.6	1.5	1.6	.
15:18:24	15.3067	1351	1517	1.6	1.5	1.6	.
15:18:54	15.3150	1355	1488	1.6	1.5	1.6	.
15:19:24	15.3233	1359	1466	1.6	1.5	1.6	.
15:19:54	15.3317	1365	1447	1.6	1.5	1.6	.
15:20:24	15.3400	1375	1433	1.6	1.5	1.6	.
15:20:54	15.3483	1377	1420	1.6	1.5	1.6	.
15:21:24	15.3567	1379	1409	1.6	1.5	1.6	.
15:21:54	15.3650	1385	1404	1.6	1.5	1.6	.
15:22:24	15.3733	1383	1395	1.6	1.5	1.6	.
15:22:54	15.3817	1386	1391	1.6	1.5	1.6	.
15:23:24	15.3900	1390	1389	1.6	1.5	1.6	.
15:23:54	15.3983	1392	1387	1.6	1.5	1.6	.
15:24:23	15.4064	1397	1384	1.6	1.5	1.6	.
15:24:53	15.4147	1399	1380	1.6	1.5	1.6	.
15:25:23	15.4231	1401	1378	1.6	1.5	1.6	.
15:25:53	15.4314	1408	1378	1.6	1.5	1.6	.
15:26:23	15.4397	1411	1378	1.6	1.5	1.6	.
15:26:53	15.4481	1412	1376	1.6	1.5	1.6	.
15:27:23	15.4564	1413	1378	1.6	1.5	1.6	.
15:27:53	15.4647	1415	1380	1.6	1.5	1.6	.
15:28:23	15.4731	1414	1380	1.6	1.5	1.6	.
15:28:53	15.4814	1417	1381	1.6	1.5	1.6	.
15:29:23	15.4897	1419	1379	1.6	1.5	1.6	.
15:29:53	15.4981	1423	1380	1.6	1.5	1.6	.
15:30:23	15.5064	1382	1374	0.7	1.5	1.6	57.8
15:30:53	15.5147	1312	1436	1.6	1.5	1.6	.
15:31:23	15.5231	1399	1584	1.6	1.5	1.6	.
15:31:53	15.5314	1413	1632	1.6	1.5	1.6	.
15:32:23	15.5397	1409	1611	1.6	1.5	1.6	.
15:32:53	15.5481	1401	1587	1.6	1.5	1.6	.
15:33:23	15.5564	1384	1570	1.6	1.5	1.6	.
15:33:53	15.5647	1373	1558	1.6	1.5	1.6	.
15:34:22	15.5728	1366	1545	1.6	1.5	1.6	.
15:34:52	15.5811	1359	1534	1.6	1.5	1.6	.
15:35:22	15.5894	1354	1527	1.6	1.5	1.6	.
15:35:52	15.5978	1354	1522	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:36:22	15.6061	1352	1516	1.6	1.5	1.6	.
15:36:52	15.6144	1350	1508	1.6	1.5	1.6	.
15:37:22	15.6228	1345	1503	1.6	1.5	1.6	.
15:37:52	15.6311	1345	1496	1.6	1.5	1.6	.
15:38:22	15.6394	1346	1492	1.6	1.5	1.6	.
15:38:52	15.6478	1344	1488	1.6	1.5	1.6	.
15:39:22	15.6561	1353	1490	1.6	1.5	1.6	.
15:39:52	15.6644	1354	1484	1.6	1.5	1.6	.
15:40:22	15.6728	1352	1480	1.6	1.5	1.6	.
15:40:58	15.6828	1357	1480	1.6	1.5	1.6	.
15:44:46	15.7461	1390	1469	1.6	1.6	1.6	.
15:45:30	15.7583	1400	1477	1.6	1.5	1.6	.
15:46:00	15.7667	1395	1465	1.6	1.5	1.6	.
15:46:42	15.7783	1396	1465	1.6	1.5	1.6	.
15:47:12	15.7867	1403	1467	1.6	1.5	1.6	.
15:47:41	15.7947	1410	1468	1.6	1.5	1.6	.
15:48:11	15.8031	1421	1472	1.6	1.5	1.6	.
15:48:41	15.8114	1433	1477	1.6	1.5	1.6	.
15:49:11	15.8197	1425	1471	1.6	1.5	1.6	.
15:49:41	15.8281	1446	1478	1.6	1.5	1.6	.
15:50:11	15.8364	1448	1479	1.6	1.5	1.6	.
15:50:41	15.8447	1454	1480	1.6	1.5	1.6	.
15:51:11	15.8531	1469	1482	1.6	1.5	1.6	.
15:51:41	15.8614	1478	1484	1.6	1.5	1.6	.
15:52:11	15.8697	1486	1486	1.6	1.5	1.6	.
15:52:41	15.8781	1494	1486	1.6	1.5	1.6	.
15:53:11	15.8864	1496	1486	1.6	1.5	1.6	.
15:53:41	15.8947	1496	1485	1.6	1.5	1.6	.
15:54:11	15.9031	1486	1477	1.6	1.5	1.6	.
15:54:41	15.9114	1485	1474	1.6	1.5	1.6	.
15:55:11	15.9197	1485	1472	1.6	1.5	1.6	.
15:55:41	15.9281	1489	1470	1.6	1.5	1.6	.
15:56:11	15.9364	1491	1468	1.6	1.5	1.6	.
15:56:40	15.9444	1492	1466	1.6	1.5	1.6	.
15:57:10	15.9528	1498	1466	1.6	1.5	1.6	.
15:57:40	15.9611	1498	1464	1.6	1.5	1.6	.
15:58:10	15.9694	1500	1465	1.6	1.5	1.6	.
15:58:40	15.9778	1503	1465	1.6	1.5	1.6	.
15:59:10	15.9861	1503	1462	1.6	1.5	1.6	.
15:59:40	15.9944	1506	1462	1.6	1.5	1.6	.
16:00:10	16.0028	1488	1458	0.3	1.5	1.6	28.9
16:00:40	16.0111	1431	1470	1.1	1.5	1.6	.
16:01:10	16.0194	1360	1616	1.6	1.5	1.6	.
16:01:40	16.0278	1410	1749	1.6	1.5	1.6	.
16:02:10	16.0361	1485	1819	1.6	1.5	1.6	.
16:02:40	16.0444	1549	1820	1.6	1.5	1.6	.
16:03:10	16.0528	1557	1796	1.6	1.5	1.6	.
16:03:40	16.0611	1550	1771	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
16:04:10	16.0694	1459	1743	1.6	1.5	1.6	.
16:04:40	16.0778	1431	1723	1.6	1.5	1.6	.
16:05:10	16.0861	1424	1701	1.6	1.5	1.6	.
16:05:39	16.0942	1429	1677	1.6	1.5	1.6	.
16:06:09	16.1025	1435	1654	1.6	1.5	1.6	.
16:06:39	16.1108	1443	1636	1.6	1.5	1.6	.
16:07:09	16.1192	1443	1622	1.6	1.5	1.6	.
16:07:39	16.1275	1463	1624	1.6	1.5	1.6	.
16:08:09	16.1358	1468	1613	1.6	1.5	1.6	.
16:08:39	16.1442	1470	1602	1.6	1.5	1.6	.
16:09:09	16.1525	1473	1595	1.6	1.5	1.6	.
16:09:39	16.1608	1480	1589	1.6	1.5	1.6	.
16:10:09	16.1692	1485	1583	1.6	1.5	1.6	.
16:10:39	16.1775	1484	1576	1.6	1.5	1.6	.
16:11:09	16.1858	1485	1572	1.6	1.5	1.6	.
16:11:39	16.1942	1485	1568	1.6	1.5	1.6	.
16:12:09	16.2025	1488	1566	1.6	1.5	1.6	.
16:12:39	16.2108	1491	1563	1.6	1.5	1.6	.
16:13:09	16.2192	1493	1562	1.6	1.5	1.6	.
16:13:39	16.2275	1493	1561	1.6	1.5	1.6	.
16:14:09	16.2358	1496	1561	1.6	1.5	1.6	.
16:14:38	16.2439	1497	1559	1.6	1.5	1.6	.
16:15:08	16.2522	1498	1559	1.6	1.5	1.6	50.7
16:15:38	16.2606	1480	1552	0.1	1.5	1.6	.
16:16:08	16.2689	1412	1575	1.6	1.5	1.6	.
16:16:38	16.2772	1428	1721	1.6	1.5	1.6	.
16:17:08	16.2856	1509	1807	1.6	1.5	1.6	.
16:17:38	16.2939	1558	1796	1.6	1.5	1.6	.
16:18:08	16.3022	1543	1765	1.6	1.5	1.6	.
16:18:38	16.3106	1496	1740	1.6	1.5	1.6	.
16:19:08	16.3189	1484	1724	1.6	1.5	1.6	.
16:19:38	16.3272	1491	1714	1.6	1.5	1.6	.
16:20:08	16.3356	1506	1707	1.6	1.5	1.6	.
16:20:38	16.3439	1493	1701	1.6	1.5	1.6	.
16:21:08	16.3522	1485	1695	1.6	1.5	1.6	.
16:21:38	16.3606	1483	1689	1.6	1.5	1.6	.
16:22:08	16.3689	1482	1681	1.6	1.5	1.6	.
16:22:38	16.3772	1480	1672	1.6	1.5	1.6	.
16:23:08	16.3856	1485	1666	1.6	1.5	1.6	.
16:23:37	16.3936	1483	1662	1.6	1.5	1.6	.
16:24:07	16.4019	1485	1659	1.6	1.5	1.6	.
16:24:37	16.4103	1486	1657	1.6	1.5	1.6	.
16:25:07	16.4186	1484	1653	1.6	1.5	1.6	.
16:25:37	16.4269	1483	1646	1.6	1.5	1.6	.
16:26:07	16.4353	1487	1640	1.6	1.5	1.6	.
16:26:37	16.4436	1493	1633	1.6	1.5	1.6	.
16:27:07	16.4519	1496	1628	1.6	1.5	1.6	.
16:27:37	16.4603	1496	1624	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
16:28:07	16.4686	1496	1621	1.6	1.5	1.6	.
16:28:37	16.4769	1501	1618	1.6	1.5	1.6	.
16:29:07	16.4853	1507	1614	1.6	1.5	1.6	.
16:29:37	16.4936	1513	1611	1.6	1.5	1.6	.
16:30:07	16.5019	1517	1611	1.6	1.5	1.6	.
16:30:37	16.5103	1522	1610	1.6	1.5	1.6	.
16:31:07	16.5186	1526	1610	1.6	1.5	1.6	.
16:31:37	16.5269	1530	1611	1.6	1.5	1.6	.
16:32:07	16.5353	1530	1610	1.6	1.5	1.6	.
16:32:36	16.5433	1531	1609	1.6	1.5	1.6	.
16:33:06	16.5517	1531	1608	1.6	1.5	1.6	.
16:33:36	16.5600	1531	1609	1.6	1.5	1.6	.
16:34:06	16.5683	1532	1610	1.6	1.5	1.6	.
16:34:36	16.5767	1534	1611	1.6	1.5	1.6	.
16:35:06	16.5850	1533	1612	1.6	1.5	1.6	.
16:35:36	16.5933	1533	1611	1.6	1.5	1.6	.
16:36:06	16.6017	1538	1611	1.6	1.5	1.6	.
16:36:36	16.6100	1543	1611	1.6	1.5	1.6	.
16:37:06	16.6183	1546	1610	1.6	1.5	1.6	.
16:37:36	16.6267	1549	1610	1.6	1.5	1.6	.
16:38:06	16.6350	1553	1607	1.6	1.5	1.6	.
16:38:36	16.6433	1553	1603	1.6	1.5	1.6	.
16:39:06	16.6517	1556	1599	1.6	1.5	1.6	.
16:39:36	16.6600	1557	1595	1.6	1.5	1.6	.
16:40:06	16.6683	1560	1591	1.6	1.5	1.6	.
16:40:36	16.6767	1561	1589	1.6	1.5	1.6	.
16:41:06	16.6850	1559	1593	1.6	1.5	1.6	.
16:41:35	16.6931	1565	1595	1.6	1.5	1.6	.
16:42:05	16.7014	1570	1595	1.6	1.5	1.6	.
16:42:35	16.7097	1543	1584	-0.6	1.5	1.6	.
16:43:05	16.7181	1452	1524	-1.4	1.5	1.6	.
16:43:35	16.7264	1403	1457	-1.4	1.5	1.6	.
16:44:05	16.7347	1446	1407	1.3	1.5	1.6	.
16:44:35	16.7431	1530	1413	1.6	1.5	1.6	.
16:45:05	16.7514	1558	1443	1.6	1.5	1.6	24.5
16:45:35	16.7597	1554	1471	-0.5	1.5	1.6	.
16:46:05	16.7681	1597	1558	-1.4	1.5	1.6	.
16:46:35	16.7764	1554	1628	-1.4	1.5	1.6	.
16:47:05	16.7847	1500	1635	0.3	1.5	1.6	.
16:47:35	16.7931	1527	1708	1.6	1.5	1.6	.
16:48:05	16.8014	1590	1804	1.6	1.5	1.6	.
16:48:35	16.8097	1597	1852	1.6	1.5	1.6	.
16:49:05	16.8181	1591	1864	1.6	1.5	1.6	.
16:49:35	16.8264	1595	1853	1.6	1.5	1.6	.
16:50:05	16.8347	1577	1828	1.6	1.5	1.6	.
16:50:35	16.8431	1564	1801	1.6	1.5	1.6	.
16:51:05	16.8514	1581	1779	1.6	1.5	1.6	.
16:51:35	16.8597	1580	1760	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
16:52:05	16.8681	1604	1746	1.6	1.5	1.6	.
16:52:35	16.8764	1621	1736	1.6	1.5	1.6	.
16:53:04	16.8844	1637	1729	1.6	1.5	1.6	.
16:53:34	16.8928	1635	1719	1.6	1.5	1.6	.
16:54:04	16.9011	1623	1711	1.6	1.5	1.6	.
16:54:34	16.9094	1613	1705	1.6	1.5	1.6	.
16:55:04	16.9178	1595	1700	1.6	1.5	1.6	.
16:55:34	16.9261	1595	1693	1.6	1.5	1.6	.
16:56:04	16.9344	1591	1686	1.6	1.5	1.6	.
16:56:34	16.9428	1581	1676	0.3	1.5	1.6	.
16:57:04	16.9511	1484	1618	-1.4	1.5	1.6	.
16:57:34	16.9594	1426	1541	-1.4	1.5	1.6	.
16:58:04	16.9678	1393	1476	-0.7	1.5	1.6	.
16:58:34	16.9761	1485	1443	1.6	1.5	1.6	.
16:59:04	16.9844	1548	1476	1.6	1.5	1.6	.
16:59:34	16.9928	1574	1524	1.6	1.5	1.6	.
17:00:04	17.0011	1589	1562	1.6	1.5	1.6	25.5
17:00:34	17.0094	1601	1589	1.6	1.5	1.6	.
17:01:04	17.0178	1565	1598	-0.5	1.5	1.6	.
17:01:33	17.0258	1546	1601	-1.4	1.5	1.6	.
17:02:03	17.0342	1518	1663	-1.4	1.5	1.6	.
17:02:33	17.0425	1499	1625	-1.4	1.5	1.6	.
17:03:03	17.0508	1498	1559	-1.4	1.5	1.6	.
17:03:33	17.0592	1499	1506	1.1	1.5	1.6	.
17:04:03	17.0675	1493	1558	1.6	1.5	1.6	.
17:04:33	17.0758	1501	1653	1.6	1.5	1.6	.
17:05:03	17.0842	1503	1689	1.6	1.5	1.6	.
17:05:33	17.0925	1506	1712	1.6	1.5	1.6	.
17:06:03	17.1008	1510	1722	1.6	1.5	1.6	.
17:06:33	17.1092	1519	1727	1.6	1.5	1.6	.
17:07:03	17.1175	1517	1726	1.6	1.5	1.6	.
17:07:33	17.1258	1516	1725	1.6	1.5	1.6	.
17:08:03	17.1342	1521	1724	1.6	1.5	1.6	.
17:08:33	17.1425	1525	1721	1.6	1.5	1.6	.
17:09:03	17.1508	1531	1717	1.6	1.5	1.6	.
17:09:33	17.1592	1531	1712	1.6	1.5	1.6	.
17:10:03	17.1675	1537	1710	1.6	1.5	1.6	.
17:10:33	17.1758	1542	1706	1.6	1.5	1.6	.
17:11:03	17.1842	1544	1704	1.6	1.5	1.6	.
17:11:33	17.1925	1550	1698	0.4	1.5	1.6	.
17:12:02	17.2006	1508	1645	-1.4	1.5	1.6	.
17:12:32	17.2089	1433	1563	-1.4	1.5	1.6	.
17:13:02	17.2172	1397	1497	-1.4	1.5	1.6	.
17:13:32	17.2256	1372	1446	-1.4	1.5	1.6	.
17:14:02	17.2339	1433	1411	1.4	1.5	1.6	.
17:14:32	17.2422	1521	1443	1.6	1.5	1.6	.
17:15:02	17.2506	1527	1496	0.2	1.5	1.6	24.2
17:15:32	17.2589	1518	1552	-0.2	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
17:16:02	17.2672	1518	1646	-1.4	1.5	1.6	.
17:16:32	17.2756	1499	1619	-1.4	1.5	1.6	.
17:17:02	17.2839	1503	1561	-1.3	1.5	1.6	.
17:17:32	17.2922	1512	1524	1.6	1.5	1.6	.
17:18:02	17.3006	1508	1590	1.6	1.5	1.6	.
17:18:32	17.3089	1509	1663	1.6	1.5	1.6	.
17:19:02	17.3172	1511	1708	1.6	1.5	1.6	.
17:19:32	17.3256	1516	1728	1.6	1.5	1.6	.
17:20:02	17.3339	1520	1734	1.6	1.5	1.6	.
17:20:32	17.3422	1523	1736	1.6	1.5	1.6	.
17:21:02	17.3506	1523	1738	1.6	1.5	1.6	.
17:21:32	17.3589	1531	1739	1.6	1.5	1.6	.
17:22:01	17.3669	1533	1737	1.6	1.5	1.6	.
17:22:31	17.3753	1540	1734	1.6	1.5	1.6	.
17:23:01	17.3836	1545	1733	1.6	1.5	1.6	.
17:23:31	17.3919	1547	1729	1.6	1.5	1.6	.
17:24:01	17.4003	1551	1726	1.6	1.5	1.6	.
17:24:31	17.4086	1533	1697	-0.6	1.5	1.6	.
17:25:01	17.4169	1462	1627	-1.4	1.5	1.6	.
17:25:31	17.4253	1410	1548	-1.4	1.5	1.6	.
17:26:01	17.4336	1382	1486	-1.4	1.5	1.6	.
17:26:31	17.4419	1368	1437	-0.6	1.5	1.6	.
17:27:01	17.4503	1480	1430	1.6	1.5	1.6	.
17:27:31	17.4586	1552	1496	1.6	1.5	1.6	.
17:28:01	17.4669	1582	1561	1.6	1.5	1.6	.
17:28:31	17.4753	1596	1607	1.6	1.5	1.6	.
17:29:01	17.4836	1598	1638	1.0	1.5	1.6	.
17:29:31	17.4919	1532	1618	-1.4	1.5	1.6	.
17:30:01	17.5003	1440	1544	-1.4	1.5	1.6	52.0
17:30:31	17.5086	1470	1501	-1.4	1.5	1.6	.
17:31:01	17.5169	1544	1636	0.8	1.5	1.6	.
17:31:31	17.5253	1553	1788	1.6	1.5	1.6	.
17:32:01	17.5336	1549	1842	1.6	1.5	1.6	.
17:32:31	17.5419	1498	1855	1.6	1.5	1.6	.
17:33:01	17.5503	1555	1862	1.6	1.5	1.6	.
17:33:31	17.5586	1569	1860	1.6	1.5	1.6	.
17:34:00	17.5667	1540	1862	1.6	1.5	1.6	.
17:34:30	17.5750	1534	1856	1.6	1.5	1.6	.
17:35:00	17.5833	1539	1844	1.6	1.5	1.6	.
17:35:30	17.5917	1540	1833	1.6	1.5	1.6	.
17:36:00	17.6000	1553	1825	1.6	1.5	1.6	.
17:36:30	17.6083	1585	1814	1.6	1.5	1.6	.
17:37:00	17.6167	1613	1805	1.6	1.5	1.6	.
17:37:30	17.6250	1630	1799	1.6	1.5	1.6	.
17:38:00	17.6333	1632	1791	1.6	1.5	1.6	.
17:38:30	17.6417	1640	1785	1.6	1.5	1.6	.
17:39:00	17.6500	1634	1786	1.6	1.5	1.6	.
17:39:30	17.6583	1631	1781	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
17:40:00	17.6667	1622	1775	1.6	1.5	1.6	.
17:40:30	17.6750	1612	1766	1.6	1.5	1.6	.
17:41:00	17.6833	1614	1759	1.6	1.5	1.6	.
17:41:30	17.6917	1587	1754	1.6	1.5	1.6	.
17:42:00	17.7000	1593	1752	1.6	1.5	1.6	.
17:42:30	17.7083	1607	1753	1.6	1.5	1.6	.
17:42:59	17.7164	1596	1755	1.6	1.5	1.6	.
17:43:29	17.7247	1595	1755	1.6	1.5	1.6	.
17:43:59	17.7331	1589	1755	1.6	1.5	1.6	.
17:44:29	17.7414	1583	1753	1.6	1.5	1.6	.
17:44:59	17.7497	1580	1754	1.6	1.5	1.6	.
17:45:29	17.7581	1572	1752	0.7	1.5	1.6	.
17:45:59	17.7664	1532	1699	-1.4	1.5	1.6	.
17:46:29	17.7747	1487	1610	-1.4	1.5	1.6	.
17:46:59	17.7831	1452	1538	-1.4	1.5	1.6	.
17:47:29	17.7914	1435	1480	-1.1	1.5	1.6	.
17:47:59	17.7997	1496	1454	1.6	1.5	1.6	.
17:48:29	17.8081	1591	1513	1.6	1.5	1.6	.
17:48:59	17.8164	1642	1590	1.6	1.5	1.6	.
17:49:29	17.8247	1664	1644	1.6	1.5	1.6	.
17:49:59	17.8331	1673	1679	1.6	1.5	1.6	.
17:50:29	17.8414	1664	1699	0.5	1.5	1.6	.
17:50:59	17.8497	1573	1657	-1.4	1.5	1.6	.
17:51:29	17.8581	1507	1572	-1.4	1.5	1.6	.
17:51:59	17.8664	1468	1501	-1.4	1.5	1.6	.
17:52:29	17.8747	1451	1448	-0.8	1.5	1.6	.
17:52:59	17.8831	1501	1424	1.6	1.5	1.6	.
17:53:29	17.8914	1539	1477	1.6	1.5	1.6	.
17:53:59	17.8997	1561	1545	1.6	1.5	1.6	.
17:54:29	17.9081	1598	1597	1.6	1.5	1.6	.
17:54:59	17.9164	1589	1616	-0.8	1.5	1.6	.
17:55:29	17.9247	1529	1558	-1.4	1.5	1.6	.
17:55:59	17.9331	1491	1491	-1.4	1.5	1.6	.
17:56:29	17.9414	1467	1438	-1.4	1.5	1.6	.
17:56:58	17.9494	1459	1394	-0.2	1.5	1.6	.
17:57:28	17.9578	1526	1391	1.6	1.5	1.6	.
17:57:58	17.9661	1591	1452	1.6	1.5	1.6	.
17:58:28	17.9744	1622	1515	1.6	1.5	1.6	.
17:58:58	17.9828	1571	1545	-1.1	1.5	1.6	.
17:59:28	17.9911	1441	1484	-1.4	1.5	1.6	.
17:59:58	17.9994	1436	1444	-1.4	1.5	1.6	.
18:00:28	18.0078	1463	1408	-1.4	1.5	1.6	24.2
18:00:58	18.0161	1515	1451	-1.4	1.5	1.6	.
18:01:28	18.0244	1508	1488	-1.4	1.5	1.6	.
18:01:58	18.0328	1502	1486	-1.4	1.5	1.6	.
18:02:28	18.0411	1504	1469	-1.4	1.5	1.6	.
18:02:58	18.0494	1514	1445	-1.4	1.5	1.6	.
18:03:28	18.0578	1520	1417	-1.4	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
18:03:58	18.0661	1519	1392	-1.4	1.5	1.6	.
18:04:28	18.0744	1512	1366	-1.4	1.5	1.6	.
18:04:58	18.0828	1500	1351	-1.4	1.5	1.6	.
18:05:28	18.0911	1452	1336	-1.4	1.5	1.6	.
18:05:58	18.0994	1473	1336	1.6	1.5	1.6	.
18:06:28	18.1078	1522	1424	1.6	1.5	1.6	.
18:06:57	18.1158	1539	1531	1.6	1.5	1.6	.
18:07:27	18.1242	1546	1602	1.6	1.5	1.6	.
18:07:57	18.1325	1551	1646	1.6	1.5	1.6	.
18:08:27	18.1408	1557	1661	-0.5	1.5	1.6	.
18:08:57	18.1492	1532	1597	-1.4	1.5	1.6	.
18:09:27	18.1575	1500	1516	-1.4	1.5	1.6	.
18:09:57	18.1658	1481	1453	-1.4	1.5	1.6	.
18:10:27	18.1742	1468	1406	-1.4	1.5	1.6	.
18:10:57	18.1825	1474	1369	0.2	1.5	1.6	.
18:11:27	18.1908	1534	1385	1.6	1.5	1.6	.
18:11:57	18.1992	1556	1459	1.6	1.5	1.6	.
18:12:27	18.2075	1565	1536	1.6	1.5	1.6	.
18:12:57	18.2158	1563	1578	-0.7	1.5	1.6	.
18:13:27	18.2242	1529	1532	-1.4	1.5	1.6	.
18:13:57	18.2325	1495	1467	-1.4	1.5	1.6	.
18:14:27	18.2408	1447	1415	-1.4	1.5	1.6	.
18:14:56	18.2489	1402	1376	-1.4	1.5	1.6	.
18:15:26	18.2572	1409	1349	0.3	1.5	1.6	54.4
18:15:56	18.2656	1494	1362	0.5	1.5	1.6	.
18:16:26	18.2739	1465	1407	0.8	1.5	1.6	.
18:16:56	18.2822	1461	1580	1.6	1.5	1.6	.
18:17:26	18.2906	1491	1739	1.6	1.5	1.6	.
18:17:56	18.2989	1495	1781	1.6	1.5	1.6	.
18:18:26	18.3072	1488	1781	1.6	1.5	1.6	.

Table B.1-1 Process data for Run 1

FILENAME: CC1_920.SSD SANFORD MWI TESTS
TEST DATE: September 20, 1990 PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	878.17	850.50	24.2000
MAX	1672.82	1863.84	57.8000
MEAN	1418.17	1485.81	35.9571
STD	142.68	209.18	13.9208

Table B.1-1 Process data for Run 1
Total test period only

FILENAME: CC1_920.SSD
TEST DATE: September 20, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	878.17	850.50	24.2000
MAX	1672.82	1863.84	57.8000
MEAN	1418.04	1485.23	35.9571
STD	142.78	208.97	13.9208

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
9:45:57	9.7658	843	861	1.6	1.5	1.6	42.1
9:46:27	9.7742	926	914	1.6	1.5	1.6	.
9:46:57	9.7825	945	1050	1.6	1.5	1.6	.
9:47:27	9.7908	953	1184	1.6	1.5	1.6	.
9:47:57	9.7992	968	1295	1.6	1.5	1.6	.
9:48:27	9.8075	972	1371	1.6	1.5	1.6	.
9:48:57	9.8158	983	1435	1.6	1.5	1.6	.
9:49:27	9.8242	987	1470	1.6	1.5	1.6	.
9:49:57	9.8325	991	1491	1.6	1.5	1.6	.
9:50:27	9.8408	997	1501	1.6	1.5	1.6	.
9:50:57	9.8492	997	1508	1.6	1.5	1.6	.
9:51:27	9.8575	998	1517	1.6	1.5	1.6	.
9:51:57	9.8658	1004	1524	1.6	1.5	1.6	.
9:52:27	9.8742	1004	1535	1.6	1.5	1.6	.
9:52:57	9.8825	1003	1544	1.6	1.5	1.6	.
9:53:27	9.8908	1013	1558	1.6	1.5	1.6	.
9:53:57	9.8992	1011	1578	1.6	1.5	1.6	.
9:54:27	9.9075	1006	1601	1.6	1.5	1.6	.
9:54:56	9.9156	1012	1605	1.6	1.5	1.6	.
9:55:26	9.9239	1027	1593	1.6	1.5	1.6	.
9:55:56	9.9322	1032	1593	1.6	1.5	1.6	.
9:56:26	9.9406	1041	1580	1.6	1.5	1.6	.
9:56:56	9.9489	1041	1575	1.6	1.5	1.6	.
9:57:26	9.9572	1041	1571	1.6	1.5	1.6	.
9:57:56	9.9656	1046	1561	1.6	1.5	1.6	.
9:58:26	9.9739	1057	1559	1.6	1.5	1.6	.
9:58:56	9.9822	1066	1564	1.6	1.5	1.6	.
9:59:26	9.9906	1091	1560	1.6	1.5	1.6	.
9:59:56	9.9989	1115	1544	1.3	1.5	1.6	.
10:00:26	10.0072	1094	1487	0.7	1.5	1.6	37.5
10:00:56	10.0156	1065	1475	1.6	1.5	1.6	.
10:01:26	10.0239	1039	1602	1.6	1.5	1.6	.
10:01:56	10.0322	1025	1693	1.6	1.5	1.6	.
10:02:26	10.0406	1014	1759	1.6	1.5	1.6	.
10:02:56	10.0489	1001	1798	1.6	1.5	1.6	.
10:03:26	10.0572	999	1821	1.6	1.5	1.6	.
10:03:55	10.0653	1003	1825	1.6	1.5	1.6	.
10:04:25	10.0736	1012	1816	1.6	1.5	1.6	.
10:04:55	10.0819	1005	1801	1.6	1.5	1.6	.
10:05:25	10.0903	1009	1787	1.6	1.5	1.6	.
10:05:55	10.0986	1021	1772	1.6	1.5	1.6	.
10:06:25	10.1069	1030	1753	1.6	1.5	1.6	.
10:06:55	10.1153	1027	1726	1.6	1.5	1.6	.
10:07:25	10.1236	1037	1689	1.6	1.5	1.6	.
10:11:21	10.1892	1084	1588	1.6	1.6	1.6	.
10:11:51	10.1975	1090	1610	1.6	1.5	1.6	.
10:12:21	10.2058	1098	1622	1.6	1.5	1.6	.
10:12:51	10.2142	1101	1598	1.6	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:13:21	10.2225	1104	1570	1.6	1.5	1.6	.
10:13:51	10.2308	1109	1591	1.6	1.5	1.6	.
10:14:21	10.2392	1115	1620	1.6	1.5	1.6	.
10:14:51	10.2475	1108	1603	1.6	1.5	1.6	.
10:15:21	10.2558	1084	1562	0.6	1.5	1.6	41.3
10:15:51	10.2642	1106	1523	1.6	1.5	1.6	.
10:16:21	10.2725	1091	1581	1.6	1.5	1.6	.
10:16:51	10.2808	1078	1641	1.6	1.5	1.6	.
10:17:21	10.2892	1071	1656	1.6	1.5	1.6	.
10:17:51	10.2975	1083	1659	1.6	1.5	1.6	.
10:18:21	10.3058	1105	1651	1.6	1.5	1.6	.
10:18:51	10.3142	1120	1641	1.6	1.5	1.6	.
10:19:21	10.3225	1129	1632	1.6	1.5	1.6	.
10:19:51	10.3308	1133	1623	1.6	1.5	1.6	.
10:20:21	10.3392	1142	1616	1.6	1.5	1.6	.
10:20:51	10.3475	1148	1601	1.6	1.5	1.6	.
10:21:21	10.3558	1155	1587	1.6	1.5	1.6	.
10:21:50	10.3639	1157	1572	1.6	1.5	1.6	.
10:26:02	10.4339	1149	1605	1.6	1.6	1.6	.
10:26:32	10.4422	1143	1585	1.6	1.5	1.6	.
10:27:01	10.4503	1152	1581	1.6	1.5	1.6	.
10:27:31	10.4586	1147	1575	1.6	1.5	1.6	.
10:28:01	10.4669	1171	1576	1.6	1.5	1.6	.
10:28:31	10.4753	1193	1581	1.6	1.5	1.6	.
10:29:01	10.4836	1202	1623	1.6	1.5	1.6	.
10:29:31	10.4919	1205	1630	1.6	1.5	1.6	.
10:30:01	10.5003	1198	1609	1.6	1.5	1.6	40.1
10:30:31	10.5086	1202	1584	0.5	1.5	1.6	.
10:31:01	10.5169	1240	1522	0.7	1.5	1.6	.
10:31:31	10.5253	1196	1571	1.6	1.5	1.6	.
10:32:01	10.5336	1183	1714	1.6	1.5	1.6	.
10:32:31	10.5419	1160	1846	1.6	1.5	1.6	.
10:33:01	10.5503	1143	1936	1.6	1.5	1.6	.
10:33:31	10.5586	1162	2013	1.6	1.5	1.6	.
10:34:01	10.5669	1172	2056	1.6	1.5	1.6	.
10:34:31	10.5753	1178	2083	1.6	1.5	1.6	.
10:35:01	10.5836	1181	2101	1.6	1.5	1.6	.
10:35:31	10.5919	1186	2113	1.6	1.5	1.6	.
10:36:01	10.6003	1191	2115	1.6	1.5	1.6	.
10:36:30	10.6083	1193	2111	1.6	1.5	1.6	.
10:37:00	10.6167	1196	2106	1.6	1.5	1.6	.
10:37:30	10.6250	1203	2099	1.6	1.5	1.6	.
10:38:00	10.6333	1202	2090	1.6	1.5	1.6	.
10:38:30	10.6417	1208	2082	1.6	1.5	1.6	.
10:39:00	10.6500	1219	2070	1.6	1.5	1.6	.
10:39:30	10.6583	1220	2044	1.6	1.5	1.6	.
10:40:00	10.6667	1226	2016	1.6	1.5	1.6	.
10:40:30	10.6750	1235	1984	1.6	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:41:00	10.6833	1239	1949	1.6	1.5	1.6	.
10:41:30	10.6917	1243	1915	1.6	1.5	1.6	.
10:42:00	10.7000	1247	1884	1.6	1.5	1.6	.
10:42:30	10.7083	1251	1859	1.6	1.5	1.6	.
10:43:00	10.7167	1255	1838	1.6	1.5	1.6	.
10:43:30	10.7250	1260	1820	1.6	1.5	1.6	.
10:44:00	10.7333	1271	1796	1.6	1.5	1.6	.
10:44:30	10.7417	1281	1768	1.6	1.5	1.6	.
10:45:00	10.7500	1285	1738	1.6	1.5	1.6	39.3
10:45:30	10.7583	1298	1706	-0.2	1.5	1.6	.
10:45:59	10.7664	1352	1629	0.5	1.5	1.6	.
10:46:29	10.7747	1295	1738	1.6	1.5	1.6	.
10:46:59	10.7831	1276	1907	1.6	1.5	1.6	.
10:47:29	10.7914	1253	1988	1.6	1.5	1.6	.
10:47:59	10.7997	1249	2018	1.6	1.5	1.6	.
10:48:29	10.8081	1257	2011	1.6	1.5	1.6	.
10:48:59	10.8164	1266	1983	1.6	1.5	1.6	.
10:49:29	10.8247	1276	1952	1.6	1.5	1.6	.
10:49:59	10.8331	1281	1920	1.6	1.5	1.6	.
10:50:29	10.8414	1297	1892	1.6	1.5	1.6	.
10:50:59	10.8497	1305	1862	1.6	1.5	1.6	.
10:51:29	10.8581	1322	1836	1.6	1.5	1.6	.
10:51:59	10.8664	1319	1813	1.6	1.5	1.6	.
10:52:29	10.8747	1331	1791	1.6	1.5	1.6	.
10:52:59	10.8831	1357	1785	1.6	1.5	1.6	.
10:53:29	10.8914	1365	1768	1.6	1.5	1.6	.
10:53:59	10.8997	1376	1749	1.6	1.5	1.6	.
10:54:29	10.9081	1382	1729	1.6	1.5	1.6	.
10:54:59	10.9164	1390	1710	1.6	1.5	1.6	.
10:55:29	10.9247	1397	1693	1.6	1.5	1.6	.
10:55:58	10.9328	1400	1681	1.6	1.5	1.6	.
10:56:28	10.9411	1404	1672	1.6	1.5	1.6	.
10:56:58	10.9494	1412	1665	1.6	1.5	1.6	.
10:57:28	10.9578	1419	1659	1.6	1.5	1.6	.
10:57:58	10.9661	1418	1654	1.6	1.5	1.6	.
10:58:28	10.9744	1426	1647	1.6	1.5	1.6	.
10:58:58	10.9828	1428	1640	1.6	1.5	1.6	.
10:59:28	10.9911	1432	1632	1.6	1.5	1.6	.
10:59:58	10.9994	1436	1623	1.6	1.5	1.6	.
11:00:28	11.0078	1441	1609	0.0	1.5	1.6	43.3
11:00:58	11.0161	1404	1629	1.1	1.5	1.6	.
11:01:28	11.0244	1289	1765	1.6	1.5	1.6	.
11:01:58	11.0328	1262	1889	1.6	1.5	1.6	.
11:02:28	11.0411	1259	1992	1.6	1.5	1.6	.
11:02:58	11.0494	1261	2074	1.6	1.5	1.6	.
11:03:28	11.0578	1275	2134	1.6	1.5	1.6	.
11:03:58	11.0661	1279	2178	1.6	1.5	1.6	.
11:04:28	11.0744	1296	2213	1.6	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:04:57	11.0825	1303	2237	1.6	1.5	1.6	.
11:05:27	11.0908	1300	2256	1.6	1.5	1.6	.
11:05:57	11.0992	1298	2266	1.6	1.5	1.6	.
11:06:27	11.1075	1317	2266	1.6	1.5	1.6	.
11:06:57	11.1158	1325	2252	1.6	1.5	1.6	.
11:07:27	11.1242	1337	2224	1.6	1.5	1.6	.
11:07:57	11.1325	1358	2192	1.6	1.5	1.6	.
11:08:27	11.1408	1412	2166	1.6	1.5	1.6	.
11:08:57	11.1492	1468	2147	1.6	1.5	1.6	.
11:09:27	11.1575	1492	2126	1.6	1.5	1.6	.
11:09:57	11.1658	1493	2095	1.6	1.5	1.6	.
11:10:27	11.1742	1491	2062	1.6	1.5	1.6	.
11:10:57	11.1825	1494	2036	1.6	1.5	1.6	.
11:11:27	11.1908	1520	2013	1.6	1.5	1.6	.
11:11:57	11.1992	1531	1986	1.6	1.5	1.6	.
11:12:27	11.2075	1547	1952	1.6	1.5	1.6	.
11:12:57	11.2158	1561	1917	1.6	1.5	1.6	.
11:13:26	11.2239	1561	1885	1.6	1.5	1.6	.
11:13:56	11.2322	1569	1853	1.6	1.5	1.6	.
11:14:26	11.2406	1565	1821	1.6	1.5	1.6	.
11:14:56	11.2489	1557	1789	1.6	1.5	1.6	.
11:15:26	11.2572	1540	1699	0.2	1.5	1.6	39.6
11:15:56	11.2656	1451	1710	1.2	1.5	1.6	.
11:16:26	11.2739	1348	1834	1.6	1.5	1.6	.
11:16:56	11.2822	1338	1982	1.6	1.5	1.6	.
11:17:26	11.2906	1330	2079	1.6	1.5	1.6	.
11:17:56	11.2989	1344	2153	1.6	1.5	1.6	.
11:18:26	11.3072	1352	2206	1.6	1.5	1.6	.
11:18:56	11.3156	1358	2241	1.6	1.5	1.6	.
11:19:26	11.3239	1373	2264	1.6	1.5	1.6	.
11:19:56	11.3322	1391	2270	1.6	1.5	1.6	.
11:20:26	11.3406	1404	2261	1.6	1.5	1.6	.
11:20:56	11.3489	1435	2259	1.6	1.5	1.6	.
11:21:26	11.3572	1448	2226	1.6	1.5	1.6	.
11:21:56	11.3656	1461	2198	1.6	1.5	1.6	.
11:22:26	11.3739	1457	2162	1.6	1.5	1.6	.
11:22:55	11.3819	1456	2129	1.6	1.5	1.6	.
11:23:25	11.3903	1455	2098	1.6	1.5	1.6	.
11:23:55	11.3986	1461	2065	1.6	1.5	1.6	.
11:24:25	11.4069	1476	2034	1.6	1.5	1.6	.
11:24:55	11.4153	1486	2010	1.6	1.5	1.6	.
11:25:25	11.4236	1466	1988	1.6	1.5	1.6	.
11:25:55	11.4319	1458	1969	1.6	1.5	1.6	.
11:26:25	11.4403	1467	1948	1.6	1.5	1.6	.
11:26:55	11.4486	1467	1932	1.6	1.5	1.6	.
11:27:25	11.4569	1464	1916	1.6	1.5	1.6	.
11:27:55	11.4653	1468	1900	1.6	1.5	1.6	.
11:28:25	11.4736	1469	1889	1.6	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:28:55	11.4819	1475	1880	1.6	1.5	1.6	.
11:29:25	11.4903	1480	1869	1.6	1.5	1.6	.
11:29:55	11.4986	1483	1853	1.6	1.5	1.6	.
11:30:25	11.5069	1483	1836	0.5	1.5	1.6	40.5
11:30:55	11.5153	1467	1761	-1.4	1.5	1.6	.
11:31:25	11.5236	1501	1792	-1.4	1.5	1.6	.
11:31:55	11.5319	1481	1858	-1.4	1.5	1.6	.
11:32:24	11.5400	1474	1873	-1.4	1.5	1.6	.
11:32:54	11.5483	1473	1851	-1.4	1.5	1.6	.
11:33:24	11.5567	1448	1817	-1.4	1.5	1.6	.
11:33:54	11.5650	1424	1782	-1.4	1.5	1.6	.
11:34:24	11.5733	1421	1748	-1.4	1.5	1.6	.
11:34:54	11.5817	1431	1716	-1.4	1.5	1.6	.
11:35:24	11.5900	1432	1674	-1.4	1.5	1.6	.
11:35:54	11.5983	1432	1637	-1.4	1.5	1.6	.
11:36:24	11.6067	1433	1609	-1.4	1.5	1.6	.
11:36:54	11.6150	1431	1578	-1.4	1.5	1.6	.
11:37:24	11.6233	1430	1509	-1.4	1.5	1.6	.
11:37:54	11.6317	1429	1484	-1.4	1.5	1.6	.
11:38:24	11.6400	1427	1521	-1.4	1.5	1.6	.
11:38:54	11.6483	1434	1560	-1.4	1.5	1.6	.
11:39:24	11.6567	1435	1584	-1.4	1.5	1.6	.
11:39:54	11.6650	1438	1572	-1.4	1.5	1.6	.
11:40:24	11.6733	1437	1501	-1.4	1.5	1.6	.
11:40:54	11.6817	1433	1500	-1.4	1.5	1.6	.
11:41:24	11.6900	1435	1518	-1.4	1.5	1.6	.
11:41:54	11.6983	1439	1535	-1.4	1.5	1.6	.
11:42:24	11.7067	1431	1540	-1.4	1.5	1.6	.
11:42:54	11.7150	1435	1539	-1.4	1.5	1.6	.
11:43:24	11.7233	1433	1536	-1.4	1.5	1.6	.
11:43:54	11.7317	1427	1529	-1.4	1.5	1.6	.
11:44:24	11.7400	1422	1519	-1.4	1.5	1.6	.
11:44:54	11.7483	1436	1509	-1.4	1.5	1.6	.
11:45:23	11.7564	1446	1499	-1.4	1.5	1.6	39.9
11:45:53	11.7647	1464	1494	-1.4	1.5	1.6	.
11:46:23	11.7731	1462	1562	-1.4	1.5	1.6	.
11:46:53	11.7814	1445	1696	-1.4	1.5	1.6	.
11:47:23	11.7897	1373	1812	1.4	1.5	1.6	.
11:47:53	11.7981	1342	1936	1.6	1.5	1.6	.
11:48:23	11.8064	1343	2044	1.6	1.5	1.6	.
11:48:53	11.8147	1401	2114	1.6	1.5	1.6	.
11:49:23	11.8231	1407	2156	1.6	1.5	1.6	.
11:49:53	11.8314	1373	2193	1.6	1.5	1.6	.
11:50:23	11.8397	1362	2220	1.6	1.5	1.6	.
11:50:53	11.8481	1379	2244	1.6	1.5	1.6	.
11:51:23	11.8564	1390	2269	1.6	1.5	1.6	.
11:51:53	11.8647	1387	2290	1.6	1.5	1.6	.
11:52:23	11.8731	1385	2305	1.6	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:52:53	11.8814	1408	2327	1.6	1.5	1.6	.
11:53:23	11.8897	1425	2346	1.6	1.5	1.6	.
11:53:53	11.8981	1439	2354	1.6	1.5	1.6	.
11:54:23	11.9064	1471	2359	1.6	1.5	1.6	.
11:54:53	11.9147	1521	2360	1.6	1.5	1.6	.
11:55:23	11.9231	1564	2355	1.6	1.5	1.6	.
11:55:53	11.9314	1566	2347	1.6	1.5	1.6	.
11:56:22	11.9394	1559	2336	-0.1	1.5	1.6	.
11:56:52	11.9478	1518	2217	-1.4	1.5	1.6	.
11:57:22	11.9561	1427	2075	-1.4	1.5	1.6	.
11:57:52	11.9644	1367	1968	-1.4	1.5	1.6	.
11:58:22	11.9728	1316	1888	-1.4	1.5	1.6	.
11:58:52	11.9811	1293	1825	-1.4	1.5	1.6	.
11:59:22	11.9894	1291	1779	-1.4	1.5	1.6	.
11:59:52	11.9978	1303	1743	-1.5	1.5	1.6	.
12:00:22	12.0061	1299	1705	-1.5	1.5	1.6	.
12:00:52	12.0144	1304	1669	-1.5	1.5	1.6	.
12:01:22	12.0228	1298	1638	-1.5	1.5	1.6	.
12:01:52	12.0311	1284	1593	-1.5	1.5	1.6	.
12:02:22	12.0394	1271	1501	-1.4	1.5	1.6	.
12:02:52	12.0478	1283	1468	-1.4	1.5	1.6	.
12:03:22	12.0561	1292	1504	-1.4	1.5	1.6	44.9
12:03:52	12.0644	1294	1536	-1.4	1.5	1.6	.
12:04:22	12.0728	1340	1559	-1.4	1.5	1.6	.
12:04:52	12.0811	1459	1587	-1.4	1.5	1.6	.
12:05:22	12.0894	1531	1647	-1.4	1.5	1.6	.
12:05:52	12.0978	1541	1711	-1.5	1.5	1.6	.
12:06:22	12.1061	1520	1738	-1.4	1.5	1.6	.
12:06:52	12.1144	1472	1714	-1.4	1.5	1.6	.
12:07:21	12.1225	1406	1676	-1.4	1.5	1.6	.
12:07:51	12.1308	1354	1634	-1.5	1.5	1.6	.
12:08:21	12.1392	1327	1600	-1.4	1.5	1.6	.
12:08:51	12.1475	1331	1528	-1.4	1.5	1.6	.
12:09:21	12.1558	1358	1488	-1.4	1.5	1.6	.
12:09:51	12.1642	1384	1512	-1.4	1.5	1.6	.
12:10:21	12.1725	1407	1544	-1.4	1.5	1.6	.
12:10:51	12.1808	1407	1557	-1.4	1.5	1.6	.
12:11:21	12.1892	1400	1559	-1.4	1.5	1.6	.
12:11:51	12.1975	1394	1554	-1.4	1.5	1.6	.
12:12:21	12.2058	1388	1547	-1.4	1.5	1.6	.
12:12:51	12.2142	1386	1535	-1.4	1.5	1.6	.
12:13:21	12.2225	1382	1521	-1.4	1.5	1.6	.
12:13:51	12.2308	1381	1506	-1.4	1.5	1.6	.
12:14:21	12.2392	1381	1492	-1.4	1.5	1.6	.
12:14:51	12.2475	1384	1480	-1.4	1.5	1.6	.
12:15:21	12.2558	1392	1467	-1.4	1.5	1.6	39.7
12:15:51	12.2642	1398	1454	-1.4	1.5	1.6	.
12:16:20	12.2722	1398	1443	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:16:50	12.2806	1356	1431	-1.4	1.5	1.6	.
12:17:20	12.2889	1359	1445	-1.4	1.5	1.6	.
12:17:50	12.2972	1353	1586	-1.4	1.5	1.6	.
12:18:20	12.3056	1349	1703	-1.4	1.5	1.6	.
12:18:50	12.3139	1336	1723	-1.4	1.5	1.6	.
12:19:20	12.3222	1328	1705	-1.4	1.5	1.6	.
12:19:50	12.3306	1331	1684	-1.4	1.5	1.6	.
12:20:20	12.3389	1334	1660	-1.4	1.5	1.6	.
12:20:50	12.3472	1340	1631	-1.4	1.5	1.6	.
12:21:20	12.3556	1344	1605	-1.4	1.5	1.6	.
12:21:50	12.3639	1347	1581	-1.4	1.5	1.6	.
12:22:20	12.3722	1349	1557	-1.4	1.5	1.6	.
12:22:50	12.3806	1351	1537	-1.4	1.5	1.6	.
12:23:20	12.3889	1355	1562	-1.4	1.5	1.6	.
12:23:50	12.3972	1359	1589	-1.4	1.5	1.6	.
12:24:20	12.4056	1363	1581	-1.4	1.5	1.6	.
12:24:50	12.4139	1373	1510	-1.4	1.5	1.6	.
12:25:20	12.4222	1383	1505	-1.4	1.5	1.6	.
12:25:50	12.4306	1388	1522	-1.4	1.5	1.6	.
12:26:19	12.4386	1394	1537	-1.4	1.5	1.6	.
12:26:49	12.4469	1397	1547	-1.4	1.5	1.6	.
12:27:19	12.4553	1400	1551	-1.4	1.5	1.6	.
12:27:49	12.4636	1401	1548	-1.4	1.5	1.6	.
12:28:19	12.4719	1402	1541	-1.4	1.5	1.6	.
12:28:49	12.4803	1405	1534	-1.4	1.5	1.6	.
12:29:19	12.4886	1405	1525	-1.4	1.5	1.6	.
12:29:49	12.4969	1406	1516	-1.4	1.5	1.6	.
12:30:19	12.5053	1407	1507	-1.4	1.5	1.6	41.0
12:30:49	12.5136	1441	1522	-1.4	1.5	1.6	.
12:31:19	12.5219	1442	1690	-1.4	1.5	1.6	.
12:31:49	12.5303	1446	1917	-1.4	1.5	1.6	.
12:32:19	12.5386	1438	2044	-1.4	1.5	1.6	.
12:32:49	12.5469	1425	2076	-1.4	1.5	1.6	.
12:33:19	12.5553	1432	2068	-1.4	1.5	1.6	.
12:33:49	12.5636	1438	2051	-1.4	1.5	1.6	.
12:34:19	12.5719	1451	2031	-1.4	1.5	1.6	.
12:34:49	12.5803	1446	2000	-1.4	1.5	1.6	.
12:35:19	12.5886	1439	1968	-1.4	1.5	1.6	.
12:35:49	12.5969	1446	1930	-1.4	1.5	1.6	.
12:36:18	12.6050	1455	1889	-1.4	1.5	1.6	.
12:36:48	12.6133	1465	1851	-1.4	1.5	1.6	.
12:37:18	12.6217	1470	1817	-1.4	1.5	1.6	.
12:37:48	12.6300	1472	1784	-1.4	1.5	1.6	.
12:38:24	12.6400	1474	1762	-1.4	1.5	1.6	.
12:38:54	12.6483	1481	1717	-1.4	1.5	1.6	.
12:39:24	12.6567	1475	1684	-1.4	1.5	1.6	.
12:39:54	12.6650	1476	1649	-1.4	1.5	1.6	.
12:40:23	12.6731	1487	1616	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:40:53	12.6814	1496	1584	-1.4	1.5	1.6	.
12:41:23	12.6897	1495	1551	-1.4	1.5	1.6	.
12:41:53	12.6981	1498	1522	-1.4	1.5	1.6	.
12:42:23	12.7064	1496	1524	-1.4	1.5	1.6	.
12:42:53	12.7147	1499	1551	-1.4	1.5	1.6	.
12:43:23	12.7231	1503	1570	-1.4	1.5	1.6	.
12:43:53	12.7314	1507	1583	-1.4	1.5	1.6	.
12:44:23	12.7397	1507	1590	-1.4	1.5	1.6	.
12:44:53	12.7481	1512	1595	-1.4	1.5	1.6	.
12:45:23	12.7564	1525	1592	-1.4	1.5	1.6	43.8
12:45:53	12.7647	1594	1586	-1.4	1.5	1.6	.
12:46:23	12.7731	1556	1672	-1.4	1.5	1.6	.
12:46:53	12.7814	1538	1783	-1.4	1.5	1.6	.
12:47:23	12.7897	1528	1841	-1.4	1.5	1.6	.
12:47:53	12.7981	1510	1841	-1.4	1.5	1.6	.
12:48:23	12.8064	1500	1821	-1.4	1.5	1.6	.
12:48:53	12.8147	1494	1786	-1.4	1.5	1.6	.
12:49:23	12.8231	1499	1756	-1.4	1.5	1.6	.
12:49:52	12.8311	1509	1720	-1.4	1.5	1.6	.
12:50:22	12.8394	1489	1676	-1.4	1.5	1.6	.
12:50:52	12.8478	1452	1631	-1.4	1.5	1.6	.
12:51:22	12.8561	1438	1590	-1.4	1.5	1.6	.
12:51:52	12.8644	1447	1553	-1.4	1.5	1.6	.
12:52:22	12.8728	1462	1511	-1.6	1.5	1.6	.
12:52:52	12.8811	1448	1530	-1.4	1.5	1.6	.
12:53:22	12.8894	1437	1558	-1.4	1.5	1.6	.
12:53:52	12.8978	1431	1569	-1.4	1.5	1.6	.
12:54:22	12.9061	1429	1569	-1.4	1.5	1.6	.
12:54:52	12.9144	1434	1564	-1.4	1.5	1.6	.
12:55:22	12.9228	1438	1556	-1.4	1.5	1.6	.
12:55:52	12.9311	1444	1547	-1.4	1.5	1.6	.
12:56:22	12.9394	1445	1537	-1.4	1.5	1.6	.
12:56:52	12.9478	1449	1528	-1.4	1.5	1.6	.
12:57:22	12.9561	1453	1521	-1.4	1.5	1.6	.
12:57:52	12.9644	1452	1513	-1.4	1.5	1.6	.
12:58:22	12.9728	1453	1504	-1.4	1.5	1.6	.
12:58:52	12.9811	1455	1492	-1.4	1.5	1.6	.
12:59:21	12.9892	1456	1480	-1.4	1.5	1.6	.
12:59:51	12.9975	1459	1466	-1.4	1.5	1.6	.
13:00:21	13.0058	1463	1455	-1.4	1.5	1.6	40.8
13:00:51	13.0142	1467	1441	-1.4	1.5	1.6	.
13:01:21	13.0225	1472	1428	-1.4	1.5	1.6	.
13:01:51	13.0308	1490	1414	-1.4	1.5	1.6	.
13:02:21	13.0392	1542	1483	-1.4	1.5	1.6	.
13:02:51	13.0475	1529	1637	-1.4	1.5	1.6	.
13:03:21	13.0558	1507	1687	-1.4	1.5	1.6	.
13:03:51	13.0642	1489	1669	-1.4	1.5	1.6	.
13:04:21	13.0725	1493	1634	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:04:51	13.0808	1478	1589	-1.4	1.5	1.6	.
13:05:21	13.0892	1461	1535	-1.4	1.5	1.6	.
13:05:51	13.0975	1451	1520	-1.4	1.5	1.6	.
13:06:21	13.1058	1440	1529	-1.4	1.5	1.6	.
13:06:51	13.1142	1434	1531	-1.4	1.5	1.6	.
13:07:21	13.1225	1431	1528	-1.4	1.5	1.6	.
13:07:51	13.1308	1427	1521	-1.4	1.5	1.6	.
13:08:21	13.1392	1429	1510	-1.4	1.5	1.6	.
13:08:51	13.1475	1435	1498	-1.4	1.5	1.6	.
13:09:20	13.1556	1430	1490	-1.4	1.5	1.6	.
13:09:50	13.1639	1431	1480	-1.4	1.5	1.6	.
13:10:20	13.1722	1437	1470	-1.4	1.5	1.6	.
13:10:50	13.1806	1442	1462	-1.4	1.5	1.6	.
13:11:20	13.1889	1442	1454	-1.4	1.5	1.6	.
13:11:50	13.1972	1444	1447	-1.4	1.5	1.6	.
13:12:20	13.2056	1448	1439	-1.4	1.5	1.6	.
13:12:50	13.2139	1449	1430	-1.4	1.5	1.6	.
13:13:20	13.2222	1455	1422	-1.4	1.5	1.6	.
13:13:50	13.2306	1456	1414	-1.4	1.5	1.6	.
13:14:20	13.2389	1459	1406	-1.4	1.5	1.6	.
13:14:50	13.2472	1461	1399	-1.4	1.5	1.6	.
13:15:12	13.2533	1464	1397	-1.4	1.5	1.6	39.7
13:15:27	13.2575	1472	1394	-1.4	1.5	1.6	.
13:15:42	13.2617	1553	1414	-1.4	1.5	1.6	.
13:15:57	13.2658	1503	1502	-1.4	1.5	1.6	.
13:16:12	13.2700	1447	1623	-1.4	1.5	1.6	.
13:16:26	13.2739	1412	1738	-1.4	1.5	1.6	.
13:16:41	13.2781	1397	1847	-1.4	1.5	1.6	.
13:16:56	13.2822	1412	1941	-1.4	1.5	1.6	.
13:17:11	13.2864	1447	2022	-1.4	1.5	1.6	.
13:17:26	13.2906	1484	2082	-1.4	1.5	1.6	.
13:17:41	13.2947	1493	2114	-1.4	1.5	1.6	.
13:17:56	13.2989	1485	2126	-1.4	1.5	1.6	.
13:18:11	13.3031	1478	2121	-1.4	1.5	1.6	.
13:18:26	13.3072	1482	2111	-1.4	1.5	1.6	.
13:18:41	13.3114	1484	2097	-1.4	1.5	1.6	.
13:18:56	13.3156	1477	2068	-1.4	1.5	1.6	.
13:19:11	13.3197	1482	2046	-1.4	1.5	1.6	.
13:19:26	13.3239	1488	2027	-1.4	1.5	1.6	.
13:19:41	13.3281	1476	2008	-1.4	1.5	1.6	.
13:19:56	13.3322	1477	1991	-1.4	1.5	1.6	.
13:20:11	13.3364	1484	1972	-1.4	1.5	1.6	.
13:20:26	13.3406	1487	1955	-1.4	1.5	1.6	.
13:20:41	13.3447	1484	1935	-1.4	1.5	1.6	.
13:20:56	13.3489	1496	1922	-1.4	1.5	1.6	.
13:21:11	13.3531	1508	1904	-1.4	1.5	1.6	.
13:21:26	13.3572	1514	1881	-1.4	1.5	1.6	.
13:21:40	13.3611	1509	1858	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:21:55	13.3653	1504	1836	-1.4	1.5	1.6	.
13:22:10	13.3694	1506	1813	-1.4	1.5	1.6	.
13:22:25	13.3736	1512	1793	-1.4	1.5	1.6	.
13:22:40	13.3778	1512	1771	-1.4	1.5	1.6	.
13:22:55	13.3819	1512	1750	-1.4	1.5	1.6	.
13:23:10	13.3861	1515	1729	-1.4	1.5	1.6	.
13:23:25	13.3903	1517	1710	-1.4	1.5	1.6	.
13:23:40	13.3944	1521	1690	-1.4	1.5	1.6	.
13:23:58	13.3994	1530	1679	-1.5	1.5	1.6	.
13:24:08	13.4022	1531	1653	-1.4	1.5	1.6	.
13:24:17	13.4047	1528	1640	-1.4	1.5	1.6	.
13:24:27	13.4075	1525	1628	-1.4	1.5	1.6	.
13:24:37	13.4103	1518	1617	-1.4	1.5	1.6	.
13:24:47	13.4131	1517	1605	-1.4	1.5	1.6	.
13:24:57	13.4158	1517	1594	-1.4	1.5	1.6	.
13:25:07	13.4186	1513	1583	-1.4	1.5	1.6	.
13:25:17	13.4214	1514	1571	-1.4	1.5	1.6	.
13:25:27	13.4242	1511	1559	-1.4	1.5	1.6	.
13:25:37	13.4269	1512	1544	-1.4	1.5	1.6	.
13:25:47	13.4297	1511	1520	-1.4	1.5	1.6	.
13:25:57	13.4325	1511	1507	-1.4	1.5	1.6	.
13:26:07	13.4353	1511	1504	-1.4	1.5	1.6	.
13:26:17	13.4381	1511	1508	-1.4	1.5	1.6	.
13:26:27	13.4408	1508	1512	-1.4	1.5	1.6	.
13:26:37	13.4436	1509	1520	-1.4	1.5	1.6	.
13:26:47	13.4464	1517	1530	-1.4	1.5	1.6	.
13:26:57	13.4492	1516	1534	-1.4	1.5	1.6	.
13:27:07	13.4519	1519	1540	-1.4	1.5	1.6	.
13:27:17	13.4547	1523	1543	-1.4	1.5	1.6	.
13:27:27	13.4575	1522	1546	-1.4	1.5	1.6	.
13:27:37	13.4603	1526	1548	-1.4	1.5	1.6	.
13:27:47	13.4631	1523	1550	-1.4	1.5	1.6	.
13:27:56	13.4656	1522	1550	-1.4	1.5	1.6	.
13:31:09	13.5192	1597	1600	-1.4	1.6	1.6	40.2
13:31:39	13.5275	1547	1832	-1.4	1.5	1.6	.
13:32:09	13.5358	1522	2014	-1.4	1.5	1.6	.
13:32:51	13.5475	1547	2105	-1.4	1.5	1.6	.
13:33:21	13.5558	1574	2152	-1.4	1.5	1.6	.
13:33:51	13.5642	1573	2147	-1.4	1.5	1.6	.
13:34:21	13.5725	1588	2120	-1.7	1.5	1.6	.
13:34:35	13.5764	1587	2100	-1.5	1.5	1.6	.
13:34:45	13.5792	1576	2068	-1.4	1.5	1.6	.
13:34:55	13.5819	1577	2047	-1.4	1.5	1.6	.
13:35:05	13.5847	1580	2030	-1.4	1.5	1.6	.
13:35:15	13.5875	1574	2016	-1.4	1.5	1.6	.
13:35:25	13.5903	1579	2002	-1.4	1.5	1.6	.
13:35:35	13.5931	1581	1987	-1.4	1.5	1.6	.
13:35:45	13.5958	1580	1972	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:35:55	13.5986	1584	1957	-1.4	1.5	1.6	.
13:36:05	13.6014	1580	1943	-1.4	1.5	1.6	.
13:36:15	13.6042	1584	1929	-1.4	1.5	1.6	.
13:36:25	13.6069	1586	1916	-1.4	1.5	1.6	.
13:36:35	13.6097	1589	1903	-1.4	1.5	1.6	.
13:36:45	13.6125	1588	1889	-1.4	1.5	1.6	.
13:36:55	13.6153	1591	1877	-1.4	1.5	1.6	.
13:37:05	13.6181	1594	1864	-1.4	1.5	1.6	.
13:37:15	13.6208	1595	1853	-1.4	1.5	1.6	.
13:37:25	13.6236	1594	1843	-1.4	1.5	1.6	.
13:37:35	13.6264	1594	1830	-1.4	1.5	1.6	.
13:37:45	13.6292	1595	1821	-1.4	1.5	1.6	.
13:37:55	13.6319	1596	1812	-1.4	1.5	1.6	.
13:38:05	13.6347	1595	1800	-1.4	1.5	1.6	.
13:38:15	13.6375	1600	1788	-1.4	1.5	1.6	.
13:38:24	13.6400	1599	1773	-1.4	1.5	1.6	.
13:38:34	13.6428	1613	1765	-1.4	1.5	1.6	.
13:38:44	13.6456	1616	1753	-1.4	1.5	1.6	.
13:38:54	13.6483	1616	1737	-1.4	1.5	1.6	.
13:39:04	13.6511	1618	1721	-1.4	1.5	1.6	.
13:39:14	13.6539	1621	1705	-1.4	1.5	1.6	.
13:39:24	13.6567	1617	1691	-1.4	1.5	1.6	.
13:39:34	13.6594	1619	1677	-1.4	1.5	1.6	.
13:39:44	13.6622	1612	1662	-1.4	1.5	1.6	.
13:39:54	13.6650	1609	1649	-1.4	1.5	1.6	.
13:40:04	13.6678	1607	1635	-1.4	1.5	1.6	.
13:40:14	13.6706	1604	1619	-1.4	1.5	1.6	.
13:40:24	13.6733	1603	1598	-1.4	1.5	1.6	.
13:40:34	13.6761	1605	1577	-1.4	1.5	1.6	.
13:40:44	13.6789	1596	1542	-1.4	1.5	1.6	.
13:40:54	13.6817	1593	1510	-1.4	1.5	1.6	.
13:41:04	13.6844	1593	1483	-1.4	1.5	1.6	.
13:41:14	13.6872	1592	1476	-1.4	1.5	1.6	.
13:41:24	13.6900	1596	1478	-1.4	1.5	1.6	.
13:41:34	13.6928	1580	1481	-1.4	1.5	1.6	.
13:41:44	13.6956	1587	1491	-1.4	1.5	1.6	.
13:41:54	13.6983	1584	1502	-1.4	1.5	1.6	.
13:42:03	13.7008	1587	1515	-1.4	1.5	1.6	.
13:42:13	13.7036	1587	1525	-1.4	1.5	1.6	.
13:42:23	13.7064	1589	1531	-1.4	1.5	1.6	.
13:42:33	13.7092	1592	1537	-1.4	1.5	1.6	.
13:42:43	13.7119	1590	1542	-1.4	1.5	1.6	.
13:42:53	13.7147	1591	1546	-1.4	1.5	1.6	.
13:43:03	13.7175	1590	1549	-1.4	1.5	1.6	.
13:43:13	13.7203	1582	1551	-1.4	1.5	1.6	.
13:43:23	13.7231	1582	1552	-1.4	1.5	1.6	.
13:43:33	13.7258	1563	1553	-1.4	1.5	1.6	.
13:43:43	13.7286	1548	1553	-1.4	1.5	1.6	.

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:43:53	13.7314	1549	1552	-1.4	1.5	1.6	.
13:44:03	13.7342	1541	1550	-1.4	1.5	1.6	.
13:44:13	13.7369	1532	1548	-1.4	1.5	1.6	.
13:44:23	13.7397	1520	1545	-1.4	1.5	1.6	.
13:44:33	13.7425	1510	1543	-1.4	1.5	1.6	.
13:44:43	13.7453	1508	1539	-1.4	1.5	1.6	.
13:44:53	13.7481	1515	1536	-1.4	1.5	1.6	.
13:45:03	13.7508	1518	1534	-1.4	1.5	1.6	43.1
13:45:13	13.7536	1518	1530	-1.4	1.5	1.6	.
13:45:23	13.7564	1524	1530	-1.4	1.5	1.6	.
13:45:33	13.7592	1548	1541	-1.4	1.5	1.6	.
13:45:43	13.7619	1575	1575	-1.4	1.5	1.6	.
13:45:53	13.7647	1568	1629	-1.4	1.5	1.6	.
13:46:03	13.7675	1561	1686	-1.4	1.5	1.6	.
13:46:13	13.7703	1549	1729	-1.4	1.5	1.6	.
13:46:22	13.7728	1525	1769	-1.4	1.5	1.6	.
13:46:32	13.7756	1510	1817	-1.4	1.5	1.6	.
13:46:42	13.7783	1491	1863	-1.4	1.5	1.6	.
13:46:52	13.7811	1488	1901	-1.4	1.5	1.6	.
13:47:02	13.7839	1489	1932	-1.5	1.5	1.6	.
13:47:12	13.7867	1490	1954	-1.5	1.5	1.6	.
13:47:22	13.7894	1492	1968	-1.4	1.5	1.6	.
13:47:32	13.7922	1499	1977	-1.4	1.5	1.6	.
13:47:42	13.7950	1501	1982	-1.4	1.5	1.6	.
13:47:52	13.7978	1501	1981	-1.4	1.5	1.6	.
13:48:02	13.8006	1502	1979	-1.4	1.5	1.6	.
13:52:08	13.8689	1625	1809	-1.4	1.6	1.6	.
13:52:38	13.8772	1618	1765	-1.4	1.5	1.6	.
13:53:08	13.8856	1616	1735	-1.4	1.5	1.6	.
13:53:38	13.8939	1613	1704	-1.4	1.5	1.6	.
13:54:08	13.9022	1619	1670	-1.4	1.5	1.6	.
13:54:38	13.9106	1621	1636	-1.4	1.5	1.6	.
13:55:08	13.9189	1619	1604	-1.4	1.5	1.6	.
13:55:38	13.9272	1622	1573	-1.4	1.5	1.6	.
13:56:08	13.9356	1629	1538	-1.4	1.5	1.6	.
13:56:38	13.9439	1637	1521	-1.4	1.5	1.6	.
13:57:08	13.9522	1636	1554	-1.4	1.5	1.6	.
14:00:00	.	.	.	.	.	.	43.8
14:15:00	.	.	.	.	.	.	37.7
14:30:00	.	.	.	.	.	.	37.6
14:45:00	.	.	.	.	.	.	42.6
15:00:00	.	.	.	.	.	.	40.2
15:15:00	.	.	.	.	.	.	40.5
15:27:00	.	.	.	.	.	.	37.5
15:45:00	.	.	.	.	.	.	39.1

Table B.1-2 Process data for Run 2

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	843.03	860.60	37.5000
MAX	1636.93	2359.68	44.9000
MEAN	1396.84	1734.14	40.6320
STD	166.53	241.77	2.0786

Table B.1-2 Process data for Run 2
Total test period only

FILENAME: CC2_921.SSD
TEST DATE: September 21, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	843.03	860.60	37.5000
MAX	1636.93	2359.68	44.9000
MEAN	1396.84	1734.14	40.7950
STD	166.53	241.77	2.1390

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
9:45:00	.	.	.	.	.	.	35.9
9:47:07	9.7853	1164	1294	1.6	1.5	1.6	.
9:47:37	9.7936	1189	1330	1.6	1.5	1.6	.
9:48:07	9.8019	1198	1322	1.6	1.5	1.6	.
9:48:37	9.8103	1204	1307	1.6	1.5	1.6	.
9:49:06	9.8183	1201	1297	1.6	1.5	1.6	.
9:49:36	9.8267	1192	1298	1.6	1.5	1.6	.
9:50:06	9.8350	1197	1305	1.6	1.5	1.6	.
9:50:36	9.8433	1203	1309	1.6	1.5	1.6	.
9:51:06	9.8517	1208	1307	1.6	1.5	1.6	.
9:51:36	9.8600	1214	1303	1.6	1.5	1.6	.
9:52:06	9.8683	1226	1299	1.6	1.5	1.6	.
9:52:36	9.8767	1229	1286	1.6	1.5	1.6	.
9:53:06	9.8850	1236	1283	1.6	1.5	1.6	.
9:53:36	9.8933	1240	1280	1.6	1.5	1.6	.
9:54:06	9.9017	1244	1282	1.6	1.5	1.6	.
9:54:36	9.9100	1245	1283	1.6	1.5	1.6	.
9:55:06	9.9183	1249	1286	1.6	1.5	1.6	.
9:55:36	9.9267	1254	1287	1.6	1.5	1.6	.
9:56:06	9.9350	1260	1287	1.6	1.5	1.6	.
9:56:36	9.9433	1269	1282	1.6	1.5	1.6	.
9:57:06	9.9517	1279	1275	1.6	1.5	1.6	.
9:57:36	9.9600	1286	1268	1.6	1.5	1.6	.
9:58:06	9.9683	1293	1264	1.6	1.5	1.6	.
9:58:36	9.9767	1297	1260	1.6	1.5	1.6	.
9:59:06	9.9850	1302	1258	1.6	1.5	1.6	.
9:59:35	9.9931	1307	1262	1.6	1.5	1.6	.
10:00:05	10.0014	1312	1261	1.6	1.5	1.6	.
10:00:35	10.0097	1323	1263	1.6	1.5	1.6	.
10:01:05	10.0181	1326	1257	1.6	1.5	1.6	.
10:01:35	10.0264	1338	1257	1.6	1.5	1.6	.
10:02:05	10.0347	1343	1250	1.6	1.5	1.6	.
10:02:35	10.0431	1363	1251	1.6	1.5	1.6	.
10:03:05	10.0514	1381	1247	1.6	1.5	1.6	.
10:03:35	10.0597	1385	1243	1.6	1.5	1.6	.
10:04:05	10.0681	1391	1234	1.6	1.5	1.6	.
10:04:35	10.0764	1406	1232	1.6	1.5	1.6	.
10:05:05	10.0847	1409	1223	1.6	1.5	1.6	.
10:05:35	10.0931	1354	1218	-0.3	1.5	1.6	53.4
10:06:05	10.1014	1240	1193	1.0	1.5	1.6	.
10:06:35	10.1097	1248	1309	1.6	1.5	1.6	.
10:07:05	10.1181	1296	1473	1.6	1.5	1.6	.
10:07:35	10.1264	1333	1526	1.6	1.5	1.6	.
10:08:05	10.1347	1339	1505	1.6	1.5	1.6	.
10:08:35	10.1431	1343	1475	1.6	1.5	1.6	.
10:09:05	10.1514	1343	1440	1.6	1.5	1.6	.
10:09:34	10.1594	1347	1410	1.6	1.5	1.6	.
10:10:04	10.1678	1363	1384	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:10:34	10.1761	1396	1360	1.6	1.5	1.6	.
10:11:04	10.1844	1407	1334	1.6	1.5	1.6	.
10:11:34	10.1928	1409	1314	1.6	1.5	1.6	.
10:12:04	10.2011	1402	1296	1.6	1.5	1.6	.
10:12:34	10.2094	1409	1284	1.6	1.5	1.6	.
10:13:04	10.2178	1414	1274	1.6	1.5	1.6	.
10:13:34	10.2261	1424	1268	1.6	1.5	1.6	.
10:14:04	10.2344	1429	1259	1.6	1.5	1.6	.
10:14:34	10.2428	1432	1252	1.6	1.5	1.6	.
10:15:04	10.2511	1442	1251	1.6	1.5	1.6	.
10:15:34	10.2594	1441	1245	1.6	1.5	1.6	.
10:16:04	10.2678	1445	1244	1.6	1.5	1.6	.
10:16:34	10.2761	1452	1242	1.6	1.5	1.6	.
10:17:04	10.2844	1459	1243	1.6	1.5	1.6	.
10:17:34	10.2928	1462	1242	1.6	1.5	1.6	.
10:18:04	10.3011	1470	1243	1.6	1.5	1.6	.
10:18:34	10.3094	1472	1241	1.6	1.5	1.6	.
10:19:04	10.3178	1479	1246	1.6	1.5	1.6	.
10:19:33	10.3258	1478	1242	1.6	1.5	1.6	.
10:20:03	10.3342	1484	1242	1.6	1.5	1.6	.
10:20:33	10.3425	1489	1242	1.6	1.5	1.6	.
10:21:03	10.3508	1490	1241	1.6	1.5	1.6	.
10:21:33	10.3592	1491	1241	1.6	1.5	1.6	.
10:22:03	10.3675	1494	1239	1.6	1.5	1.6	.
10:22:33	10.3758	1497	1238	1.6	1.5	1.6	.
10:23:03	10.3842	1501	1237	1.6	1.5	1.6	.
10:23:33	10.3925	1503	1236	1.6	1.5	1.6	.
10:24:03	10.4008	1505	1234	1.6	1.5	1.6	.
10:29:02	10.4839	1534	1226	1.6	1.6	1.6	.
10:29:34	10.4928	1535	1227	1.6	1.5	1.6	.
10:30:04	10.5011	1535	1223	1.6	1.5	1.6	.
10:30:34	10.5094	1535	1224	1.6	1.5	1.6	.
10:31:04	10.5178	1532	1224	1.6	1.5	1.6	.
10:31:33	10.5258	1535	1224	1.6	1.5	1.6	.
10:32:03	10.5342	1538	1226	1.6	1.5	1.6	.
10:32:33	10.5425	1538	1224	1.6	1.5	1.6	.
10:33:03	10.5508	1523	1220	1.6	1.5	1.6	.
10:33:33	10.5592	1514	1220	1.6	1.5	1.6	.
10:34:03	10.5675	1513	1219	1.6	1.5	1.6	.
10:34:33	10.5758	1512	1220	1.6	1.5	1.6	.
10:35:03	10.5842	1514	1220	1.6	1.5	1.6	.
10:35:33	10.5925	1421	1215	0.1	1.5	1.6	48.1
10:36:03	10.6008	1310	1248	1.6	1.5	1.6	.
10:36:33	10.6092	1295	1412	1.6	1.5	1.6	.
10:37:03	10.6175	1325	1540	1.6	1.5	1.6	.
10:37:33	10.6258	1333	1574	1.6	1.5	1.6	.
10:38:08	10.6356	1342	1579	1.6	1.5	1.6	.
10:38:38	10.6439	1379	1580	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:39:08	10.6522	1383	1563	1.6	1.5	1.6	.
10:39:38	10.6606	1388	1549	1.6	1.5	1.6	.
10:40:08	10.6689	1398	1536	1.6	1.5	1.6	.
10:40:38	10.6772	1409	1522	1.6	1.5	1.6	.
10:41:08	10.6856	1414	1504	1.6	1.5	1.6	.
10:41:38	10.6939	1414	1490	1.6	1.5	1.6	.
10:42:08	10.7022	1411	1473	1.6	1.5	1.6	.
10:42:38	10.7106	1413	1461	1.6	1.5	1.6	.
10:43:08	10.7189	1417	1450	1.6	1.5	1.6	.
10:43:38	10.7272	1416	1442	1.6	1.5	1.6	.
10:44:08	10.7356	1411	1439	1.6	1.5	1.6	.
10:44:38	10.7439	1406	1439	1.6	1.5	1.6	.
10:45:08	10.7522	1405	1438	1.6	1.5	1.6	.
10:45:38	10.7606	1422	1436	1.6	1.5	1.6	.
10:46:08	10.7689	1434	1433	1.6	1.5	1.6	.
10:46:38	10.7772	1442	1426	1.6	1.5	1.6	.
10:47:08	10.7856	1449	1420	1.6	1.5	1.6	.
10:47:37	10.7936	1459	1415	1.6	1.5	1.6	.
10:48:07	10.8019	1466	1408	1.6	1.5	1.6	.
10:48:37	10.8103	1474	1402	1.6	1.5	1.6	.
10:49:07	10.8186	1478	1397	1.6	1.5	1.6	.
10:49:37	10.8269	1485	1392	1.6	1.5	1.6	.
10:50:07	10.8353	1492	1389	1.6	1.5	1.6	.
10:50:37	10.8436	1500	1386	1.6	1.5	1.6	.
10:51:07	10.8519	1507	1383	1.6	1.5	1.6	.
10:51:37	10.8603	1517	1381	1.6	1.5	1.6	.
10:52:07	10.8686	1524	1379	1.6	1.5	1.6	.
10:52:37	10.8769	1531	1378	1.6	1.5	1.6	.
10:53:07	10.8853	1535	1376	1.6	1.5	1.6	.
10:53:37	10.8936	1540	1373	1.6	1.5	1.6	.
10:54:07	10.9019	1535	1366	1.6	1.5	1.6	.
10:54:37	10.9103	1533	1360	1.6	1.5	1.6	.
10:55:07	10.9186	1535	1356	1.6	1.5	1.6	.
10:55:37	10.9269	1541	1353	1.6	1.5	1.6	.
10:56:07	10.9353	1544	1350	1.6	1.5	1.6	.
10:56:37	10.9436	1549	1348	1.6	1.5	1.6	.
10:57:07	10.9519	1553	1345	1.6	1.5	1.6	.
10:57:36	10.9600	1557	1343	1.6	1.5	1.6	.
10:58:06	10.9683	1493	1334	-0.9	1.5	1.6	.
10:58:36	10.9767	1402	1299	-0.1	1.5	1.6	.
10:59:06	10.9850	1462	1271	1.6	1.5	1.6	.
11:00:00	.	.	.	.	.	.	29.7
11:04:07	11.0686	1495	1541	1.6	1.6	1.6	.
11:04:37	11.0769	1473	1505	1.6	1.5	1.6	.
11:05:06	11.0850	1485	1496	1.6	1.5	1.6	.
11:05:36	11.0933	1496	1486	1.6	1.5	1.6	.
11:06:06	11.1017	1502	1476	1.6	1.5	1.6	.
11:06:36	11.1100	1510	1466	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:07:06	11.1183	1514	1460	1.6	1.5	1.6	.
11:07:36	11.1267	1519	1453	1.6	1.5	1.6	.
11:08:06	11.1350	1522	1446	1.6	1.5	1.6	.
11:08:36	11.1433	1527	1444	1.6	1.5	1.6	.
11:09:06	11.1517	1537	1438	1.6	1.5	1.6	.
11:09:36	11.1600	1563	1437	1.6	1.5	1.6	.
11:10:06	11.1683	1549	1433	-0.6	1.5	1.6	.
11:10:39	11.1775	1474	1404	-1.4	1.5	1.6	.
11:11:09	11.1858	1467	1343	1.6	1.5	1.6	.
11:11:39	11.1942	1539	1339	1.6	1.5	1.6	.
11:12:09	11.2025	1583	1355	1.6	1.5	1.6	.
11:12:39	11.2108	1601	1366	1.6	1.5	1.6	.
11:13:11	11.2197	1598	1374	0.7	1.5	1.6	.
11:13:41	11.2281	1456	1347	-1.3	1.5	1.6	.
11:14:11	11.2364	1458	1306	1.6	1.5	1.6	.
11:14:41	11.2447	1541	1303	1.6	1.5	1.6	.
11:15:17	11.2547	1582	1319	1.6	1.5	1.6	.
11:15:47	11.2631	1491	1330	1.1	1.5	1.6	25.0
11:16:17	11.2714	1458	1425	1.6	1.5	1.6	.
11:16:47	11.2797	1461	1527	1.6	1.5	1.6	.
11:17:17	11.2881	1479	1561	1.6	1.5	1.6	.
11:17:47	11.2964	1482	1565	1.6	1.5	1.6	.
11:18:17	11.3047	1486	1559	1.6	1.5	1.6	.
11:18:47	11.3131	1489	1550	1.6	1.5	1.6	.
11:19:17	11.3214	1496	1542	1.6	1.5	1.6	.
11:19:46	11.3294	1498	1533	1.6	1.5	1.6	.
11:20:16	11.3378	1500	1525	1.6	1.5	1.6	.
11:20:46	11.3461	1505	1519	1.6	1.5	1.6	.
11:21:16	11.3544	1509	1514	1.6	1.5	1.6	.
11:21:46	11.3628	1515	1509	1.6	1.5	1.6	.
11:22:16	11.3711	1521	1502	1.6	1.5	1.6	.
11:22:46	11.3794	1527	1495	1.6	1.5	1.6	.
11:23:16	11.3878	1531	1490	1.6	1.5	1.6	.
11:23:46	11.3961	1533	1488	1.6	1.5	1.6	.
11:24:16	11.4044	1537	1488	1.6	1.5	1.6	.
11:24:46	11.4128	1543	1487	1.6	1.5	1.6	.
11:25:16	11.4211	1545	1483	1.5	1.5	1.6	.
11:25:46	11.4294	1520	1467	-1.2	1.5	1.6	.
11:26:16	11.4378	1462	1415	-1.4	1.5	1.6	.
11:26:46	11.4461	1456	1359	0.7	1.5	1.6	.
11:27:16	11.4544	1507	1340	1.6	1.5	1.6	.
11:27:45	11.4625	1531	1364	1.6	1.5	1.6	.
11:28:15	11.4708	1546	1392	1.6	1.5	1.6	.
11:28:45	11.4792	1552	1413	1.6	1.5	1.6	.
11:29:15	11.4875	1554	1427	0.4	1.5	1.6	.
11:29:45	11.4958	1497	1406	-1.4	1.5	1.6	.
11:30:15	11.5042	1441	1356	-1.4	1.5	1.6	.
11:30:45	11.5125	1366	1313	0.5	1.5	1.6	56.9

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:31:15	11.5208	1347	1400	1.6	1.5	1.6	.
11:31:45	11.5292	1385	1584	1.6	1.5	1.6	.
11:32:15	11.5375	1418	1714	1.6	1.5	1.6	.
11:32:45	11.5458	1421	1786	1.6	1.5	1.6	.
11:33:15	11.5542	1455	1817	1.6	1.5	1.6	.
11:33:45	11.5625	1468	1838	1.6	1.5	1.6	.
11:34:15	11.5708	1470	1848	1.6	1.5	1.6	.
11:34:45	11.5792	1479	1850	1.6	1.5	1.6	.
11:35:15	11.5875	1500	1851	1.6	1.5	1.6	.
11:35:45	11.5958	1508	1847	1.6	1.5	1.6	.
11:36:14	11.6039	1505	1838	1.6	1.5	1.6	.
11:36:44	11.6122	1512	1826	1.6	1.5	1.6	.
11:37:14	11.6206	1524	1810	1.6	1.5	1.6	.
11:37:44	11.6289	1530	1792	1.6	1.5	1.6	.
11:38:14	11.6372	1533	1775	1.6	1.5	1.6	.
11:38:44	11.6456	1523	1761	1.6	1.5	1.6	.
11:39:14	11.6539	1515	1747	1.6	1.5	1.6	.
11:39:44	11.6622	1506	1732	1.6	1.5	1.6	.
11:40:14	11.6706	1507	1717	1.6	1.5	1.6	.
11:40:44	11.6789	1510	1702	1.6	1.5	1.6	.
11:41:14	11.6872	1524	1688	1.6	1.5	1.6	.
11:41:44	11.6956	1532	1674	1.6	1.5	1.6	.
11:42:14	11.7039	1532	1661	1.6	1.5	1.6	.
11:42:44	11.7122	1538	1650	1.6	1.5	1.6	.
11:43:14	11.7206	1550	1637	1.6	1.5	1.6	.
11:43:44	11.7289	1556	1627	1.6	1.5	1.6	.
11:44:14	11.7372	1561	1620	1.6	1.5	1.6	.
11:44:44	11.7456	1566	1613	1.6	1.5	1.6	.
11:45:14	11.7539	1544	1603	-0.4	1.5	1.6	.
11:45:44	11.7622	1489	1547	-1.4	1.5	1.6	.
11:46:14	11.7706	1448	1471	-0.5	1.5	1.6	.
11:46:44	11.7789	1483	1432	1.6	1.5	1.6	.
11:47:14	11.7872	1489	1456	1.6	1.5	1.6	.
11:47:43	11.7953	1493	1499	1.6	1.5	1.6	.
11:48:13	11.8036	1492	1534	1.6	1.5	1.6	.
11:48:43	11.8119	1493	1556	1.6	1.5	1.6	.
11:49:13	11.8203	1492	1567	1.6	1.5	1.6	.
11:49:43	11.8286	1502	1578	1.6	1.5	1.6	.
11:50:13	11.8369	1516	1586	1.6	1.5	1.6	.
11:50:43	11.8453	1524	1587	1.6	1.5	1.6	.
11:51:13	11.8536	1525	1582	0.8	1.5	1.6	.
11:51:43	11.8619	1504	1552	-1.3	1.5	1.6	.
11:52:13	11.8703	1461	1484	-1.4	1.5	1.6	.
11:52:43	11.8786	1454	1420	0.4	1.5	1.6	.
11:53:13	11.8869	1525	1409	1.6	1.5	1.6	.
11:53:43	11.8953	1550	1443	1.6	1.5	1.6	.
11:54:13	11.9036	1543	1471	1.6	1.5	1.6	.
11:54:43	11.9119	1537	1487	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:55:13	11.9203	1533	1499	-0.5	1.5	1.6	.
11:55:43	11.9286	1503	1481	-1.4	1.5	1.6	.
11:56:13	11.9369	1463	1429	-1.1	1.5	1.6	.
11:56:43	11.9453	1524	1392	1.6	1.5	1.6	.
11:57:13	11.9536	1564	1395	1.6	1.5	1.6	.
11:57:43	11.9619	1578	1424	1.6	1.5	1.6	.
11:58:13	11.9703	1586	1451	1.5	1.5	1.6	.
11:58:42	11.9783	1547	1453	-1.2	1.5	1.6	.
11:59:12	11.9867	1475	1404	-1.4	1.5	1.6	.
11:59:42	11.9950	1439	1355	-0.3	1.5	1.6	.
12:00:12	12.0033	1519	1333	1.5	1.5	1.6	.
12:00:42	12.0117	1495	1343	0.3	1.5	1.6	29.1
12:01:12	12.0200	1428	1448	1.6	1.5	1.6	.
12:01:42	12.0283	1447	1640	1.6	1.5	1.6	.
12:02:12	12.0367	1458	1753	1.6	1.5	1.6	.
12:02:42	12.0450	1476	1813	1.6	1.5	1.6	.
12:03:12	12.0533	1485	1818	1.6	1.5	1.6	.
12:03:42	12.0617	1505	1796	1.6	1.5	1.6	.
12:04:12	12.0700	1540	1772	1.6	1.5	1.6	.
12:04:42	12.0783	1549	1745	1.6	1.5	1.6	.
12:05:12	12.0867	1561	1716	1.6	1.5	1.6	.
12:05:42	12.0950	1576	1687	1.6	1.5	1.6	.
12:06:12	12.1033	1585	1664	1.6	1.5	1.6	.
12:06:42	12.1117	1590	1647	1.6	1.5	1.6	.
12:07:11	12.1197	1588	1635	1.6	1.5	1.6	.
12:07:41	12.1281	1582	1627	1.0	1.5	1.6	.
12:08:11	12.1364	1528	1590	-1.3	1.5	1.6	.
12:08:41	12.1447	1474	1514	-1.4	1.5	1.6	.
12:09:11	12.1531	1462	1448	0.4	1.5	1.6	.
12:09:26	12.1572	1508	1427	1.6	1.5	1.6	.
12:09:41	12.1614	1532	1440	1.6	1.5	1.6	.
12:09:56	12.1656	1552	1459	1.6	1.5	1.6	.
12:10:11	12.1697	1560	1477	1.6	1.5	1.6	.
12:10:26	12.1739	1577	1499	1.6	1.5	1.6	.
12:10:41	12.1781	1584	1510	1.6	1.5	1.6	.
12:10:56	12.1822	1587	1523	1.6	1.5	1.6	.
12:11:11	12.1864	1589	1533	1.6	1.5	1.6	.
12:11:26	12.1906	1598	1542	1.6	1.5	1.6	.
12:11:41	12.1947	1599	1548	0.7	1.5	1.6	.
12:11:56	12.1989	1559	1539	-1.3	1.5	1.6	.
12:12:11	12.2031	1521	1513	-1.4	1.5	1.6	.
12:12:26	12.2072	1490	1480	-1.4	1.5	1.6	.
12:12:41	12.2114	1465	1448	-1.4	1.5	1.6	.
12:12:56	12.2156	1448	1420	-1.3	1.5	1.6	.
12:13:11	12.2197	1463	1397	1.6	1.5	1.6	.
12:13:25	12.2236	1506	1384	1.6	1.5	1.6	.
12:13:40	12.2278	1522	1391	1.6	1.5	1.6	.
12:13:55	12.2319	1535	1408	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:14:10	12.2361	1551	1428	1.6	1.5	1.6	.
12:14:25	12.2403	1567	1446	1.6	1.5	1.6	.
12:14:40	12.2444	1581	1463	1.6	1.5	1.6	.
12:14:55	12.2486	1591	1478	1.6	1.5	1.6	.
12:15:10	12.2528	1600	1491	1.1	1.5	1.6	.
12:15:25	12.2569	1535	1493	-1.2	1.5	1.6	.
12:15:40	12.2611	1487	1473	-1.4	1.5	1.6	61.2
12:15:55	12.2653	1535	1490	-1.4	1.5	1.6	.
12:16:10	12.2694	1552	1559	-1.4	1.5	1.6	.
12:16:25	12.2736	1556	1616	-1.4	1.5	1.6	.
12:16:40	12.2778	.	1636	0.1	1.5	1.6	.
12:16:55	12.2819	1523	1643	1.6	1.5	1.6	.
12:17:10	12.2861	1514	1672	1.6	1.5	1.6	.
12:17:25	12.2903	1516	1706	1.6	1.5	1.6	.
12:17:40	12.2944	1513	1731	1.6	1.5	1.6	.
12:17:55	12.2986	1530	1748	1.6	1.5	1.6	.
12:18:10	12.3028	1531	1751	1.6	1.5	1.6	.
12:18:24	12.3067	1517	1755	1.6	1.5	1.6	.
12:18:39	12.3108	1524	1765	1.6	1.5	1.6	.
12:18:54	12.3150	1524	1773	1.6	1.5	1.6	.
12:19:09	12.3192	1516	1776	1.6	1.5	1.6	.
12:19:24	12.3233	1523	1779	1.6	1.5	1.6	.
12:19:39	12.3275	1519	1781	1.6	1.5	1.6	.
12:19:54	12.3317	1516	1783	1.6	1.5	1.6	.
12:20:09	12.3358	1519	1783	1.6	1.5	1.6	.
12:20:24	12.3400	1525	1778	1.6	1.5	1.6	.
12:20:39	12.3442	1530	1775	1.6	1.5	1.6	.
12:21:05	12.3514	1524	1782	1.6	1.5	1.6	.
12:21:20	12.3556	1535	1790	1.6	1.5	1.6	.
12:21:35	12.3597	1531	1784	1.6	1.5	1.6	.
12:21:50	12.3639	1530	1780	1.6	1.5	1.6	.
12:22:05	12.3681	1532	1775	1.6	1.5	1.6	.
12:22:20	12.3722	1530	1772	1.6	1.5	1.6	.
12:22:35	12.3764	1528	1767	1.6	1.5	1.6	.
12:22:50	12.3806	1526	1764	1.6	1.5	1.6	.
12:23:05	12.3847	1532	1761	1.6	1.5	1.6	.
12:23:20	12.3889	1538	1757	1.6	1.5	1.6	.
12:23:35	12.3931	1547	1753	1.6	1.5	1.6	.
12:23:50	12.3972	1547	1748	1.6	1.5	1.6	.
12:24:05	12.4014	1553	1744	1.6	1.5	1.6	.
12:24:20	12.4056	1552	1740	1.6	1.5	1.6	.
12:24:35	12.4097	1552	1737	1.6	1.5	1.6	.
12:24:50	12.4139	1552	1733	1.6	1.5	1.6	.
12:25:05	12.4181	1550	1730	1.6	1.5	1.6	.
12:25:20	12.4222	1546	1726	1.6	1.5	1.6	.
12:25:35	12.4264	1547	1724	1.6	1.5	1.6	.
12:25:50	12.4306	1545	1722	1.6	1.5	1.6	.
12:26:04	12.4344	1547	1721	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:26:19	12.4386	1550	1719	1.6	1.5	1.6	.
12:26:34	12.4428	1553	1719	1.6	1.5	1.6	.
12:26:49	12.4469	1558	1718	1.6	1.5	1.6	.
12:27:04	12.4511	1563	1716	1.6	1.5	1.6	.
12:27:19	12.4553	1557	1714	1.6	1.5	1.6	.
12:27:34	12.4594	1561	1715	1.6	1.5	1.6	.
12:27:49	12.4636	1565	1716	1.6	1.5	1.6	.
12:28:04	12.4678	1570	1716	1.6	1.5	1.6	.
12:28:19	12.4719	1577	1715	1.6	1.5	1.6	.
12:28:34	12.4761	1580	1713	-0.3	1.5	1.6	.
12:28:49	12.4803	1559	1686	-1.4	1.5	1.6	.
12:29:04	12.4844	1530	1642	-1.4	1.5	1.6	.
12:29:19	12.4886	1509	1597	-1.4	1.5	1.6	.
12:29:34	12.4928	1488	1556	-1.4	1.5	1.6	.
12:29:49	12.4969	1474	1520	-1.4	1.5	1.6	.
12:30:04	12.5011	1464	1488	-1.1	1.5	1.6	.
12:30:19	12.5053	1494	1462	1.6	1.5	1.6	.
12:30:34	12.5094	1519	1457	1.6	1.5	1.6	.
12:30:48	12.5133	1542	1481	1.6	1.5	1.6	.
12:31:03	12.5175	1557	1514	1.6	1.5	1.6	.
12:31:18	12.5217	1568	1544	1.6	1.5	1.6	.
12:31:33	12.5258	1575	1569	1.6	1.5	1.6	.
12:31:48	12.5300	1578	1589	1.6	1.5	1.6	.
12:32:03	12.5342	1581	1607	1.6	1.5	1.6	.
12:32:18	12.5383	1590	1618	1.5	1.5	1.6	.
12:32:33	12.5425	1578	1622	-1.0	1.5	1.6	.
12:32:48	12.5467	1551	1599	-1.4	1.5	1.6	.
12:33:03	12.5508	1523	1561	-1.4	1.5	1.6	.
12:33:18	12.5550	1501	1524	-1.4	1.5	1.6	.
12:33:33	12.5592	1485	1491	-1.4	1.5	1.6	.
12:33:48	12.5633	1471	1461	-1.4	1.5	1.6	.
12:34:03	12.5675	1466	1433	0.3	1.5	1.6	.
12:34:18	12.5717	1503	1417	1.6	1.5	1.6	.
12:34:33	12.5758	1511	1426	1.6	1.5	1.6	.
12:34:48	12.5800	1521	1456	1.6	1.5	1.6	.
12:35:03	12.5842	1526	1490	1.6	1.5	1.6	.
12:35:18	12.5883	1536	1519	1.6	1.5	1.6	.
12:35:33	12.5925	1543	1545	1.6	1.5	1.6	.
12:35:48	12.5967	1550	1567	1.6	1.5	1.6	.
12:36:02	12.6006	1543	1583	1.6	1.5	1.6	.
12:36:17	12.6047	1544	1598	1.6	1.5	1.6	.
12:36:32	12.6089	1547	1610	1.6	1.5	1.6	.
12:36:47	12.6131	1549	1617	1.6	1.5	1.6	.
12:37:02	12.6172	1555	1621	-0.2	1.5	1.6	.
12:37:17	12.6214	1545	1606	-1.4	1.5	1.6	.
12:37:32	12.6256	1522	1570	-1.4	1.5	1.6	.
12:37:47	12.6297	1501	1531	-1.4	1.5	1.6	.
12:38:02	12.6339	1485	1495	-1.4	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:38:17	12.6381	1472	1463	-1.4	1.5	1.6	.
12:38:32	12.6422	1461	1436	-1.4	1.5	1.6	.
12:38:47	12.6464	1466	1403	0.8	1.5	1.6	.
12:39:02	12.6506	1507	1397	1.6	1.5	1.6	.
12:39:17	12.6547	1515	1405	1.6	1.5	1.6	.
12:39:32	12.6589	1525	1432	1.6	1.5	1.6	.
12:39:47	12.6631	1541	1463	1.6	1.5	1.6	.
12:40:02	12.6672	1548	1490	1.6	1.5	1.6	.
12:40:17	12.6714	1555	1516	1.6	1.5	1.6	.
12:40:32	12.6756	1556	1532	1.6	1.5	1.6	.
12:40:47	12.6797	1562	1549	0.2	1.5	1.6	.
12:41:02	12.6839	1549	1545	-1.3	1.5	1.6	.
12:41:17	12.6881	1528	1521	-1.4	1.5	1.6	.
12:41:32	12.6922	1507	1490	-1.4	1.5	1.6	.
12:41:46	12.6961	1489	1460	-1.4	1.5	1.6	.
12:42:01	12.7003	1474	1433	-1.4	1.5	1.6	.
12:42:16	12.7044	1461	1407	-1.4	1.5	1.6	.
12:42:31	12.7086	1453	1373	-0.2	1.5	1.6	.
12:42:46	12.7128	1505	1371	1.6	1.5	1.6	.
12:43:01	12.7169	1525	1370	1.6	1.5	1.6	.
12:43:16	12.7211	1541	1390	1.6	1.5	1.6	.
12:43:31	12.7253	1550	1416	1.6	1.5	1.6	.
12:43:46	12.7294	1555	1441	1.6	1.5	1.6	.
12:44:01	12.7336	1560	1466	1.6	1.5	1.6	.
12:44:16	12.7378	1567	1488	0.3	1.5	1.6	.
12:44:31	12.7419	1554	1494	-1.3	1.5	1.6	.
12:44:46	12.7461	1532	1477	-1.4	1.5	1.6	.
12:45:01	12.7503	1510	1452	-1.4	1.5	1.6	.
12:45:16	12.7544	1488	1426	-1.4	1.5	1.6	.
12:45:31	12.7586	1490	1396	-1.5	1.5	1.6	.
12:45:46	12.7628	1528	1408	-1.7	1.5	1.6	25.2
12:46:01	12.7669	1557	1464	-1.5	1.5	1.6	.
12:46:16	12.7711	1571	1522	-1.4	1.5	1.6	.
12:46:31	12.7753	1552	1546	-1.4	1.5	1.6	.
12:46:46	12.7794	1539	1542	-1.4	1.5	1.6	.
12:47:01	12.7836	1536	1521	-1.4	1.5	1.6	.
12:47:16	12.7878	1532	1495	-1.4	1.5	1.6	.
12:47:31	12.7919	1528	1467	-1.4	1.5	1.6	.
12:47:46	12.7961	1520	1441	-1.4	1.5	1.6	.
12:48:01	12.8003	1506	1417	-1.4	1.5	1.6	.
12:48:15	12.8042	1494	1398	-1.4	1.5	1.6	.
12:48:30	12.8083	1480	1363	0.3	1.5	1.6	.
12:48:45	12.8125	1499	1372	1.6	1.5	1.6	.
12:49:00	12.8167	1503	1399	1.6	1.5	1.6	.
12:49:15	12.8208	1504	1442	1.6	1.5	1.6	.
12:49:30	12.8250	1506	1482	1.6	1.5	1.6	.
12:49:45	12.8292	1506	1517	1.6	1.5	1.6	.
12:50:00	12.8333	1508	1546	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:50:15	12.8375	1511	1570	1.6	1.5	1.6	.
12:50:30	12.8417	1511	1589	1.6	1.5	1.6	.
12:50:45	12.8458	1511	1605	1.6	1.5	1.6	.
12:51:00	12.8500	1514	1618	1.6	1.5	1.6	.
12:51:15	12.8542	1521	1627	1.6	1.5	1.6	.
12:51:30	12.8583	1527	1632	1.6	1.5	1.6	.
12:51:45	12.8625	1526	1634	1.6	1.5	1.6	.
12:52:00	12.8667	1531	1637	1.6	1.5	1.6	.
12:52:15	12.8708	1534	1640	1.6	1.5	1.6	.
12:52:30	12.8750	1537	1641	1.6	1.5	1.6	.
12:52:44	12.8789	1541	1643	1.6	1.5	1.6	.
12:52:59	12.8831	1543	1643	1.6	1.5	1.6	.
12:53:14	12.8872	1547	1645	1.6	1.5	1.6	.
12:53:29	12.8914	1548	1642	1.4	1.5	1.6	.
12:53:44	12.8956	1546	1634	-1.1	1.5	1.6	.
12:53:59	12.8997	1525	1605	-1.4	1.5	1.6	.
12:54:14	12.9039	1502	1563	-1.4	1.5	1.6	.
12:54:29	12.9081	1485	1523	-1.4	1.5	1.6	.
12:54:44	12.9122	1471	1488	-1.4	1.5	1.6	.
12:54:59	12.9164	1460	1457	-1.4	1.5	1.6	.
12:55:14	12.9206	1458	1418	0.1	1.5	1.6	.
12:55:29	12.9247	1502	1410	1.6	1.5	1.6	.
12:55:44	12.9289	1521	1414	1.6	1.5	1.6	.
12:55:59	12.9331	1539	1437	1.6	1.5	1.6	.
12:56:14	12.9372	1549	1463	1.6	1.5	1.6	.
12:56:29	12.9414	1560	1487	1.6	1.5	1.6	.
12:56:44	12.9456	1568	1508	1.6	1.5	1.6	.
12:56:59	12.9497	1576	1527	1.0	1.5	1.6	.
12:57:14	12.9539	1558	1530	-1.3	1.5	1.6	.
12:57:29	12.9581	1531	1510	-1.4	1.5	1.6	.
12:57:43	12.9619	1505	1479	-1.4	1.5	1.6	.
12:57:58	12.9661	1489	1450	-1.4	1.5	1.6	.
12:58:13	12.9703	1474	1424	-1.4	1.5	1.6	.
12:58:28	12.9744	1462	1400	-1.4	1.5	1.6	.
12:58:43	12.9786	1453	1380	-1.0	1.5	1.6	.
12:58:58	12.9828	1491	1366	1.6	1.5	1.6	.
12:59:13	12.9869	1529	1359	1.6	1.5	1.6	.
12:59:28	12.9911	1552	1373	1.6	1.5	1.6	.
12:59:43	12.9953	1566	1395	1.6	1.5	1.6	.
12:59:58	12.9994	1578	1419	1.6	1.5	1.6	.
13:00:13	13.0036	1587	1440	1.1	1.5	1.6	.
13:00:28	13.0078	1553	1451	-1.2	1.5	1.6	.
13:00:43	13.0119	1480	1440	-1.4	1.5	1.6	66.0
13:00:58	13.0161	1508	1444	-1.4	1.5	1.6	.
13:01:13	13.0203	1540	1498	-1.4	1.5	1.6	.
13:01:28	13.0244	1550	1568	-1.4	1.5	1.6	.
13:01:43	13.0286	1527	1604	-1.4	1.5	1.6	.
13:01:58	13.0328	1504	1611	1.3	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:02:12	13.0367	1477	1640	1.6	1.5	1.6	.
13:02:27	13.0408	1462	1694	1.6	1.5	1.6	.
13:02:42	13.0450	1463	1750	1.6	1.5	1.6	.
13:02:57	13.0492	1468	1790	1.6	1.5	1.6	.
13:03:12	13.0533	1470	1819	1.6	1.5	1.6	.
13:03:27	13.0575	1476	1838	1.6	1.5	1.6	.
13:03:42	13.0617	1485	1847	1.6	1.5	1.6	.
13:03:57	13.0658	1486	1850	1.6	1.5	1.6	.
13:04:12	13.0700	1487	1848	1.6	1.5	1.6	.
13:04:27	13.0742	1494	1846	1.6	1.5	1.6	.
13:04:42	13.0783	1501	1841	1.6	1.5	1.6	.
13:04:57	13.0825	1508	1834	1.6	1.5	1.6	.
13:05:12	13.0867	1510	1826	1.6	1.5	1.6	.
13:05:27	13.0908	1512	1818	1.6	1.5	1.6	.
13:05:42	13.0950	1519	1814	1.6	1.5	1.6	.
13:05:57	13.0992	1516	1807	1.6	1.5	1.6	.
13:06:12	13.1033	1519	1804	1.6	1.5	1.6	.
13:06:27	13.1075	1521	1801	1.6	1.5	1.6	.
13:06:42	13.1117	1527	1798	1.6	1.5	1.6	.
13:06:57	13.1158	1528	1795	1.6	1.5	1.6	.
13:07:12	13.1200	1529	1791	1.6	1.5	1.6	.
13:07:26	13.1239	1531	1789	1.6	1.5	1.6	.
13:07:41	13.1281	1534	1786	1.6	1.5	1.6	.
13:07:56	13.1322	1535	1784	1.6	1.5	1.6	.
13:08:11	13.1364	1537	1783	1.6	1.5	1.6	.
13:08:26	13.1406	1541	1784	1.6	1.5	1.6	.
13:08:41	13.1447	1538	1782	1.6	1.5	1.6	.
13:08:56	13.1489	1538	1782	1.6	1.5	1.6	.
13:09:11	13.1531	1544	1781	1.6	1.5	1.6	.
13:09:26	13.1572	1547	1779	1.6	1.5	1.6	.
13:09:41	13.1614	1550	1776	1.6	1.5	1.6	.
13:09:56	13.1656	1552	1774	1.6	1.5	1.6	.
13:10:11	13.1697	1557	1771	1.6	1.5	1.6	.
13:10:26	13.1739	1558	1769	1.6	1.5	1.6	.
13:10:41	13.1781	1560	1768	1.0	1.5	1.6	.
13:10:56	13.1822	1541	1753	-1.3	1.5	1.6	.
13:11:11	13.1864	1514	1711	-1.4	1.5	1.6	.
13:11:26	13.1906	1489	1662	-1.4	1.5	1.6	.
13:11:41	13.1947	1473	1616	-1.4	1.5	1.6	.
13:11:56	13.1989	1460	1576	-1.4	1.5	1.6	.
13:12:11	13.2031	1452	1539	-1.4	1.5	1.6	.
13:12:25	13.2069	1442	1510	-1.4	1.5	1.6	.
13:12:40	13.2111	1436	1482	-1.4	1.5	1.6	.
13:12:55	13.2153	1440	1460	-1.4	1.5	1.6	.
13:13:10	13.2194	1438	1441	-1.4	1.5	1.6	.
13:13:25	13.2236	1438	1426	-0.8	1.5	1.6	.
13:13:40	13.2278	1476	1412	1.6	1.5	1.6	.
13:13:55	13.2319	1508	1429	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:14:10	13.2361	1533	1467	1.6	1.5	1.6	.
13:14:25	13.2403	1551	1511	1.6	1.5	1.6	.
13:14:40	13.2444	1561	1549	1.6	1.5	1.6	.
13:14:55	13.2486	1570	1582	1.6	1.5	1.6	.
13:15:10	13.2528	1583	1611	1.6	1.5	1.6	.
13:15:25	13.2569	1581	1628	0.3	1.5	1.6	.
13:15:40	13.2611	1539	1621	-1.3	1.5	1.6	.
13:15:55	13.2653	1498	1592	-1.4	1.5	1.6	.
13:16:10	13.2694	1467	1555	-1.4	1.5	1.6	.
13:16:25	13.2736	1445	1520	-1.4	1.5	1.6	.
13:16:40	13.2778	1429	1489	-1.4	1.5	1.6	.
13:16:55	13.2819	1418	1461	-1.4	1.5	1.6	.
13:17:10	13.2861	1423	1437	-1.4	1.5	1.6	.
13:17:25	13.2903	1434	1419	-1.4	1.5	1.6	.
13:17:39	13.2942	1459	1398	-1.4	1.5	1.6	.
13:17:54	13.2983	1488	1381	0.8	1.5	1.6	.
13:18:09	13.3025	1528	1380	1.6	1.5	1.6	.
13:18:24	13.3067	1545	1403	1.6	1.5	1.6	.
13:18:39	13.3108	1558	1441	1.6	1.5	1.6	.
13:18:54	13.3150	1566	1483	1.6	1.5	1.6	.
13:19:09	13.3192	1570	1516	1.6	1.5	1.6	.
13:19:24	13.3233	1570	1541	-0.3	1.5	1.6	.
13:19:39	13.3275	1532	1542	-1.4	1.5	1.6	.
13:19:54	13.3317	1496	1521	-1.4	1.5	1.6	.
13:20:09	13.3358	1466	1490	-1.4	1.5	1.6	.
13:20:24	13.3400	1458	1462	-1.4	1.5	1.6	.
13:20:39	13.3442	1475	1436	-1.4	1.5	1.6	.
13:20:54	13.3483	1483	1414	-1.4	1.5	1.6	.
13:21:09	13.3525	1485	1394	-1.4	1.5	1.6	.
13:21:24	13.3567	1485	1376	-1.4	1.5	1.6	.
13:21:39	13.3608	1482	1361	-1.4	1.5	1.6	.
13:21:54	13.3650	1500	1346	1.6	1.5	1.6	.
13:22:09	13.3692	1542	1352	1.6	1.5	1.6	.
13:22:24	13.3733	1557	1381	1.6	1.5	1.6	.
13:22:39	13.3775	1567	1421	1.6	1.5	1.6	.
13:22:53	13.3814	1576	1459	1.6	1.5	1.6	.
13:23:08	13.3856	1584	1492	1.2	1.5	1.6	.
13:23:23	13.3897	1573	1511	-1.2	1.5	1.6	.
13:23:38	13.3939	1556	1501	-1.4	1.5	1.6	.
13:23:53	13.3981	1546	1482	-1.4	1.5	1.6	.
13:24:08	13.4022	1526	1450	-1.4	1.5	1.6	.
13:24:23	13.4064	1511	1423	-1.4	1.5	1.6	.
13:24:38	13.4106	1500	1400	-1.4	1.5	1.6	.
13:24:53	13.4147	1491	1379	-1.4	1.5	1.6	.
13:25:08	13.4189	1485	1360	-1.4	1.5	1.6	.
13:25:23	13.4231	1477	1344	-1.4	1.5	1.6	.
13:25:38	13.4272	1475	1330	0.5	1.5	1.6	.
13:25:53	13.4314	1534	1325	1.6	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:26:08	13.4356	1567	1339	1.6	1.5	1.6	.
13:26:23	13.4397	1582	1366	1.6	1.5	1.6	.
13:26:38	13.4439	1596	1397	1.6	1.5	1.6	.
13:26:53	13.4481	1588	1424	-0.4	1.5	1.6	.
13:27:08	13.4522	1547	1430	-1.4	1.5	1.6	.
13:27:23	13.4564	1528	1419	-1.4	1.5	1.6	.
13:27:38	13.4606	1514	1402	-1.4	1.5	1.6	.
13:27:53	13.4647	1497	1379	-1.4	1.5	1.6	.
13:28:08	13.4689	1484	1360	-1.4	1.5	1.6	.
13:28:23	13.4731	1472	1343	-1.4	1.5	1.6	.
13:28:38	13.4772	1463	1327	-1.3	1.5	1.6	.
13:28:53	13.4814	1487	1314	1.6	1.5	1.6	.
13:29:07	13.4853	1552	1315	1.6	1.5	1.6	.
13:29:22	13.4894	1582	1334	1.6	1.5	1.6	.
13:29:37	13.4936	1602	1364	1.6	1.5	1.6	.
13:29:52	13.4978	1606	1386	0.5	1.5	1.6	.
13:30:07	13.5019	1562	1400	-1.3	1.5	1.6	.
13:30:22	13.5061	1512	1392	-1.4	1.5	1.6	54.4
13:30:37	13.5103	1488	1376	-1.4	1.5	1.6	.
13:30:52	13.5144	1481	1400	-1.4	1.5	1.6	.
13:31:07	13.5186	1485	1492	-1.4	1.5	1.6	.
13:31:22	13.5228	1532	1600	-1.4	1.5	1.6	.
13:31:37	13.5269	1543	1673	1.4	1.5	1.6	.
13:31:52	13.5311	1533	1729	1.6	1.5	1.6	.
13:32:07	13.5353	1532	1779	1.6	1.5	1.6	.
13:32:22	13.5394	1539	1814	1.6	1.5	1.6	.
13:32:37	13.5436	1543	1835	1.6	1.5	1.6	.
13:32:52	13.5478	1549	1845	1.6	1.5	1.6	.
13:33:07	13.5519	1570	1850	1.6	1.5	1.6	.
13:33:22	13.5561	1559	1852	1.6	1.5	1.6	.
13:33:36	13.5600	1554	1852	1.6	1.5	1.6	.
13:33:51	13.5642	1545	1849	1.6	1.5	1.6	.
13:34:06	13.5683	1546	1845	1.6	1.5	1.6	.
13:34:21	13.5725	1567	1838	1.6	1.5	1.6	.
13:34:36	13.5767	1579	1831	1.6	1.5	1.6	.
13:34:51	13.5808	1566	1823	1.6	1.5	1.6	.
13:35:06	13.5850	1571	1815	1.6	1.5	1.6	.
13:35:21	13.5892	1576	1806	1.6	1.5	1.6	.
13:35:36	13.5933	1566	1798	1.6	1.5	1.6	.
13:35:51	13.5975	1573	1791	1.6	1.5	1.6	.
13:36:06	13.6017	1583	1784	1.6	1.5	1.6	.
13:36:21	13.6058	1584	1777	1.6	1.5	1.6	.
13:36:36	13.6100	1580	1771	1.6	1.5	1.6	.
13:36:51	13.6142	1580	1764	1.6	1.5	1.6	.
13:37:06	13.6183	1580	1757	1.6	1.5	1.6	.
13:37:21	13.6225	1577	1750	1.6	1.5	1.6	.
13:37:36	13.6267	1581	1742	1.1	1.5	1.6	.
13:37:51	13.6308	1563	1724	-1.2	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:38:06	13.6350	1538	1683	-1.4	1.5	1.6	.
13:38:20	13.6389	1509	1634	-1.4	1.5	1.6	.
13:38:35	13.6431	1490	1590	-1.4	1.5	1.6	.
13:38:50	13.6472	1477	1550	-1.4	1.5	1.6	.
13:39:05	13.6514	1470	1516	-1.4	1.5	1.6	.
13:39:20	13.6556	1462	1485	-1.4	1.5	1.6	.
13:39:35	13.6597	1461	1461	1.5	1.5	1.6	.
13:39:50	13.6639	1527	1456	1.6	1.5	1.6	.
13:40:05	13.6681	1555	1479	1.6	1.5	1.6	.
13:40:20	13.6722	1566	1506	1.6	1.5	1.6	.
13:40:35	13.6764	1580	1535	1.6	1.5	1.6	.
13:40:50	13.6806	1594	1560	1.3	1.5	1.6	.
13:41:05	13.6847	1577	1572	-1.2	1.5	1.6	.
13:41:20	13.6889	1538	1556	-1.4	1.5	1.6	.
13:41:35	13.6931	1510	1528	-1.4	1.5	1.6	.
13:41:50	13.6972	1486	1497	-1.4	1.5	1.6	.
13:42:05	13.7014	1467	1469	-1.4	1.5	1.6	.
13:42:20	13.7056	1454	1443	-1.4	1.5	1.6	.
13:42:35	13.7097	1451	1414	0.7	1.5	1.6	.
13:42:50	13.7139	1523	1409	1.6	1.5	1.6	.
13:43:05	13.7181	1558	1420	1.6	1.5	1.6	.
13:43:19	13.7219	1579	1447	1.6	1.5	1.6	.
13:43:34	13.7261	1590	1475	1.6	1.5	1.6	.
13:43:49	13.7303	1592	1501	0.1	1.5	1.6	.
13:44:04	13.7344	1561	1506	-1.3	1.5	1.6	.
13:44:19	13.7386	1531	1489	-1.4	1.5	1.6	.
13:44:34	13.7428	1502	1465	-1.4	1.5	1.6	.
13:44:49	13.7469	1476	1440	-1.4	1.5	1.6	.
13:45:04	13.7511	1459	1418	-1.4	1.5	1.6	.
13:45:19	13.7553	1449	1377	-0.6	1.5	1.6	.
13:45:34	13.7594	1498	1382	1.6	1.5	1.6	.
13:45:49	13.7636	1552	1383	1.6	1.5	1.6	.
13:46:04	13.7678	1576	1404	1.6	1.5	1.6	.
13:46:19	13.7719	1588	1433	1.6	1.5	1.6	.
13:46:34	13.7761	1598	1462	0.6	1.5	1.6	.
13:46:49	13.7803	1561	1474	-1.3	1.5	1.6	.
13:47:04	13.7844	1526	1464	-1.4	1.5	1.6	.
13:47:19	13.7886	1497	1443	-1.4	1.5	1.6	.
13:47:34	13.7928	1476	1421	-1.4	1.5	1.6	.
13:47:49	13.7969	1460	1400	-1.4	1.5	1.6	.
13:48:04	13.8011	1447	1380	-0.7	1.5	1.6	.
13:48:19	13.8053	1487	1366	1.6	1.5	1.6	.
13:48:34	13.8094	1552	1366	1.6	1.5	1.6	.
13:48:48	13.8133	1580	1383	1.6	1.5	1.6	.
13:49:03	13.8175	1595	1410	1.6	1.5	1.6	.
13:49:18	13.8217	1596	1436	0.1	1.5	1.6	.
13:49:33	13.8258	1563	1446	-1.3	1.5	1.6	.
13:49:48	13.8300	1526	1436	-1.4	1.5	1.6	.

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:50:03	13.8342	1498	1416	-1.4	1.5	1.6	.
13:50:18	13.8383	1477	1396	-1.4	1.5	1.6	.
13:50:33	13.8425	1461	1377	-1.4	1.5	1.6	.
13:50:48	13.8467	1449	1359	-0.8	1.5	1.6	.
13:51:03	13.8508	1487	1346	1.6	1.5	1.6	.
13:51:18	13.8550	1555	1345	1.6	1.5	1.6	.
13:51:33	13.8592	1585	1361	1.6	1.5	1.6	.
13:51:48	13.8633	1606	1385	1.6	1.5	1.6	.
13:52:03	13.8675	1603	1410	-0.3	1.5	1.6	.
13:52:18	13.8717	1563	1418	-1.4	1.5	1.6	.
13:52:33	13.8758	1522	1408	-1.4	1.5	1.6	.
13:52:48	13.8800	1497	1390	-1.4	1.5	1.6	.
13:53:03	13.8842	1478	1372	-1.4	1.5	1.6	.
13:53:18	13.8883	1463	1354	-1.4	1.5	1.6	.
13:53:33	13.8925	1449	1330	-0.7	1.5	1.6	.
13:53:48	13.8967	1492	1327	1.6	1.5	1.6	.
13:54:03	13.9008	1560	1327	1.6	1.5	1.6	.
13:54:17	13.9047	1591	1343	1.6	1.5	1.6	.
13:54:32	13.9089	1609	1367	1.6	1.5	1.6	.
13:54:47	13.9131	1598	1391	-0.6	1.5	1.6	.
13:55:02	13.9172	1552	1397	-1.4	1.5	1.6	.
13:55:17	13.9214	1531	1398	-2.0	1.5	1.6	.
13:55:32	13.9256	1493	1371	-1.3	1.5	1.6	.
13:55:47	13.9297	1472	1354	-1.4	1.5	1.6	.
13:56:02	13.9339	1454	1339	-1.4	1.5	1.6	.
13:56:17	13.9381	1440	1323	0.4	1.5	1.6	.
13:56:32	13.9422	1523	1315	1.6	1.5	1.6	.
13:56:47	13.9464	1577	1322	1.6	1.5	1.6	.
13:57:02	13.9506	1604	1339	1.6	1.5	1.6	.
13:57:17	13.9547	1614	1364	0.8	1.5	1.6	.
13:57:32	13.9589	1582	1381	-1.3	1.5	1.6	.
13:57:47	13.9631	1548	1377	-1.4	1.5	1.6	.
13:58:02	13.9672	1517	1365	-1.4	1.5	1.6	.
13:58:17	13.9714	1493	1349	-1.4	1.5	1.6	.
13:58:32	13.9756	1475	1333	-1.4	1.5	1.6	.
13:58:47	13.9797	1458	1318	-1.4	1.5	1.6	.
13:59:02	13.9839	1449	1299	0.5	1.5	1.6	.
13:59:17	13.9881	1522	1298	1.6	1.5	1.6	.
13:59:32	13.9922	1576	1306	1.6	1.5	1.6	.
13:59:46	13.9961	1601	1325	1.6	1.5	1.6	.
14:00:01	14.0003	1616	1352	0.6	1.5	1.6	53.0
14:30:00	.	.	.	.	.	.	50.4

Table B.1-3 Process data for Run 3

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1164.14	1193.41	25.0000
MAX	1616.40	1852.17	66.0000
MEAN	1499.35	1499.15	45.2538
STD	76.91	167.72	14.3401

Table B.1-3 Process data for Run 3
Total test period only

FILENAME: CC3_922.SSD
TEST DATE: September 22, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1164.14	1193.41	25.0000
MAX	1616.40	1852.17	66.0000
MEAN	1499.35	1499.15	45.2538
STD	76.91	167.72	14.3401

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:40:17	11.6714	1014	845	1.2	1.5	1.6	.
11:40:47	11.6797	857	841	-1.3	1.5	1.6	37.7
11:41:17	11.6881	766	807	1.0	1.5	1.6	.
11:41:47	11.6964	872	872	1.6	1.5	1.6	.
11:42:17	11.7047	915	1087	1.6	1.5	1.6	.
11:42:47	11.7131	932	1284	1.6	1.5	1.6	.
11:43:17	11.7214	951	1437	1.6	1.5	1.6	.
11:43:47	11.7297	984	1552	1.6	1.5	1.6	.
11:44:17	11.7381	1013	1624	1.6	1.5	1.6	.
11:44:47	11.7464	1026	1657	1.6	1.5	1.6	.
11:45:17	11.7547	1035	1669	1.6	1.5	1.6	.
11:45:47	11.7631	1041	1666	1.6	1.5	1.6	.
11:46:17	11.7714	1049	1663	1.6	1.5	1.6	.
11:46:47	11.7797	1052	1656	1.6	1.5	1.6	.
11:47:17	11.7881	1065	1652	1.6	1.5	1.6	.
11:47:47	11.7964	1094	1647	1.6	1.5	1.6	.
11:48:17	11.8047	1118	1644	1.6	1.5	1.6	.
11:48:47	11.8131	1137	1636	1.6	1.5	1.6	.
11:49:17	11.8214	1149	1629	1.6	1.5	1.6	.
11:49:46	11.8294	1162	1626	1.6	1.5	1.6	.
11:50:16	11.8378	1177	1622	1.6	1.5	1.6	.
11:50:46	11.8461	1182	1617	1.6	1.5	1.6	.
11:51:16	11.8544	1192	1617	1.6	1.5	1.6	.
11:51:46	11.8628	1197	1616	1.6	1.5	1.6	.
11:52:16	11.8711	1212	1616	1.6	1.5	1.6	.
11:52:46	11.8794	1224	1612	1.6	1.5	1.6	.
11:53:16	11.8878	1230	1608	1.6	1.5	1.6	.
11:53:46	11.8961	1238	1597	1.6	1.5	1.6	.
11:54:16	11.9044	1237	1583	1.6	1.5	1.6	.
11:54:46	11.9128	1252	1569	1.6	1.5	1.6	.
11:55:16	11.9211	1260	1551	1.3	1.5	1.6	.
11:55:46	11.9294	1224	1512	0.3	1.5	1.6	45.3
11:56:16	11.9378	1210	1525	1.6	1.5	1.6	.
11:56:46	11.9461	1205	1629	1.6	1.5	1.6	.
11:57:16	11.9544	1209	1704	1.6	1.5	1.6	.
11:57:46	11.9628	1222	1767	1.6	1.5	1.6	.
11:58:16	11.9711	1245	1788	1.6	1.5	1.6	.
11:58:46	11.9794	1245	1778	1.6	1.5	1.6	.
11:59:16	11.9878	1237	1762	1.6	1.5	1.6	.
11:59:46	11.9961	1238	1742	1.6	1.5	1.6	.
12:00:16	12.0044	1251	1728	1.6	1.5	1.6	.
12:00:46	12.0128	1271	1710	1.6	1.5	1.6	.
12:01:16	12.0211	1318	1681	1.6	1.5	1.6	.
12:01:45	12.0292	1341	1645	1.6	1.5	1.6	.
12:02:15	12.0375	1345	1622	1.6	1.5	1.6	.
12:02:45	12.0458	1362	1603	1.6	1.5	1.6	.
12:03:15	12.0542	1379	1575	1.6	1.5	1.6	.
12:03:45	12.0625	1374	1577	1.6	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:04:15	12.0708	1370	1613	1.6	1.5	1.6	.
12:04:45	12.0792	1386	1617	1.6	1.5	1.6	.
12:05:15	12.0875	1387	1577	1.2	1.5	1.6	.
12:05:45	12.0958	1359	1544	-1.4	1.5	1.6	.
12:06:15	12.1042	1330	1466	-1.4	1.5	1.6	.
12:06:45	12.1125	1320	1386	-1.4	1.5	1.6	.
12:07:15	12.1208	1325	1331	-1.4	1.5	1.6	.
12:07:45	12.1292	1323	1288	-1.4	1.5	1.6	.
12:08:15	12.1375	1321	1254	-1.4	1.5	1.6	.
12:08:45	12.1458	1317	1228	-1.4	1.5	1.6	.
12:09:15	12.1542	1313	1203	-0.3	1.5	1.6	.
12:09:45	12.1625	1354	1231	1.6	1.5	1.6	.
12:10:15	12.1708	1367	1339	1.6	1.5	1.6	.
12:10:45	12.1792	1365	1409	-1.2	1.5	1.6	.
12:11:14	12.1872	1335	1370	-1.4	1.5	1.6	.
12:11:44	12.1956	1314	1314	-1.4	1.5	1.6	.
12:12:14	12.2039	1298	1267	-1.4	1.5	1.6	.
12:12:44	12.2122	1279	1224	-1.2	1.5	1.6	.
12:13:14	12.2206	1332	1202	1.6	1.5	1.6	.
12:13:44	12.2289	1383	1239	1.2	1.5	1.6	.
12:14:14	12.2372	1355	1271	-1.4	1.5	1.6	.
12:14:44	12.2456	1307	1245	-1.4	1.5	1.6	.
12:15:14	12.2539	1272	1212	-1.4	1.5	1.6	.
12:15:44	12.2622	1281	1184	-1.4	1.5	1.6	40.3
12:16:14	12.2706	1357	1247	-1.4	1.5	1.6	.
12:16:44	12.2789	1376	1382	-1.4	1.5	1.6	.
12:17:14	12.2872	1366	1466	-1.4	1.5	1.6	.
12:17:44	12.2956	1357	1509	-1.4	1.5	1.6	.
12:18:14	12.3039	1363	1532	-1.4	1.5	1.6	.
12:18:44	12.3122	1377	1540	-1.4	1.5	1.6	.
12:19:14	12.3206	1390	1525	-1.4	1.5	1.6	.
12:19:44	12.3289	1402	1507	-1.4	1.5	1.6	.
12:20:14	12.3372	1402	1494	-1.4	1.5	1.6	.
12:20:44	12.3456	1397	1475	-1.4	1.5	1.6	.
12:21:17	12.3547	1393	1455	-1.4	1.5	1.6	.
12:23:21	12.3892	1438	1337	-1.4	1.6	1.6	.
12:23:51	12.3975	1444	1308	-1.5	1.5	1.6	.
12:24:21	12.4058	1445	1289	-1.4	1.5	1.6	.
12:24:51	12.4142	1436	1265	-1.3	1.5	1.6	.
12:25:21	12.4225	1434	1247	-1.4	1.5	1.6	.
12:25:51	12.4308	1431	1230	-1.4	1.5	1.6	.
12:26:20	12.4389	1420	1215	-1.4	1.5	1.6	.
12:26:50	12.4472	1409	1202	-1.4	1.5	1.6	.
12:27:20	12.4556	1397	1189	-1.4	1.5	1.6	.
12:27:50	12.4639	1383	1178	-1.4	1.5	1.6	.
12:28:20	12.4722	1374	1168	-1.4	1.5	1.6	.
12:28:50	12.4806	1369	1157	-1.4	1.5	1.6	.
12:29:20	12.4889	1366	1149	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:29:50	12.4972	1360	1143	-1.4	1.5	1.6	.
12:30:20	12.5056	1346	1137	-1.4	1.5	1.6	.
12:30:50	12.5139	1322	1142	-1.4	1.5	1.6	40.1
12:31:20	12.5222	1345	1304	-1.4	1.5	1.6	.
12:31:50	12.5306	1326	1543	-1.4	1.5	1.6	.
12:32:20	12.5389	1326	1715	-1.4	1.5	1.6	.
12:32:50	12.5472	1348	1779	-1.4	1.5	1.6	.
12:33:20	12.5556	1345	1776	-1.4	1.5	1.6	.
12:33:50	12.5639	1345	1760	-1.4	1.5	1.6	.
12:34:20	12.5722	1311	1739	-1.4	1.5	1.6	.
12:34:50	12.5806	1300	1740	-1.4	1.5	1.6	.
12:35:19	12.5886	1298	1749	-0.1	1.5	1.6	.
12:35:49	12.5969	1271	1817	1.6	1.5	1.6	.
12:36:19	12.6053	1277	1904	1.6	1.5	1.6	.
12:36:49	12.6136	1288	1944	1.6	1.5	1.6	.
12:37:19	12.6219	1308	1957	1.6	1.5	1.6	.
12:37:49	12.6303	1282	1944	1.6	1.5	1.6	.
12:38:19	12.6386	1281	1923	1.6	1.5	1.6	.
12:38:49	12.6469	1302	1898	0.1	1.5	1.6	.
12:39:19	12.6553	1344	1773	-1.4	1.5	1.6	.
12:39:49	12.6636	1364	1562	-1.3	1.5	1.6	.
12:40:19	12.6719	1399	1456	-1.4	1.5	1.6	.
12:40:49	12.6803	1411	1401	-1.4	1.5	1.6	.
12:41:19	12.6886	1415	1368	-1.4	1.5	1.6	.
12:41:49	12.6969	1416	1341	-1.4	1.5	1.6	.
12:42:19	12.7053	1410	1316	-1.4	1.5	1.6	.
12:42:49	12.7136	1401	1293	-1.4	1.5	1.6	.
12:45:00	.	.	.	.	.	.	43.4
12:48:35	12.8097	1545	1659	-1.7	1.6	1.6	.
12:49:05	12.8181	1591	1527	-1.1	1.5	1.6	.
12:49:35	12.8264	1530	1518	-1.4	1.5	1.6	.
12:50:05	12.8347	1535	1533	-1.4	1.5	1.6	.
12:50:35	12.8431	1531	1536	-1.4	1.5	1.6	.
12:51:05	12.8514	1529	1531	-1.4	1.5	1.6	.
12:51:34	12.8594	1530	1520	-1.4	1.5	1.6	.
12:52:04	12.8678	1532	1506	-1.4	1.5	1.6	.
12:52:34	12.8761	1534	1491	-1.4	1.5	1.6	.
12:53:04	12.8844	1544	1473	-1.4	1.5	1.6	.
12:53:34	12.8928	1548	1456	-1.4	1.5	1.6	.
12:54:04	12.9011	1557	1446	-1.4	1.5	1.6	.
12:54:34	12.9094	1561	1435	-1.4	1.5	1.6	.
12:55:04	12.9178	1562	1420	-1.4	1.5	1.6	.
12:55:34	12.9261	1564	1402	-1.4	1.5	1.6	.
12:56:04	12.9344	1555	1385	-1.4	1.5	1.6	.
12:56:34	12.9428	1552	1369	-1.4	1.5	1.6	.
12:57:04	12.9511	1549	1354	-1.4	1.5	1.6	.
12:57:34	12.9594	1540	1340	-1.4	1.5	1.6	.
12:58:04	12.9678	1523	1328	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:58:34	12.9761	1516	1319	-1.4	1.5	1.6	.
12:59:04	12.9844	1509	1310	-1.4	1.5	1.6	.
12:59:34	12.9928	1506	1299	-1.4	1.5	1.6	.
13:00:04	13.0011	1499	1288	-1.4	1.5	1.6	.
13:00:33	13.0092	1460	1279	-1.4	1.5	1.6	41.7
13:01:07	13.0186	1449	1278	-1.4	1.5	1.6	.
13:01:37	13.0269	1430	1322	-1.4	1.5	1.6	.
13:02:07	13.0353	1410	1384	-1.4	1.5	1.6	.
13:02:37	13.0436	1391	1456	-1.4	1.5	1.6	.
13:03:07	13.0519	1383	1530	-1.4	1.5	1.6	.
13:03:37	13.0603	1388	1580	-1.4	1.5	1.6	.
13:04:07	13.0686	1395	1598	-1.4	1.5	1.6	.
13:04:37	13.0769	1400	1599	-1.4	1.5	1.6	.
13:05:07	13.0853	1397	1595	-1.4	1.5	1.6	.
13:05:37	13.0936	1395	1588	-1.4	1.5	1.6	.
13:06:07	13.1019	1401	1577	-1.4	1.5	1.6	.
13:06:37	13.1103	1410	1580	-1.4	1.5	1.6	.
13:07:07	13.1186	1416	1585	-1.4	1.5	1.6	.
13:07:37	13.1269	1420	1594	-1.4	1.5	1.6	.
13:08:07	13.1353	1421	1599	-1.4	1.5	1.6	.
13:08:37	13.1436	1424	1600	-1.4	1.5	1.6	.
13:09:07	13.1519	1431	1604	-1.4	1.5	1.6	.
13:09:37	13.1603	1436	1610	-1.5	1.5	1.6	.
13:10:06	13.1683	1435	1612	-1.4	1.5	1.6	.
13:10:36	13.1767	1523	1569	-1.1	1.5	1.6	.
13:11:06	13.1850	1478	1523	-1.3	1.5	1.6	.
13:11:36	13.1933	1465	1535	-1.4	1.5	1.6	.
13:12:06	13.2017	1478	1545	-1.4	1.5	1.6	.
13:12:36	13.2100	1485	1545	-1.4	1.5	1.6	.
13:13:06	13.2183	1481	1544	-1.4	1.5	1.6	.
13:13:36	13.2267	1490	1536	-1.4	1.5	1.6	.
13:14:06	13.2350	1497	1522	-1.4	1.5	1.6	.
13:14:36	13.2433	1501	1510	-1.4	1.5	1.6	.
13:15:06	13.2517	1516	1490	-1.5	1.5	1.6	.
13:15:36	13.2600	1505	1457	-1.4	1.5	1.6	40.3
13:16:06	13.2683	1451	1444	-1.4	1.5	1.6	.
13:16:36	13.2767	1428	1583	-1.4	1.5	1.6	.
13:17:06	13.2850	1399	1775	-1.4	1.5	1.6	.
13:17:36	13.2933	1386	1892	-1.5	1.5	1.6	.
13:18:06	13.3017	1407	1952	-1.5	1.5	1.6	.
13:18:36	13.3100	1458	1979	-1.5	1.5	1.6	.
13:19:06	13.3183	1479	1974	-1.4	1.5	1.6	.
13:19:35	13.3264	1498	1953	-1.4	1.5	1.6	.
13:20:05	13.3347	1514	1930	-1.4	1.5	1.6	.
13:20:35	13.3431	1526	1901	-1.4	1.5	1.6	.
13:21:05	13.3514	1541	1866	-1.4	1.5	1.6	.
13:21:35	13.3597	1551	1828	-1.4	1.5	1.6	.
13:22:05	13.3681	1559	1796	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:22:35	13.3764	1583	1764	-1.4	1.5	1.6	.
13:23:05	13.3847	1627	1683	-1.3	1.5	1.6	.
13:23:35	13.3931	1639	1523	-1.1	1.5	1.6	.
13:24:05	13.4014	1610	1467	-1.3	1.5	1.6	.
13:24:35	13.4097	1611	1528	-1.4	1.5	1.6	.
13:25:05	13.4181	1605	1570	-1.4	1.5	1.6	.
13:25:35	13.4264	1623	1580	-1.4	1.5	1.6	.
13:26:05	13.4347	1646	1513	-1.4	1.5	1.6	.
13:26:35	13.4431	1653	1509	-1.4	1.5	1.6	.
13:27:12	13.4533	1664	1513	-1.4	1.5	1.6	.
13:27:27	13.4575	1669	1517	-1.5	1.5	1.6	.
13:27:42	13.4617	1670	1512	-1.4	1.5	1.6	.
13:27:57	13.4658	1670	1508	-1.4	1.5	1.6	.
13:28:12	13.4700	1669	1504	-1.4	1.5	1.6	.
13:28:27	13.4742	1670	1501	-1.4	1.5	1.6	.
13:28:42	13.4783	1670	1498	-1.4	1.5	1.6	.
13:28:57	13.4825	1673	1488	-1.4	1.5	1.6	.
13:29:12	13.4867	1675	1482	-1.4	1.5	1.6	.
13:29:27	13.4908	1675	1468	-1.4	1.5	1.6	.
13:29:42	13.4950	1674	1459	-1.4	1.5	1.6	.
13:29:57	13.4992	1673	1450	-1.4	1.5	1.6	.
13:30:12	13.5033	1673	1437	-1.4	1.5	1.6	.
13:30:27	13.5075	1643	1433	-1.4	1.5	1.6	.
13:30:41	13.5114	1611	1433	-1.4	1.5	1.6	.
13:30:56	13.5156	1607	1475	-1.4	1.5	1.6	41.9
13:31:11	13.5197	1591	1545	-1.4	1.5	1.6	.
13:31:26	13.5239	1569	1649	-1.5	1.5	1.6	.
13:31:41	13.5281	1518	1729	-1.5	1.5	1.6	.
13:31:56	13.5322	1479	1793	-1.5	1.5	1.6	.
13:32:11	13.5364	1463	1841	-1.5	1.5	1.6	.
13:32:26	13.5406	1444	1877	-1.5	1.5	1.6	.
13:32:41	13.5447	1439	1902	-1.5	1.5	1.6	.
13:32:56	13.5489	1438	1925	-1.5	1.5	1.6	.
13:33:11	13.5531	1434	1947	-1.5	1.5	1.6	.
13:33:26	13.5572	1435	1964	-1.5	1.5	1.6	.
13:33:41	13.5614	1433	1975	-1.5	1.5	1.6	.
13:33:56	13.5656	1430	1977	-1.5	1.5	1.6	.
13:34:11	13.5697	1431	1975	-1.5	1.5	1.6	.
13:34:26	13.5739	1431	1976	-1.5	1.5	1.6	.
13:34:41	13.5781	1430	1967	-1.4	1.5	1.6	.
13:34:56	13.5822	1430	1960	-1.5	1.5	1.6	.
13:35:11	13.5864	1435	1950	-1.4	1.5	1.6	.
13:35:26	13.5906	1438	1943	-1.4	1.5	1.6	.
13:35:41	13.5947	1440	1930	-1.4	1.5	1.6	.
13:35:56	13.5989	1445	1913	-1.4	1.5	1.6	.
13:36:10	13.6028	1444	1893	-1.4	1.5	1.6	.
13:36:25	13.6069	1448	1872	-1.4	1.5	1.6	.
13:36:40	13.6111	1454	1851	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:36:55	13.6153	1463	1832	-1.4	1.5	1.6	.
13:37:10	13.6194	1468	1816	-1.4	1.5	1.6	.
13:37:25	13.6236	1479	1801	-1.4	1.5	1.6	.
13:37:40	13.6278	1494	1788	-1.4	1.5	1.6	.
13:37:55	13.6319	1498	1765	-1.4	1.5	1.6	.
13:38:10	13.6361	1499	1740	-1.4	1.5	1.6	.
13:38:25	13.6403	1513	1694	-1.4	1.5	1.6	.
13:38:40	13.6444	1519	1625	-1.4	1.5	1.6	.
13:38:55	13.6486	1530	1557	-1.4	1.5	1.6	.
13:39:10	13.6528	1525	1491	-1.4	1.5	1.6	.
13:39:25	13.6569	1525	1468	-1.4	1.5	1.6	.
13:39:40	13.6611	1526	1470	-1.4	1.5	1.6	.
13:39:55	13.6653	1518	1476	-1.4	1.5	1.6	.
13:40:10	13.6694	1513	1482	-1.4	1.5	1.6	.
13:40:25	13.6736	1519	1490	-1.4	1.5	1.6	.
13:40:40	13.6778	1524	1495	-1.4	1.5	1.6	.
13:40:55	13.6819	1527	1493	-1.4	1.5	1.6	.
13:41:09	13.6858	1528	1488	-1.4	1.5	1.6	.
13:41:24	13.6900	1525	1482	-1.4	1.5	1.6	.
13:41:39	13.6942	1535	1475	-1.4	1.5	1.6	.
13:41:54	13.6983	1539	1465	-1.4	1.5	1.6	.
13:42:09	13.7025	1542	1454	-1.4	1.5	1.6	.
13:42:24	13.7067	1558	1446	-1.4	1.5	1.6	.
13:42:39	13.7108	1560	1436	-1.4	1.5	1.6	.
13:42:54	13.7150	1567	1426	-1.4	1.5	1.6	.
13:43:09	13.7192	1572	1414	-1.4	1.5	1.6	.
13:43:24	13.7233	1578	1403	-1.4	1.5	1.6	.
13:43:39	13.7275	1579	1392	-1.4	1.5	1.6	.
13:43:54	13.7317	1579	1382	-1.4	1.5	1.6	.
13:44:09	13.7358	1574	1373	-1.4	1.5	1.6	.
13:44:24	13.7400	1563	1365	-1.4	1.5	1.6	.
13:44:39	13.7442	1555	1357	-1.4	1.5	1.6	.
13:44:54	13.7483	1550	1350	-1.4	1.5	1.6	.
13:45:09	13.7525	1547	1341	-1.4	1.5	1.6	.
13:45:24	13.7567	1570	1338	-1.4	1.5	1.6	.
13:45:39	13.7608	1634	1354	-1.4	1.5	1.6	.
13:45:54	13.7650	1587	1404	-1.4	1.5	1.6	39.8
13:46:09	13.7692	1556	1504	-1.5	1.5	1.6	.
13:46:24	13.7733	1557	1613	-1.4	1.5	1.6	.
13:46:38	13.7772	1561	1697	-1.5	1.5	1.6	.
13:46:53	13.7814	1574	1748	-1.5	1.5	1.6	.
13:47:08	13.7856	1579	1778	-1.5	1.5	1.6	.
13:47:23	13.7897	1583	1791	-1.5	1.5	1.6	.
13:47:38	13.7939	1601	1795	-1.4	1.5	1.6	.
13:47:53	13.7981	1613	1794	-1.4	1.5	1.6	.
13:48:08	13.8022	1628	1788	-1.4	1.5	1.6	.
13:48:23	13.8064	1638	1775	-1.4	1.5	1.6	.
13:48:38	13.8106	1655	1761	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:48:53	13.8147	1674	1745	-1.4	1.5	1.6	.
13:49:08	13.8189	1680	1725	-1.4	1.5	1.6	.
13:49:23	13.8231	1687	1701	-1.4	1.5	1.6	.
13:49:38	13.8272	1702	1679	-1.4	1.5	1.6	.
13:49:53	13.8314	1703	1647	-1.4	1.5	1.6	.
13:50:08	13.8356	1701	1602	-1.4	1.5	1.6	.
13:50:23	13.8397	1699	1512	-1.3	1.5	1.6	.
13:50:38	13.8439	1720	1455	-1.2	1.5	1.6	.
13:50:52	13.8478	1716	1497	-1.4	1.5	1.6	.
13:51:07	13.8519	1717	1513	-1.4	1.5	1.6	.
13:51:22	13.8561	1725	1530	-1.4	1.5	1.6	.
13:51:37	13.8603	1729	1546	-1.4	1.5	1.6	.
13:51:52	13.8644	1732	1553	-1.4	1.5	1.6	.
13:52:07	13.8686	1732	1556	-1.4	1.5	1.6	.
13:52:22	13.8728	1728	1557	-1.4	1.5	1.6	.
13:52:37	13.8769	1717	1554	-1.4	1.5	1.6	.
13:52:52	13.8811	1711	1547	-1.4	1.5	1.6	.
13:53:07	13.8853	1704	1542	-1.4	1.5	1.6	.
13:53:22	13.8894	1700	1530	-1.4	1.5	1.6	.
13:53:37	13.8936	1694	1522	-1.4	1.5	1.6	.
13:53:52	13.8978	1685	1512	-1.4	1.5	1.6	.
13:54:07	13.9019	1678	1508	-1.4	1.5	1.6	.
13:54:22	13.9061	1668	1501	-1.4	1.5	1.6	.
13:54:37	13.9103	1661	1496	-1.4	1.5	1.6	.
13:54:52	13.9144	1653	1484	-1.4	1.5	1.6	.
13:55:07	13.9186	1648	1480	-1.4	1.5	1.6	.
13:55:22	13.9228	1650	1470	-1.4	1.5	1.6	.
13:55:36	13.9267	1647	1461	-1.4	1.5	1.6	.
13:55:51	13.9308	1644	1453	-1.4	1.5	1.6	.
13:56:06	13.9350	1635	1445	-1.4	1.5	1.6	.
13:56:21	13.9392	1624	1438	-1.4	1.5	1.6	.
13:56:36	13.9433	1615	1429	-1.4	1.5	1.6	.
13:56:51	13.9475	1609	1423	-1.4	1.5	1.6	.
13:57:06	13.9517	1603	1417	-1.4	1.5	1.6	.
13:57:21	13.9558	1595	1408	-1.4	1.5	1.6	.
13:57:36	13.9600	1588	1403	-1.4	1.5	1.6	.
13:57:51	13.9642	1582	1397	-1.4	1.5	1.6	.
13:58:06	13.9683	1577	1389	-1.4	1.5	1.6	.
13:58:21	13.9725	1570	1384	-1.4	1.5	1.6	.
13:58:36	13.9767	1564	1380	-1.4	1.5	1.6	.
13:58:51	13.9808	1562	1374	-1.4	1.5	1.6	.
13:59:06	13.9850	1560	1367	-1.4	1.5	1.6	.
13:59:21	13.9892	1556	1361	-1.4	1.5	1.6	.
13:59:36	13.9933	1550	1356	-1.4	1.5	1.6	.
13:59:51	13.9975	1551	1352	-1.4	1.5	1.6	.
14:00:06	14.0017	1553	1346	-1.4	1.5	1.6	.
14:00:21	14.0058	1544	1339	-1.4	1.5	1.6	.
14:00:36	14.0100	1529	1336	-1.4	1.5	1.6	42.2

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:00:51	14.0142	1562	1339	-1.4	1.5	1.6	.
14:01:06	14.0183	1565	1373	-1.4	1.5	1.6	.
14:01:21	14.0225	1567	1437	-1.4	1.5	1.6	.
14:01:35	14.0264	1561	1502	-1.5	1.5	1.6	.
14:01:50	14.0306	1563	1561	-1.5	1.5	1.6	.
14:02:05	14.0347	1574	1623	-1.5	1.5	1.6	.
14:02:20	14.0389	1591	1659	-1.5	1.5	1.6	.
14:02:35	14.0431	1600	1674	-1.4	1.5	1.6	.
14:02:50	14.0472	1615	1684	-1.4	1.5	1.6	.
14:03:05	14.0514	1635	1681	-1.4	1.5	1.6	.
14:03:20	14.0556	1654	1654	-1.4	1.5	1.6	.
14:03:35	14.0597	1672	1589	-1.3	1.5	1.6	.
14:03:50	14.0639	1741	1520	-1.1	1.5	1.6	.
14:04:05	14.0681	1685	1470	-1.2	1.5	1.6	.
14:04:20	14.0722	1675	1507	-1.4	1.5	1.6	.
14:04:35	14.0764	1679	1539	-1.4	1.5	1.6	.
14:04:50	14.0806	1677	1573	-1.4	1.5	1.6	.
14:05:05	14.0847	1679	1611	-1.4	1.5	1.6	.
14:05:20	14.0889	1688	1625	-1.4	1.5	1.6	.
14:05:35	14.0931	1687	1587	-1.4	1.5	1.6	.
14:06:05	14.1014	1731	1505	-1.2	1.5	1.6	.
14:06:35	14.1097	1696	1525	-1.4	1.5	1.6	.
14:07:05	14.1181	1701	1568	-1.4	1.5	1.6	.
14:07:35	14.1264	1700	1593	-1.4	1.5	1.6	.
14:08:05	14.1347	1720	1558	-1.4	1.5	1.6	.
14:08:35	14.1431	1729	1519	-1.4	1.5	1.6	.
14:09:04	14.1511	1734	1547	-1.4	1.5	1.6	.
14:09:34	14.1594	1721	1569	-1.4	1.5	1.6	.
14:10:04	14.1678	1722	1586	-1.4	1.5	1.6	.
14:10:34	14.1761	1726	1573	-1.4	1.5	1.6	.
14:11:04	14.1844	1730	1510	-1.4	1.5	1.6	.
14:11:34	14.1928	1729	1505	-1.4	1.5	1.6	.
14:12:04	14.2011	1730	1511	-1.4	1.5	1.6	.
14:12:34	14.2094	1723	1518	-1.4	1.5	1.6	.
14:13:04	14.2178	1717	1516	-1.4	1.5	1.6	.
14:13:34	14.2261	1716	1509	-1.4	1.5	1.6	.
14:14:04	14.2344	1711	1499	-1.4	1.5	1.6	.
14:14:34	14.2428	1722	1493	-1.4	1.5	1.6	.
14:15:04	14.2511	1721	1483	-1.4	1.5	1.6	.
14:15:34	14.2594	1676	1474	-1.4	1.5	1.6	41.5
14:16:04	14.2678	1618	1564	-1.4	1.5	1.6	.
14:16:34	14.2761	1601	1744	-1.5	1.5	1.6	.
14:17:04	14.2844	1603	1830	-1.5	1.5	1.6	.
14:17:34	14.2928	1590	1872	-1.4	1.5	1.6	.
14:18:04	14.3011	1555	1904	-1.4	1.5	1.6	.
14:18:34	14.3094	1570	1926	-1.4	1.5	1.6	.
14:19:04	14.3178	1579	1943	-1.5	1.5	1.6	.
14:19:33	14.3258	1591	1935	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:20:03	14.3342	1601	1915	-1.4	1.5	1.6	.
14:20:33	14.3425	1543	1893	-1.4	1.5	1.6	.
14:21:03	14.3508	1534	1877	-1.4	1.5	1.6	.
14:21:33	14.3592	1542	1861	-1.4	1.5	1.6	.
14:22:03	14.3675	1555	1839	-1.4	1.5	1.6	.
14:22:33	14.3758	1577	1802	-1.4	1.5	1.6	.
14:23:03	14.3842	1602	1748	-1.4	1.5	1.6	.
14:23:33	14.3925	1619	1661	-1.4	1.5	1.6	.
14:24:03	14.4008	1627	1550	-1.4	1.5	1.6	.
14:24:33	14.4092	1636	1464	-1.4	1.5	1.6	.
14:25:03	14.4175	1646	1468	-1.4	1.5	1.6	.
14:25:33	14.4258	1656	1485	-1.4	1.5	1.6	.
14:26:03	14.4342	1659	1492	-1.4	1.5	1.6	.
14:26:33	14.4425	1661	1489	-1.4	1.5	1.6	.
14:27:03	14.4508	1670	1483	-1.4	1.5	1.6	.
14:27:33	14.4592	1681	1473	-1.4	1.5	1.6	.
14:28:03	14.4675	1694	1462	-1.4	1.5	1.6	.
14:28:33	14.4758	1715	1449	-1.4	1.5	1.6	.
14:29:03	14.4842	1722	1436	-1.4	1.5	1.6	.
14:29:32	14.4922	1726	1420	-1.4	1.5	1.6	.
14:30:02	14.5006	1723	1408	-1.4	1.5	1.6	.
14:30:32	14.5089	1677	1395	-1.4	1.5	1.6	41.5
14:31:02	14.5172	1590	1451	-1.4	1.5	1.6	.
14:31:32	14.5256	1578	1699	-1.4	1.5	1.6	.
14:32:02	14.5339	1571	1926	-1.5	1.5	1.6	.
14:32:32	14.5422	1582	2083	-1.5	1.5	1.6	.
14:33:02	14.5506	1589	2173	-1.5	1.5	1.6	.
14:33:32	14.5589	1572	2213	-1.5	1.5	1.6	.
14:34:02	14.5672	1577	2221	-1.5	1.5	1.6	.
14:34:32	14.5756	1584	2196	-1.5	1.5	1.6	.
14:35:02	14.5839	1600	2143	-1.5	1.5	1.6	.
14:35:32	14.5922	1628	2085	-1.4	1.5	1.6	.
14:36:02	14.6006	1644	2010	-1.4	1.5	1.6	.
14:36:32	14.6089	1657	1922	-1.4	1.5	1.6	.
14:37:02	14.6172	1666	1805	-1.4	1.5	1.6	.
14:37:32	14.6256	1681	1678	-1.4	1.5	1.6	.
14:38:02	14.6339	1690	1560	-1.4	1.5	1.6	.
14:38:32	14.6422	1683	1456	-1.4	1.5	1.6	.
14:39:01	14.6503	1688	1438	-1.4	1.5	1.6	.
14:39:31	14.6586	1704	1451	-1.4	1.5	1.6	.
14:40:01	14.6669	1705	1454	-1.4	1.5	1.6	.
14:40:31	14.6753	1703	1453	-1.4	1.5	1.6	.
14:41:01	14.6836	1704	1447	-1.4	1.5	1.6	.
14:41:31	14.6919	1705	1439	-1.4	1.5	1.6	.
14:42:01	14.7003	1704	1428	-1.4	1.5	1.6	.
14:42:31	14.7086	1702	1416	-1.4	1.5	1.6	.
14:43:01	14.7169	1698	1407	-1.4	1.5	1.6	.
14:43:31	14.7253	1695	1396	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:44:01	14.7336	1696	1388	-1.4	1.5	1.6	.
14:44:31	14.7419	1687	1379	-1.4	1.5	1.6	.
14:45:01	14.7503	1678	1368	-1.4	1.5	1.6	.
14:45:31	14.7586	1655	1366	-1.4	1.5	1.6	41.5
14:46:01	14.7669	1634	1436	-1.4	1.5	1.6	.
14:46:31	14.7753	1641	1644	-1.4	1.5	1.6	.
14:47:01	14.7836	1654	1751	-1.4	1.5	1.6	.
14:47:31	14.7919	1664	1763	-1.4	1.5	1.6	.
14:48:01	14.8003	1673	1723	-1.4	1.5	1.6	.
14:48:31	14.8086	1686	1662	-1.4	1.5	1.6	.
14:49:01	14.8169	1724	1585	-1.4	1.5	1.6	.
14:49:30	14.8250	1740	1494	-1.4	1.5	1.6	.
14:50:00	14.8333	1747	1481	-1.4	1.5	1.6	.
14:50:30	14.8417	1754	1489	-1.4	1.5	1.6	.
14:51:00	14.8500	1779	1495	-1.4	1.5	1.6	.
14:51:30	14.8583	1783	1487	-1.4	1.5	1.6	.
14:52:00	14.8667	1776	1474	-1.4	1.5	1.6	.
14:52:30	14.8750	1767	1460	-1.4	1.5	1.6	.
14:53:00	14.8833	1729	1447	-1.4	1.5	1.6	.
14:53:30	14.8917	1710	1431	-1.4	1.5	1.6	.
14:54:00	14.9000	1700	1415	-1.4	1.5	1.6	.
14:54:30	14.9083	1685	1402	-1.4	1.5	1.6	.
14:55:00	14.9167	1685	1391	-1.4	1.5	1.6	.
14:55:30	14.9250	1681	1381	-1.4	1.5	1.6	.
14:56:00	14.9333	1672	1369	-1.4	1.5	1.6	.
14:56:30	14.9417	1665	1359	-1.4	1.5	1.6	.
14:57:00	14.9500	1657	1350	-1.4	1.5	1.6	.
14:57:30	14.9583	1651	1342	-1.4	1.5	1.6	.
14:58:00	14.9667	1640	1335	-1.4	1.5	1.6	.
14:58:29	14.9747	1632	1329	-1.4	1.5	1.6	.
14:58:59	14.9831	1621	1323	-1.4	1.5	1.6	.
14:59:29	14.9914	1619	1318	-1.4	1.5	1.6	.
14:59:59	14.9997	1613	1313	-1.4	1.5	1.6	.
15:00:29	15.0081	1617	1310	-1.4	1.5	1.6	40.1
15:00:59	15.0164	1650	1364	-1.4	1.5	1.6	.
15:01:29	15.0247	1616	1454	-1.4	1.5	1.6	.
15:01:59	15.0331	1579	1602	-1.4	1.5	1.6	.
15:02:29	15.0414	1571	1787	-1.5	1.5	1.6	.
15:02:59	15.0497	1591	1918	-1.5	1.5	1.6	.
15:03:29	15.0581	1651	1991	-1.5	1.5	1.6	.
15:03:59	15.0664	1670	1995	-1.5	1.5	1.6	.
15:04:29	15.0747	1678	1957	-1.4	1.5	1.6	.
15:04:59	15.0831	1703	1912	-1.4	1.5	1.6	.
15:05:29	15.0914	1720	1863	-1.4	1.5	1.6	.
15:05:59	15.0997	1731	1810	-1.4	1.5	1.6	.
15:06:29	15.1081	1743	1727	-1.4	1.5	1.6	.
15:06:59	15.1164	1765	1632	-1.4	1.5	1.6	.
15:07:29	15.1247	1773	1519	-1.4	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:07:59	15.1331	1784	1463	-1.4	1.5	1.6	.
15:08:28	15.1411	1784	1489	-1.4	1.5	1.6	.
15:08:58	15.1494	1790	1523	-1.4	1.5	1.6	.
15:09:28	15.1578	1795	1551	-1.4	1.5	1.6	.
15:09:58	15.1661	1795	1564	-1.4	1.5	1.6	.
15:10:28	15.1744	1802	1568	-1.4	1.5	1.6	.
15:10:58	15.1828	1810	1568	-1.4	1.5	1.6	.
15:11:28	15.1911	1804	1565	-1.4	1.5	1.6	.
15:11:58	15.1994	1812	1568	-1.4	1.5	1.6	.
15:12:28	15.2078	1811	1564	-1.4	1.5	1.6	.
15:12:58	15.2161	1783	1568	-1.4	1.5	1.6	.
15:13:28	15.2244	1770	1576	-1.4	1.5	1.6	.
15:13:58	15.2328	1762	1518	-1.4	1.5	1.6	.
15:14:28	15.2411	1759	1502	-1.4	1.5	1.6	.
15:14:58	15.2494	1770	1508	-1.4	1.5	1.6	.
15:15:28	15.2578	1729	1505	-1.4	1.5	1.6	40.0
15:15:58	15.2661	1657	1545	-1.4	1.5	1.6	.
15:16:28	15.2744	1622	1775	-1.5	1.5	1.6	.
15:16:58	15.2828	1657	1998	-1.5	1.5	1.6	.
15:17:28	15.2911	1695	2132	-1.5	1.5	1.6	.
15:17:58	15.2994	1703	2147	-1.5	1.5	1.6	.
15:18:28	15.3078	1739	2109	-1.5	1.5	1.6	.
15:18:58	15.3161	1761	2062	-1.5	1.5	1.6	.
15:19:27	15.3242	1776	2004	-1.5	1.5	1.6	.
15:19:57	15.3325	1779	1940	-1.4	1.5	1.6	.
15:20:27	15.3408	1790	1870	-1.4	1.5	1.6	.
15:20:57	15.3492	1792	1771	-1.4	1.5	1.6	.
15:21:27	15.3575	1803	1676	-1.4	1.5	1.6	.
15:21:57	15.3658	1824	1576	-1.4	1.5	1.6	.
15:22:27	15.3742	1827	1484	-1.4	1.5	1.6	.
15:22:57	15.3825	1828	1466	-1.4	1.5	1.6	.
15:23:27	15.3908	1825	1496	-1.4	1.5	1.6	.
15:23:57	15.3992	1816	1524	-1.4	1.5	1.6	.
15:24:27	15.4075	1829	1541	-1.4	1.5	1.6	.
15:24:57	15.4158	1837	1553	-1.4	1.5	1.6	.
15:25:27	15.4242	1838	1553	-1.4	1.5	1.6	.
15:25:57	15.4325	1834	1550	-1.4	1.5	1.6	.
15:26:27	15.4408	1839	1547	-1.4	1.5	1.6	.
15:26:57	15.4492	1836	1539	-1.4	1.5	1.6	.
15:27:27	15.4575	1839	1535	-1.4	1.5	1.6	.
15:27:57	15.4658	1832	1529	-1.4	1.5	1.6	.
15:28:27	15.4742	1828	1518	-1.4	1.5	1.6	.
15:28:57	15.4825	1817	1508	-1.4	1.5	1.6	.
15:29:27	15.4908	1805	1498	-1.4	1.5	1.6	.
15:29:56	15.4989	1787	1484	-1.4	1.5	1.6	.
15:30:26	15.5072	1771	1475	-1.4	1.5	1.6	43.6
15:30:56	15.5156	1697	1606	-1.4	1.5	1.6	.
15:31:26	15.5239	1636	1865	-1.5	1.5	1.6	.

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:31:56	15.5322	1614	2055	-1.5	1.5	1.6	.
15:32:26	15.5406	1631	2191	-1.5	1.5	1.6	.
15:32:56	15.5489	1655	2278	-1.5	1.5	1.6	.
15:33:26	15.5572	1702	2337	-1.5	1.5	1.6	.
15:33:56	15.5656	1764	2356	-1.5	1.5	1.6	.
15:34:26	15.5739	1778	2319	-1.4	1.5	1.6	.
15:34:56	15.5822	1794	2248	-1.4	1.5	1.6	.
15:35:26	15.5906	1814	2171	-1.4	1.5	1.6	.
15:35:56	15.5989	1841	2100	-1.4	1.5	1.6	.
15:36:26	15.6072	1860	2036	-1.4	1.5	1.6	.
15:36:56	15.6156	1876	1981	-1.4	1.5	1.6	.
15:37:26	15.6239	1882	1927	-1.4	1.5	1.6	.
15:37:56	15.6322	1896	1869	-1.4	1.5	1.6	.
15:38:25	15.6403	1916	1809	-1.4	1.5	1.6	.
15:38:55	15.6486	1931	1746	-1.4	1.5	1.6	.
15:39:25	15.6569	1930	1680	-1.4	1.5	1.6	.
15:39:55	15.6653	1934	1614	-1.4	1.5	1.6	.
15:40:25	15.6736	1946	1551	-1.4	1.5	1.6	.
15:40:55	15.6819	1938	1482	-1.4	1.5	1.6	.
15:41:25	15.6903	1919	1485	-1.4	1.5	1.6	.
15:41:55	15.6986	1911	1522	-1.4	1.5	1.6	.
15:42:25	15.7069	1905	1556	-1.4	1.5	1.6	.
15:42:55	15.7153	1900	1544	-1.4	1.5	1.6	.
15:43:25	15.7236	1883	1494	-1.4	1.5	1.6	.
15:43:55	15.7319	1854	1493	-1.4	1.5	1.6	.
15:44:25	15.7403	1836	1503	-1.4	1.5	1.6	.
15:44:55	15.7486	1812	1509	-1.4	1.5	1.6	.
15:45:25	15.7569	1793	1510	-1.4	1.5	1.6	0.0
15:45:55	15.7653	1783	1505	-1.4	1.5	1.6	.
15:46:25	15.7736	1769	1503	-1.4	1.5	1.6	.
15:46:55	15.7819	1750	1502	-1.4	1.5	1.6	.
15:47:25	15.7903	1747	1495	-1.4	1.5	1.6	.
16:00:00	.	.	.	.	.	.	42.1
16:15:00	.	.	.	.	.	.	42.2
16:27:00	.	.	.	.	.	.	41.6
16:45:00	.	.	.	.	.	.	38.0
17:15:00	.	.	.	.	.	.	40.2
17:45:00	.	.	.	.	.	.	40.3

Table B.1-4 Process data for Run 4

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	766.03	806.67	0.0000
MAX	1945.89	2355.78	45.3000
MEAN	1555.43	1575.72	39.3609
STD	194.74	229.17	8.7458

Table B.1-4 Process data for Run 4
Total test period only

FILENAME: CC4_923.SSD
TEST DATE: September 23, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	766.03	806.67	0.0000
MAX	1945.89	2355.78	45.3000
MEAN	1555.09	1575.86	38.8765
STD	194.75	229.35	10.1697

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:45:00	11.7500	1134	928	1.6	1.5	9.4	.
11:45:30	11.7583	1064	928	0.5	1.5	9.3	40.7
11:46:00	11.7667	991	925	1.6	1.5	9.4	.
11:46:29	11.7747	1030	1073	1.6	1.5	9.4	.
11:46:59	11.7831	1085	1253	1.6	1.5	9.4	.
11:47:29	11.7914	1116	1339	1.6	1.5	9.4	.
11:47:59	11.7997	1143	1340	1.6	1.5	9.4	.
11:48:29	11.8081	1153	1308	1.6	1.5	9.4	.
11:48:59	11.8164	1154	1273	1.6	1.5	9.4	.
11:49:29	11.8247	1158	1240	1.6	1.5	9.4	.
11:49:59	11.8331	1168	1214	1.6	1.5	9.4	.
11:50:29	11.8414	1171	1189	1.6	1.5	9.4	.
11:50:59	11.8497	1181	1169	1.6	1.5	9.4	.
11:51:29	11.8581	1182	1148	1.6	1.5	9.4	.
11:51:59	11.8664	1190	1131	1.6	1.5	9.4	.
11:52:29	11.8747	1198	1115	1.6	1.5	9.4	.
11:52:59	11.8831	1218	1103	1.6	1.5	9.4	.
11:53:29	11.8914	1227	1091	1.6	1.5	9.4	.
11:53:59	11.8997	1224	1081	1.6	1.5	9.4	.
11:54:29	11.9081	1226	1072	1.6	1.5	9.4	.
11:54:58	11.9161	1236	1070	1.6	1.5	9.4	.
11:55:28	11.9244	1237	1064	1.6	1.5	9.4	.
11:55:58	11.9328	1237	1058	1.6	1.5	9.4	.
11:56:28	11.9411	1247	1056	1.6	1.5	9.4	.
11:56:58	11.9494	1252	1054	1.6	1.5	9.4	.
11:57:28	11.9578	1256	1053	1.6	1.5	9.4	.
11:57:58	11.9661	1265	1052	1.6	1.5	9.4	.
11:58:28	11.9744	1273	1052	1.6	1.5	9.4	.
11:58:58	11.9828	1280	1052	1.6	1.5	9.4	.
11:59:28	11.9911	1284	1052	1.6	1.5	9.4	.
11:59:58	11.9994	1289	1052	1.6	1.5	9.4	.
12:00:28	12.0078	1228	1049	-0.2	1.5	9.4	.
12:00:58	12.0161	1131	1046	1.6	1.5	9.3	51.6
12:01:28	12.0244	1146	1222	1.6	1.5	9.4	.
12:01:58	12.0328	1198	1356	1.6	1.5	9.4	.
12:02:28	12.0411	1194	1351	1.6	1.5	9.4	.
12:02:58	12.0494	1191	1322	1.6	1.5	9.4	.
12:03:28	12.0578	1194	1295	1.6	1.5	9.4	.
12:03:57	12.0658	1197	1277	1.6	1.5	9.4	.
12:04:27	12.0742	1198	1267	1.6	1.5	9.4	.
12:04:57	12.0825	1203	1261	1.6	1.5	9.4	.
12:05:27	12.0908	1208	1258	1.6	1.5	9.4	.
12:05:57	12.0992	1212	1255	1.6	1.5	9.4	.
12:06:27	12.1075	1215	1251	1.6	1.5	9.4	.
12:06:57	12.1158	1210	1252	1.6	1.5	9.4	.
12:07:27	12.1242	1213	1250	1.6	1.5	9.4	.
12:07:57	12.1325	1221	1250	1.6	1.5	9.4	.
12:08:27	12.1408	1227	1250	1.6	1.5	9.4	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:08:57	12.1492	1226	1250	1.6	1.5	9.4	.
12:09:27	12.1575	1226	1252	1.6	1.5	9.4	.
12:09:57	12.1658	1229	1254	1.6	1.5	9.4	.
12:10:27	12.1742	1235	1257	1.6	1.5	9.4	.
12:10:57	12.1825	1240	1260	1.6	1.5	9.4	.
12:11:27	12.1908	1244	1262	1.6	1.5	9.4	.
12:11:57	12.1992	1251	1265	1.6	1.5	9.4	.
12:12:27	12.2075	1253	1269	1.6	1.5	9.4	.
12:12:57	12.2158	1256	1273	1.6	1.5	9.4	.
12:13:27	12.2242	1257	1275	1.6	1.5	9.4	.
12:13:56	12.2322	1262	1274	1.6	1.5	9.4	.
12:14:26	12.2406	1244	1223	1.6	1.5	9.4	.
12:14:56	12.2489	1273	1257	1.6	1.5	9.4	.
12:15:26	12.2572	1279	1260	1.6	1.5	9.4	.
12:15:56	12.2656	1282	1260	1.6	1.5	9.4	.
12:16:26	12.2739	1288	1259	1.6	1.5	9.4	.
12:16:56	12.2822	1290	1258	1.6	1.5	9.4	.
12:17:26	12.2906	1290	1256	1.6	1.5	9.4	.
12:17:56	12.2989	1296	1254	1.6	1.5	9.4	.
12:18:26	12.3072	1299	1252	1.6	1.5	9.4	.
12:18:56	12.3156	1301	1250	1.6	1.5	9.4	.
12:19:26	12.3239	1304	1248	1.6	1.5	9.4	.
12:19:56	12.3322	1310	1246	1.6	1.5	9.4	.
12:20:26	12.3406	1288	1243	0.7	1.5	9.4	.
12:20:56	12.3489	1243	1264	1.6	1.5	9.4	50.1
12:21:26	12.3572	1240	1397	1.6	1.5	9.4	.
12:21:56	12.3656	1265	1460	1.6	1.5	9.4	.
12:22:26	12.3739	1283	1450	1.6	1.5	9.4	.
12:22:56	12.3822	1288	1431	1.6	1.5	9.4	.
12:23:26	12.3906	1289	1409	1.6	1.5	9.4	.
12:23:56	12.3989	1292	1389	1.6	1.5	9.4	.
12:24:26	12.4072	1298	1371	1.6	1.5	9.4	.
12:24:55	12.4153	1301	1356	1.6	1.5	9.4	.
12:25:25	12.4236	1306	1343	1.6	1.5	9.4	.
12:25:55	12.4319	1311	1332	1.6	1.5	9.4	.
12:26:25	12.4403	1317	1325	1.6	1.5	9.4	.
12:26:55	12.4486	1326	1320	1.6	1.5	9.4	.
12:27:25	12.4569	1325	1317	1.6	1.5	9.4	.
12:27:55	12.4653	1327	1316	1.6	1.5	9.4	.
12:28:25	12.4736	1329	1312	1.6	1.5	9.4	.
12:28:55	12.4819	1332	1309	1.6	1.5	9.4	.
12:29:25	12.4903	1337	1304	1.6	1.5	9.4	.
12:29:55	12.4986	1339	1300	1.6	1.5	9.4	.
12:30:25	12.5069	1341	1296	1.6	1.5	9.4	.
12:30:55	12.5153	1343	1291	1.6	1.5	9.4	.
12:31:25	12.5236	1345	1289	1.6	1.5	9.4	.
12:31:55	12.5319	1348	1286	1.6	1.5	9.4	.
12:32:25	12.5403	1353	1284	1.6	1.5	9.4	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:32:55	12.5486	1354	1283	1.6	1.5	9.4	.
12:33:25	12.5569	1356	1282	1.6	1.5	9.4	.
12:33:55	12.5653	1359	1280	1.6	1.5	9.4	.
12:34:25	12.5736	1358	1278	1.6	1.5	9.4	.
12:34:55	12.5819	1362	1279	1.6	1.5	9.4	.
12:35:25	12.5903	1366	1279	1.6	1.5	9.4	.
12:35:54	12.5983	1364	1278	1.6	1.5	9.4	.
12:36:24	12.6067	1369	1280	1.6	1.5	9.4	.
12:36:54	12.6150	1373	1281	1.6	1.5	9.4	.
12:37:24	12.6233	1374	1280	1.6	1.5	9.4	.
12:37:54	12.6317	1375	1283	1.6	1.5	9.4	.
12:38:24	12.6400	1376	1286	1.6	1.5	9.4	.
12:38:54	12.6483	1381	1287	1.6	1.5	9.4	.
12:39:24	12.6567	1385	1287	1.6	1.5	9.4	.
12:39:54	12.6650	1391	1286	1.6	1.5	9.4	.
12:40:24	12.6733	1374	1285	0.3	1.5	9.4	.
12:40:54	12.6817	1317	1302	1.4	1.5	9.4	45.5
12:41:24	12.6900	1290	1456	1.6	1.5	9.4	.
12:41:54	12.6983	1350	1559	1.6	1.5	9.3	.
12:42:24	12.7067	1372	1572	1.6	1.5	9.4	.
12:42:54	12.7150	1379	1574	1.6	1.5	9.4	.
12:43:24	12.7233	1406	1565	1.6	1.5	9.4	.
12:43:54	12.7317	1414	1547	1.6	1.5	9.4	.
12:44:24	12.7400	1412	1531	1.6	1.5	9.4	.
12:44:54	12.7483	1409	1517	1.6	1.5	9.4	.
12:45:24	12.7567	1419	1503	1.6	1.5	9.4	.
12:45:54	12.7650	1419	1490	1.6	1.5	9.4	.
12:46:24	12.7733	1396	1480	1.6	1.5	9.4	.
12:46:54	12.7817	1383	1475	1.6	1.5	9.4	.
12:47:23	12.7897	1384	1471	1.6	1.5	9.4	.
12:47:53	12.7981	1379	1465	1.6	1.5	9.4	.
12:48:23	12.8064	1375	1460	1.6	1.5	9.4	.
12:48:53	12.8147	1376	1453	1.6	1.5	9.4	.
12:49:23	12.8231	1382	1447	1.6	1.5	9.4	.
12:49:53	12.8314	1389	1443	1.6	1.5	9.4	.
12:50:23	12.8397	1390	1441	1.6	1.5	9.4	.
12:50:53	12.8481	1391	1439	1.6	1.5	9.4	.
12:51:23	12.8564	1392	1435	1.6	1.5	9.4	.
12:51:53	12.8647	1392	1433	1.6	1.5	9.4	.
12:52:23	12.8731	1392	1431	1.6	1.5	9.4	.
12:52:53	12.8814	1393	1427	1.6	1.5	9.4	.
12:53:23	12.8897	1392	1424	1.6	1.5	9.4	.
12:53:53	12.8981	1394	1419	1.6	1.5	9.4	.
12:54:23	12.9064	1397	1416	1.6	1.5	9.4	.
12:54:53	12.9147	1401	1413	1.6	1.5	9.4	.
12:55:22	12.9228	1400	1410	1.6	1.5	9.4	.
12:55:52	12.9311	1411	1408	1.6	1.5	9.4	.
12:56:22	12.9394	1422	1408	1.6	1.5	9.4	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:56:52	12.9478	1445	1410	1.6	1.5	9.4	.
13:00:26	13.0072	1461	1414	0.4	1.6	9.4	.
13:00:56	13.0156	1382	1394	0.9	1.5	9.4	39.0
13:01:26	13.0239	1363	1519	1.6	1.5	9.4	.
13:01:56	13.0322	1401	1626	1.6	1.5	9.4	.
13:02:26	13.0406	1404	1606	1.6	1.5	9.4	.
13:02:56	13.0489	1404	1558	1.6	1.5	9.4	.
13:03:26	13.0572	1410	1554	1.6	1.5	9.4	.
13:03:56	13.0656	1412	1553	1.6	1.5	9.4	.
13:04:26	13.0739	1406	1549	1.6	1.5	9.4	.
13:04:56	13.0822	1413	1541	1.6	1.5	9.4	.
13:05:26	13.0906	1412	1534	1.6	1.5	9.4	.
13:05:55	13.0986	1414	1524	1.6	1.5	9.4	.
13:06:25	13.1069	1416	1512	1.6	1.5	9.4	.
13:06:55	13.1153	1419	1501	1.6	1.5	9.4	.
13:14:38	13.2439	1518	1500	1.6	1.6	-4.7	.
13:15:08	13.2522	1489	1460	1.6	1.5	-4.6	.
13:15:37	13.2603	1473	1452	-0.0	1.5	5.0	37.9
13:16:07	13.2686	1427	1499	1.6	1.5	-3.8	.
13:16:37	13.2769	1413	1653	1.6	1.5	-4.6	.
13:17:07	13.2853	1433	1710	1.6	1.5	-4.6	.
13:17:37	13.2936	1451	1677	1.6	1.5	-4.6	.
13:18:07	13.3019	1467	1621	1.6	1.5	-4.6	.
13:18:37	13.3103	1484	1567	1.6	1.5	-4.6	.
13:19:07	13.3186	1487	1565	1.6	1.5	-4.6	.
13:19:37	13.3269	1482	1581	1.6	1.5	-4.6	.
13:20:17	13.3381	1480	1590	1.6	1.5	-4.6	.
13:20:47	13.3464	1477	1594	1.6	1.5	-4.6	.
13:21:17	13.3547	1470	1589	1.6	1.5	-4.6	.
13:21:47	13.3631	1473	1581	1.6	1.5	7.9	.
13:22:17	13.3714	1471	1574	1.6	1.5	9.4	.
13:22:47	13.3797	1467	1561	1.6	1.5	8.1	.
13:23:17	13.3881	1475	1560	1.6	1.5	9.4	.
13:23:47	13.3964	1478	1553	1.6	1.5	9.4	.
13:24:17	13.4047	1479	1544	1.6	1.5	8.4	.
13:24:47	13.4131	1482	1466	1.6	1.5	6.7	.
13:25:17	13.4214	1483	1548	1.6	1.5	-1.1	.
13:25:47	13.4297	1488	1557	1.6	1.5	-4.6	.
13:26:17	13.4381	1484	1560	1.6	1.5	-4.6	.
13:26:46	13.4461	1482	1559	1.6	1.5	-4.6	.
13:27:16	13.4544	1484	1557	1.6	1.5	-4.6	.
13:27:46	13.4628	1488	1554	1.6	1.5	-4.6	.
13:28:16	13.4711	1490	1548	1.6	1.5	-4.6	.
13:28:46	13.4794	1490	1543	1.6	1.5	-4.6	.
13:29:16	13.4878	1493	1540	1.6	1.5	-4.6	.
13:29:46	13.4961	1497	1536	1.6	1.5	-4.6	.
13:30:16	13.5044	1491	1533	0.8	1.5	0.2	.
13:30:46	13.5128	1442	1531	0.9	1.5	0.2	38.2

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:31:16	13.5211	1387	1640	1.6	1.5	-4.6	.
13:31:46	13.5294	1430	1740	1.6	1.5	-4.6	.
13:32:16	13.5378	1420	1783	1.6	1.5	-4.6	.
13:32:46	13.5461	1408	1829	1.6	1.5	-4.6	.
13:33:16	13.5544	1410	1858	1.6	1.5	-4.6	.
13:33:46	13.5628	1459	1851	1.6	1.5	-4.6	.
13:34:16	13.5711	1464	1817	1.6	1.5	-4.6	.
13:34:46	13.5794	1453	1780	1.6	1.5	-4.6	.
13:35:16	13.5878	1446	1749	1.6	1.5	-4.6	.
13:35:46	13.5961	1453	1723	1.6	1.5	-4.6	.
13:36:16	13.6044	1449	1699	1.6	1.5	-4.6	.
13:36:46	13.6128	1448	1675	1.6	1.5	-4.6	.
13:37:15	13.6208	1468	1654	1.6	1.5	-4.6	.
13:37:45	13.6292	1470	1631	1.6	1.5	-4.6	.
13:38:15	13.6375	1479	1607	1.6	1.5	-4.6	.
13:38:45	13.6458	1495	1583	1.6	1.5	-4.6	.
13:39:15	13.6542	1489	1560	1.6	1.5	-4.6	.
13:39:45	13.6625	1478	1574	1.6	1.5	-4.6	.
13:40:15	13.6708	1478	1604	1.6	1.5	-4.6	.
13:40:45	13.6792	1499	1601	1.6	1.5	-4.6	.
13:41:15	13.6875	1519	1561	1.6	1.5	-4.6	.
13:41:45	13.6958	1517	1560	1.6	1.5	-4.6	.
13:42:15	13.7042	1520	1578	1.6	1.5	-4.6	.
13:42:45	13.7125	1523	1590	1.6	1.5	-4.6	.
13:43:15	13.7208	1530	1595	1.6	1.5	-4.6	.
13:43:45	13.7292	1533	1594	1.6	1.5	-4.6	.
13:44:15	13.7375	1536	1591	1.6	1.5	-4.6	.
13:45:01	13.7503	1542	1586	1.6	1.5	-4.6	.
13:45:31	13.7586	1535	1575	0.0	1.5	5.8	45.0
13:46:01	13.7669	1456	1617	1.3	1.5	-2.0	.
13:46:31	13.7753	1398	1757	1.6	1.5	-4.6	.
13:47:01	13.7836	1415	1840	1.6	1.5	-4.6	.
13:47:31	13.7919	1415	1812	1.6	1.5	-4.6	.
13:48:01	13.8003	1422	1759	1.6	1.5	-4.6	.
13:48:31	13.8086	1426	1718	1.6	1.5	-4.6	.
13:49:01	13.8169	1427	1674	1.6	1.5	-4.6	.
13:49:31	13.8253	1473	1639	1.6	1.5	-4.6	.
13:50:01	13.8336	1532	1605	1.6	1.5	-4.6	.
13:50:31	13.8419	1538	1573	1.6	1.5	-4.6	.
13:51:01	13.8503	1534	1545	1.6	1.5	-4.6	.
13:51:31	13.8586	1530	1562	1.6	1.5	-4.6	.
13:52:01	13.8669	1520	1583	1.6	1.5	-4.6	.
13:52:31	13.8753	1546	1594	1.6	1.5	-4.6	.
13:53:01	13.8836	1547	1600	1.6	1.5	-4.6	.
13:53:31	13.8919	1552	1603	1.6	1.5	-4.6	.
13:54:01	13.9003	1552	1583	1.6	1.5	-4.6	.
13:54:31	13.9086	1544	1541	1.6	1.5	-4.6	.
13:55:00	13.9167	1531	1545	1.6	1.5	-4.6	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:55:30	13.9250	1539	1557	1.6	1.5	-4.6	.
13:56:00	13.9333	1537	1563	1.6	2.3	-4.6	.
13:56:30	13.9417	1544	1573	1.6	2.1	-4.6	.
13:57:00	13.9500	1552	1578	1.6	1.5	-4.6	.
13:57:30	13.9583	1547	1582	1.6	1.5	-4.6	.
13:58:00	13.9667	1555	1584	1.6	1.5	-4.6	.
13:58:30	13.9750	1563	1585	1.6	1.5	-4.6	.
13:59:00	13.9833	1565	1585	1.6	1.5	-4.6	.
13:59:30	13.9917	1576	1585	1.6	1.5	-4.6	.
14:00:00	14.0000	1586	1586	1.6	1.5	-4.6	.
14:00:30	14.0083	1564	1585	-0.2	1.5	5.2	48.1
14:01:00	14.0167	1479	1640	1.1	2.3	0.3	.
14:01:30	14.0250	1451	1775	1.6	-4.0	-4.1	.
14:02:00	14.0333	1529	1798	1.6	-4.1	-4.7	.
14:02:30	14.0417	1566	1735	1.6	-4.1	-4.7	.
14:03:00	14.0500	1568	1669	1.6	-4.1	-4.7	.
14:03:30	14.0583	1550	1618	1.6	-4.1	-4.7	.
14:03:59	14.0664	1537	1577	1.6	-4.1	-4.7	.
14:04:29	14.0747	1534	1544	1.6	0.8	-4.6	.
14:04:59	14.0831	1535	1557	1.6	1.5	-4.6	.
14:05:29	14.0914	1533	1584	1.6	1.5	-4.6	.
14:05:59	14.0997	1533	1602	1.6	2.4	-4.6	.
14:06:29	14.1081	1517	1568	1.6	-4.1	-4.7	.
14:06:59	14.1164	1514	1543	1.6	-4.1	-4.7	.
14:07:29	14.1247	1515	1555	-3.4	-4.1	-4.2	.
14:07:59	14.1331	1520	1578	-4.4	-2.9	-4.0	.
14:08:29	14.1414	1520	1577	-2.5	1.2	-3.9	.
14:08:59	14.1497	1529	1597	-1.5	1.5	-3.4	.
14:09:29	14.1581	1535	1601	-1.4	1.5	-2.7	.
14:09:59	14.1664	1544	1603	-1.4	1.5	-2.3	.
14:10:29	14.1747	1550	1599	-1.4	1.5	-2.1	.
14:10:59	14.1831	1554	1595	-1.4	1.5	-2.1	.
14:11:29	14.1914	1554	1591	-1.4	1.5	-2.0	.
14:11:59	14.1997	1552	1591	-1.4	1.5	-2.0	.
14:12:29	14.2081	1546	1591	-1.4	1.5	-2.0	.
14:12:59	14.2164	1532	1590	-1.4	1.5	-2.0	.
14:13:29	14.2247	1542	1587	-1.4	1.5	-2.0	.
14:13:59	14.2331	1556	1585	-1.4	1.5	-2.0	.
14:14:28	14.2411	1561	1581	-1.4	1.5	-2.0	.
14:14:58	14.2494	1566	1580	-1.4	1.5	-2.0	.
14:15:28	14.2578	1566	1581	-1.4	1.5	-2.0	.
14:15:58	14.2661	1571	1581	-1.4	1.5	-2.0	.
14:16:28	14.2744	1569	1579	-1.4	1.5	-2.0	.
14:16:58	14.2828	1574	1579	-1.1	1.5	-2.0	.
14:17:28	14.2911	1569	1577	-1.2	1.5	-3.0	.
14:17:58	14.2994	1575	1574	1.4	1.5	-3.5	.
14:18:28	14.3078	1581	1569	1.6	1.5	-4.0	.
14:18:58	14.3161	1583	1568	1.6	1.5	-4.6	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:19:28	14.3244	1587	1569	1.6	1.5	-4.6	.
14:19:58	14.3328	1589	1570	1.6	1.5	-4.6	.
14:20:28	14.3411	1581	1573	0.8	1.5	0.3	48.1
14:20:58	14.3494	1577	1597	-1.3	1.9	-2.6	.
14:21:28	14.3578	1637	1669	-4.6	-4.0	-2.9	.
14:21:58	14.3661	1593	1593	-1.9	-3.5	-2.7	.
14:22:28	14.3744	1541	1529	1.6	1.5	-4.4	.
14:22:58	14.3828	1530	1554	1.6	1.5	-4.6	.
14:23:28	14.3911	1530	1600	1.6	2.2	-4.6	.
14:23:58	14.3994	1531	1599	1.6	-4.0	-4.7	.
14:24:27	14.4075	1533	1569	1.6	-3.8	-4.7	.
14:24:57	14.4158	1537	1552	1.6	1.5	-4.6	.
14:25:27	14.4242	1543	1585	1.6	1.7	-4.6	.
14:25:57	14.4325	1548	1599	1.6	-4.0	-4.7	.
14:26:27	14.4408	1554	1565	1.6	-2.6	-4.7	.
14:26:57	14.4492	1556	1550	1.6	1.5	-4.6	.
14:27:27	14.4575	1561	1577	1.6	1.5	-4.6	.
14:27:57	14.4658	1568	1599	1.6	2.4	-4.6	.
14:28:27	14.4742	1575	1573	1.6	-3.4	-4.7	.
14:28:57	14.4825	1572	1548	1.6	1.5	-4.6	.
14:29:27	14.4908	1575	1576	1.6	1.5	-4.6	.
14:29:57	14.4992	1578	1599	1.6	2.7	-4.6	.
14:30:27	14.5075	1591	1568	1.6	2.6	-4.6	.
14:30:57	14.5158	1587	1544	1.6	1.5	-4.6	.
14:31:27	14.5242	1597	1568	1.6	1.5	-4.6	.
14:31:57	14.5325	1610	1597	1.6	2.1	-4.6	.
14:32:27	14.5408	1607	1582	1.6	2.7	-4.6	.
14:32:57	14.5492	1589	1545	1.6	1.0	-4.6	.
14:33:26	14.5572	1603	1565	1.6	1.5	-4.6	.
14:33:56	14.5656	1609	1590	1.6	1.6	-4.6	.
14:34:26	14.5739	1593	1586	-2.3	-4.0	-4.4	.
14:34:56	14.5822	1501	1499	-2.2	1.5	-3.9	.
14:35:26	14.5906	1449	1428	-1.4	1.5	-3.3	.
14:35:56	14.5989	1427	1379	-1.4	1.5	-2.7	.
14:36:26	14.6072	1420	1342	-0.4	1.5	-2.3	.
14:36:56	14.6156	1496	1339	1.6	1.5	-4.3	.
14:37:26	14.6239	1538	1400	1.6	1.5	-4.6	.
14:37:56	14.6322	1557	1470	1.6	1.5	-4.6	.
14:38:26	14.6406	1576	1523	1.6	1.5	-4.6	.
14:38:56	14.6489	1584	1555	0.7	1.5	-4.6	.
14:39:26	14.6572	1524	1538	-1.4	1.5	-3.7	.
14:39:56	14.6656	1454	1468	-1.4	1.5	-2.8	.
14:40:26	14.6739	1431	1412	-1.4	1.5	5.2	68.4
14:40:56	14.6822	1496	1458	-1.4	1.5	-0.7	.
14:41:26	14.6906	1522	1646	0.4	-1.6	-2.5	.
14:41:56	14.6989	1491	1782	1.6	-4.1	-3.9	.
14:42:25	14.7069	1497	1816	1.6	-4.1	-4.7	.
14:42:55	14.7153	1502	1783	1.6	-4.1	-4.7	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:43:25	14.7236	1508	1734	1.6	-4.1	-4.7	.
14:43:55	14.7319	1518	1687	1.6	-4.1	-4.7	.
14:44:25	14.7403	1532	1640	1.6	-4.1	-4.7	.
14:44:55	14.7486	1540	1611	1.6	-4.1	-4.7	.
14:45:25	14.7569	1545	1585	1.6	-4.1	-4.7	.
14:45:55	14.7653	1522	1563	1.6	-4.1	-4.7	.
14:46:25	14.7736	1515	1543	1.6	-0.1	-4.7	.
14:46:55	14.7819	1516	1571	1.6	1.7	-4.6	.
14:47:25	14.7903	1514	1601	1.6	-4.0	-4.7	.
14:47:55	14.7986	1518	1575	1.6	-4.1	-4.7	.
14:48:25	14.8069	1519	1546	1.6	0.4	-4.6	.
14:48:55	14.8153	1518	1571	1.6	1.6	-4.6	.
14:49:25	14.8236	1528	1601	1.6	-4.1	-4.7	.
14:49:55	14.8319	1533	1574	1.6	-4.1	-4.7	.
14:50:25	14.8403	1536	1543	1.6	1.1	-4.6	.
14:50:55	14.8486	1543	1571	1.6	1.5	-4.6	.
14:51:25	14.8569	1545	1600	1.6	2.7	-4.6	.
14:51:54	14.8650	1549	1576	1.6	-4.0	-4.7	.
14:52:24	14.8733	1550	1546	1.6	0.5	-4.6	.
14:52:54	14.8817	1549	1568	1.6	1.5	-4.6	.
14:53:24	14.8900	1560	1598	1.6	2.4	-4.6	.
14:53:54	14.8983	1552	1564	-2.8	-2.3	-4.3	.
14:54:24	14.9067	1505	1482	-1.8	1.5	-3.8	.
14:54:54	14.9150	1450	1418	-1.4	1.5	-3.1	.
14:55:24	14.9233	1415	1373	-0.3	1.5	-2.5	.
14:55:54	14.9317	1493	1365	1.6	1.5	-3.9	.
14:56:24	14.9400	1528	1426	1.6	1.5	-4.6	.
14:56:54	14.9483	1546	1495	1.6	1.5	-4.6	.
14:57:24	14.9567	1560	1545	1.6	1.5	-4.6	.
14:57:54	14.9650	1559	1571	-0.4	1.8	-4.4	.
14:58:24	14.9733	1499	1515	-2.3	1.5	-3.5	.
14:58:54	14.9817	1428	1441	-1.4	1.5	-3.0	.
14:59:24	14.9900	1415	1386	0.2	1.5	-2.8	.
14:59:54	14.9983	1502	1381	1.6	1.5	-4.5	.
15:00:24	15.0067	1540	1436	1.6	1.5	-4.6	.
15:00:54	15.0150	1556	1490	1.6	1.5	-4.6	.
15:01:24	15.0233	1570	1532	1.6	1.5	-4.6	.
15:01:54	15.0317	1571	1555	0.6	1.5	-4.6	.
15:02:24	15.0400	1520	1533	-1.4	1.5	-3.7	.
15:02:53	15.0481	1451	1465	-1.4	1.5	-2.9	.
15:03:23	15.0564	1404	1407	-1.0	1.5	-2.3	.
15:03:53	15.0647	1467	1370	1.6	1.5	-3.8	.
15:04:23	15.0731	1550	1413	1.6	1.5	-4.6	.
15:04:53	15.0814	1575	1459	1.6	1.5	-4.6	.
15:05:23	15.0897	1592	1504	1.5	1.5	-4.6	.
15:05:53	15.0981	1537	1517	-1.3	1.5	-4.1	.
15:06:23	15.1064	1444	1463	-1.4	1.5	-3.1	.
15:06:53	15.1147	1400	1408	-1.4	1.5	-2.5	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:07:23	15.1231	1417	1366	0.9	1.5	-3.2	.
15:07:53	15.1314	1510	1376	1.6	1.5	-4.6	.
15:08:23	15.1397	1556	1431	1.6	1.5	-4.6	.
15:08:53	15.1481	1579	1481	1.6	1.5	-4.6	.
15:09:23	15.1564	1578	1516	0.4	1.5	-4.6	.
15:09:53	15.1647	1501	1494	-1.4	1.5	-3.6	.
15:10:23	15.1731	1430	1431	-1.4	1.5	2.7	41.1
15:10:53	15.1814	1526	1446	-1.4	1.5	-1.6	.
15:11:23	15.1897	1499	1614	1.4	2.2	-3.2	.
15:11:52	15.1978	1569	1668	1.6	-4.0	-4.7	.
15:12:22	15.2061	1597	1630	1.6	-4.1	-4.7	.
15:12:52	15.2144	1593	1601	1.6	-4.1	-4.7	.
15:13:22	15.2228	1602	1596	1.6	-4.1	-4.7	.
15:13:52	15.2311	1556	1608	1.6	-4.1	-4.7	.
15:14:22	15.2394	1571	1620	1.6	-4.1	-4.7	.
15:14:52	15.2478	1558	1626	1.6	-4.1	-4.7	.
15:15:22	15.2561	1570	1630	1.6	-4.1	-4.7	.
15:15:52	15.2644	1539	1633	1.6	-4.1	-4.7	.
15:16:22	15.2728	1528	1630	1.6	-4.1	-4.7	.
15:16:52	15.2811	1521	1625	1.6	-4.1	-4.7	.
15:17:22	15.2894	1535	1618	1.6	-4.1	-4.7	.
15:17:52	15.2978	1563	1612	1.6	-4.1	-4.7	.
15:18:22	15.3061	1569	1604	1.6	-4.1	-4.7	.
15:18:52	15.3144	1571	1598	1.6	-4.1	-4.7	.
15:19:22	15.3228	1591	1596	1.6	-4.1	-4.7	.
15:19:51	15.3308	1609	1592	1.6	-4.1	-4.7	.
15:20:21	15.3392	1619	1585	1.6	-4.1	-4.7	.
15:20:51	15.3475	1593	1565	-2.6	-3.3	-4.2	.
15:21:21	15.3558	1558	1472	-1.8	1.5	-3.7	.
15:21:51	15.3642	1478	1432	-1.4	1.5	-3.5	.
15:22:21	15.3725	1474	1388	-1.4	1.5	-2.8	.
15:22:51	15.3808	1456	1354	-1.4	1.5	-2.4	.
15:23:21	15.3892	1446	1328	-1.4	1.5	-2.2	.
15:23:51	15.3975	1439	1308	-1.4	1.5	-2.1	.
15:24:21	15.4058	1434	1291	-1.4	1.5	-2.1	.
15:24:51	15.4142	1468	1284	0.9	1.5	-2.9	.
15:25:21	15.4225	1552	1343	1.3	1.5	-2.2	.
15:25:51	15.4308	1533	1434	-1.3	1.5	2.9	61.0
15:26:21	15.4392	1587	1586	-1.3	1.9	-2.3	.
15:26:51	15.4475	1512	1694	1.3	-4.0	-2.6	.
15:27:21	15.4558	1451	1751	1.6	-4.1	-4.5	.
15:27:51	15.4642	1438	1771	1.6	-4.1	-4.7	.
15:28:20	15.4722	1440	1774	1.6	-4.1	-4.7	.
15:28:50	15.4806	1440	1761	1.6	-4.1	-4.7	.
15:29:20	15.4889	1453	1738	1.6	-4.1	-4.7	.
15:29:50	15.4972	1465	1712	1.6	-4.1	-4.7	.
15:30:20	15.5056	1466	1685	1.6	-4.1	-4.7	.
15:30:50	15.5139	1464	1660	1.6	-4.1	-4.7	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:31:20	15.5222	1470	1638	1.6	-4.1	-4.7	.
15:31:50	15.5306	1475	1617	1.6	-4.1	-4.7	.
15:32:20	15.5389	1500	1609	1.6	-4.1	-4.7	.
15:32:50	15.5472	1507	1592	1.6	-4.1	-4.7	.
15:33:20	15.5556	1511	1575	1.6	-4.1	-4.7	.
15:33:50	15.5639	1516	1564	1.6	-4.1	-4.7	.
15:34:20	15.5722	1514	1552	1.6	-3.3	-4.7	.
15:34:50	15.5806	1515	1562	1.6	1.5	-4.6	.
15:35:20	15.5889	1518	1605	1.6	2.6	-4.6	.
15:35:50	15.5972	1524	1601	1.6	-4.0	-4.7	.
15:36:20	15.6056	1526	1578	1.6	-4.1	-4.7	.
15:36:50	15.6139	1530	1563	1.6	-4.1	-4.7	.
15:37:20	15.6222	1529	1556	1.6	0.7	-4.6	.
15:37:50	15.6306	1524	1594	1.6	2.2	-4.6	.
15:38:20	15.6389	1529	1602	1.6	-4.0	-4.7	.
15:38:49	15.6469	1538	1588	1.6	-4.1	-4.7	.
15:39:19	15.6553	1539	1573	1.6	-4.1	-4.7	.
15:39:49	15.6636	1545	1562	1.6	-4.1	-4.7	.
15:40:19	15.6719	1558	1549	-1.8	-0.4	-4.2	.
15:40:49	15.6803	1508	1493	-1.5	1.5	-3.8	.
15:41:19	15.6886	1474	1436	-1.4	1.5	-3.0	.
15:41:49	15.6969	1454	1393	-1.4	1.5	-2.5	.
15:42:19	15.7053	1437	1360	-1.4	1.5	-2.2	.
15:42:49	15.7136	1418	1333	-0.9	1.5	-2.1	.
15:43:19	15.7219	1485	1333	1.6	1.5	-2.9	.
15:43:49	15.7303	1527	1409	1.6	1.5	-4.6	.
15:44:19	15.7386	1546	1518	1.6	1.5	-4.6	.
15:44:49	15.7469	1549	1571	1.6	1.5	-4.6	.
15:45:19	15.7553	1539	1604	1.2	2.3	-4.6	.
15:45:49	15.7636	1539	1562	-3.7	-1.4	-4.1	.
15:46:19	15.7719	1475	1473	-1.7	1.5	-3.8	.
15:46:49	15.7803	1445	1408	-1.4	1.5	-3.1	.
15:47:19	15.7886	1420	1366	-1.4	1.5	-2.5	.
15:47:49	15.7969	1415	1331	-0.1	1.5	-2.3	.
15:48:19	15.8053	1496	1343	1.6	1.5	-4.0	.
15:48:48	15.8133	1537	1420	1.6	1.5	-4.6	.
15:49:18	15.8217	1555	1504	1.6	1.5	-4.6	.
15:49:48	15.8300	1563	1567	0.6	1.5	-4.6	.
15:50:18	15.8383	1531	1558	-1.2	1.9	1.0	.
15:50:48	15.8467	1510	1521	-1.4	1.5	5.7	59.9
15:51:18	15.8550	1573	1666	-1.0	2.5	-2.1	.
15:51:48	15.8633	1598	1759	-4.7	-4.0	-4.1	.
15:52:18	15.8717	1548	1684	0.2	-4.1	-4.0	.

Table B.1-5 Process data for Run 5

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	991.18	925.08	37.9000
MAX	1637.02	1858.22	68.4000
MEAN	1443.83	1480.96	48.1857
STD	122.75	171.09	9.3598

Table B.1-5 Process data for Run 5
Total test period only

FILENAME: CC5_924.SSD
TEST DATE: September 24, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	991.18	925.08	37.9000
MAX	1637.02	1858.22	68.4000
MEAN	1443.61	1480.53	48.1857
STD	122.78	171.01	9.3598

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:09:53	10.1647	1083	884	1.6	1.5	-4.6	.
10:10:23	10.1731	1083	890	1.4	1.5	-2.7	.
10:10:53	10.1814	924	881	-0.2	1.5	4.5	58.5
10:11:23	10.1897	966	891	1.6	1.5	-4.5	.
10:11:53	10.1981	1011	1025	1.6	1.5	-4.6	.
10:12:23	10.2064	1051	1168	1.6	1.5	-4.6	.
10:12:53	10.2147	1089	1231	1.6	1.5	-4.6	.
10:13:22	10.2228	1123	1216	1.6	1.5	-4.6	.
10:13:52	10.2311	1137	1172	1.6	1.5	-4.6	.
10:14:22	10.2394	1148	1129	1.6	1.5	-4.6	.
10:14:52	10.2478	1158	1095	1.6	1.5	-4.6	.
10:15:22	10.2561	1171	1071	1.6	1.5	-4.6	.
10:15:52	10.2644	1181	1058	1.6	1.5	-4.6	.
10:16:22	10.2728	1188	1049	1.6	1.5	-4.6	.
10:16:52	10.2811	1192	1047	1.6	1.5	-4.6	.
10:17:22	10.2894	1193	1039	1.6	1.5	-4.6	.
10:17:52	10.2978	1196	1037	1.6	1.5	-4.6	.
10:18:22	10.3061	1188	1033	1.6	1.5	-4.6	.
10:18:52	10.3144	1184	1031	1.6	1.5	-4.6	.
10:19:22	10.3228	1185	1028	1.6	1.5	-4.6	.
10:19:52	10.3311	1193	1030	1.6	1.5	-4.6	.
10:20:22	10.3394	1198	1028	1.6	1.5	-4.6	.
10:20:52	10.3478	1199	1027	1.6	1.5	-4.6	.
10:21:22	10.3561	1199	1028	1.6	1.5	-4.6	.
10:21:52	10.3644	1199	1030	1.6	1.5	-4.6	.
10:22:21	10.3725	1198	1034	1.6	1.5	-4.6	.
10:22:51	10.3808	1199	1038	1.6	1.5	-4.6	.
10:23:21	10.3892	1199	1040	1.6	1.5	-4.6	.
10:23:51	10.3975	1199	1044	1.6	1.5	-4.6	.
10:24:21	10.4058	1198	1047	1.6	1.5	-4.6	.
10:24:51	10.4142	1198	1049	1.6	1.5	-4.6	.
10:25:21	10.4225	1203	1051	1.6	1.5	-4.6	.
10:25:51	10.4308	1209	1052	1.6	1.5	-4.6	.
10:26:21	10.4392	1214	1051	1.6	1.5	-4.6	.
10:26:51	10.4475	1219	1052	1.6	1.5	-4.6	.
10:27:21	10.4558	1221	1051	1.6	1.5	-4.6	.
10:27:51	10.4642	1230	1051	1.6	1.5	-4.6	.
10:28:21	10.4725	1234	1051	1.6	1.5	-4.6	.
10:28:51	10.4808	1240	1051	1.6	1.5	-4.6	.
10:29:21	10.4892	1246	1052	1.6	1.5	-4.6	.
10:29:51	10.4975	1250	1052	1.6	1.5	-4.6	.
10:30:21	10.5058	1255	1051	1.6	1.5	-4.6	.
10:30:51	10.5142	1264	1051	1.6	1.5	-4.6	.
10:31:21	10.5225	1273	1053	1.6	1.5	-4.6	.
10:31:50	10.5306	1275	1053	1.6	1.5	-4.6	.
10:32:20	10.5389	1283	1053	1.6	1.5	-4.6	.
10:32:50	10.5472	1283	1052	1.6	1.5	-4.6	.
10:33:20	10.5556	1280	1052	1.6	1.5	-4.6	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:33:50	10.5639	1281	1050	1.6	1.5	-4.6	.
10:34:20	10.5722	1284	1053	1.6	1.5	-4.6	.
10:34:50	10.5806	1283	1052	1.6	1.5	-4.6	.
10:35:20	10.5889	1276	1053	1.6	1.5	-4.6	.
10:35:50	10.5972	1209	1050	0.5	1.5	2.2	59.2
10:36:20	10.6056	1210	1122	1.6	1.5	-4.5	.
10:36:50	10.6139	1211	1305	1.6	1.5	-4.6	.
10:37:20	10.6222	1226	1449	1.6	1.5	-4.6	.
10:37:50	10.6306	1237	1499	1.6	1.5	-4.6	.
10:38:20	10.6389	1247	1487	1.6	1.5	-4.6	.
10:38:50	10.6472	1256	1456	1.6	1.5	-4.6	.
10:39:20	10.6556	1258	1427	1.6	1.5	-4.6	.
10:39:50	10.6639	1252	1399	1.6	1.5	-4.6	.
10:40:20	10.6722	1249	1371	1.6	1.5	-4.6	.
10:40:49	10.6803	1256	1343	1.6	1.5	-4.6	.
10:41:19	10.6886	1276	1320	1.6	1.5	-4.6	.
10:41:49	10.6969	1265	1303	1.6	1.5	-4.6	.
10:42:19	10.7053	1253	1288	1.6	1.5	-4.6	.
10:42:49	10.7136	1260	1274	1.6	1.5	-4.6	.
10:43:19	10.7219	1259	1265	1.6	1.5	-4.6	.
10:43:49	10.7303	1264	1259	1.6	1.5	-4.6	.
10:44:19	10.7386	1270	1255	1.6	1.5	-4.6	.
10:44:49	10.7469	1269	1253	1.6	1.5	-4.6	.
10:45:19	10.7553	1273	1252	1.6	1.5	-4.6	.
10:45:49	10.7636	1278	1252	1.6	1.5	-4.6	.
10:46:19	10.7719	1281	1249	1.6	1.5	-4.6	.
10:46:49	10.7803	1290	1247	1.6	1.5	-4.6	.
10:47:19	10.7886	1296	1245	1.6	1.5	-4.6	.
10:47:49	10.7969	1295	1245	1.6	1.5	-4.6	.
10:48:19	10.8053	1295	1247	1.6	1.5	-4.6	.
10:48:49	10.8136	1294	1247	1.6	1.5	-4.6	.
10:49:19	10.8219	1298	1246	1.6	1.5	-4.6	.
10:49:48	10.8300	1300	1241	1.6	1.5	-4.6	.
10:50:18	10.8383	1308	1237	1.6	1.5	-4.6	.
10:50:48	10.8467	1313	1234	1.6	1.5	-4.6	.
10:51:18	10.8550	1312	1233	1.6	1.5	-4.6	.
10:51:48	10.8633	1316	1232	1.6	1.5	-4.6	.
10:52:18	10.8717	1321	1232	1.6	1.5	-4.6	.
10:52:48	10.8800	1326	1232	1.6	1.5	-4.6	.
10:53:18	10.8883	1331	1232	1.6	1.5	-4.6	.
10:53:48	10.8967	1336	1230	1.6	1.5	-4.6	.
10:54:18	10.9050	1345	1230	1.6	1.5	-4.6	.
10:54:48	10.9133	1352	1228	1.6	1.5	-4.6	.
10:55:18	10.9217	1357	1225	1.6	1.5	-4.6	.
10:55:48	10.9300	1362	1221	1.6	1.5	-4.6	.
10:56:18	10.9383	1365	1216	1.6	1.5	-4.6	.
10:56:48	10.9467	1366	1213	1.6	1.5	-4.6	.
10:57:18	10.9550	1371	1209	1.6	1.5	-4.6	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:57:48	10.9633	1374	1205	1.6	1.5	-4.6	.
10:58:18	10.9717	1377	1202	1.6	1.5	-4.6	.
10:58:48	10.9800	1379	1200	1.6	1.5	-4.6	.
10:59:18	10.9883	1380	1199	1.6	1.5	-4.6	.
10:59:47	10.9964	1383	1198	1.6	1.5	-4.6	.
11:00:17	11.0047	1371	1198	0.7	1.5	0.8	41.5
11:00:47	11.0131	1283	1219	1.5	1.5	-3.7	.
11:01:17	11.0214	1258	1385	1.6	1.5	-4.6	.
11:01:47	11.0297	1280	1518	1.6	1.5	-4.6	.
11:02:17	11.0381	1304	1544	1.6	1.5	-4.6	.
11:02:47	11.0464	1297	1520	1.6	1.5	-4.5	.
11:03:17	11.0547	1293	1485	1.6	1.5	-4.5	.
11:03:47	11.0631	1306	1450	1.6	1.5	-4.6	.
11:04:17	11.0714	1313	1419	1.6	1.5	-4.6	.
11:04:47	11.0797	1316	1391	1.6	1.5	-4.6	.
11:05:17	11.0881	1336	1367	1.6	1.5	-4.6	.
11:05:47	11.0964	1350	1342	1.6	1.5	-4.6	.
11:06:17	11.1047	1361	1323	1.6	1.5	-4.6	.
11:06:47	11.1131	1364	1305	1.6	1.5	-4.6	.
11:07:17	11.1214	1370	1296	1.6	1.5	-4.6	.
11:07:47	11.1297	1373	1291	1.6	1.5	-4.6	.
11:08:17	11.1381	1370	1292	1.6	1.5	-4.6	.
11:08:47	11.1464	.	.	0.5	0.5	-1.5	.
11:09:16	11.1544	.	.	0.0	0.0	0.0	.
11:09:46	11.1628	.	.	0.0	0.0	0.0	.
11:10:16	11.1711	1351	1319	1.6	1.5	-0.5	.
11:10:46	11.1794	1361	1311	1.6	1.5	-0.7	.
11:11:16	11.1878	1359	1303	1.6	1.5	-0.7	.
11:11:46	11.1961	1362	1302	1.6	1.5	-0.7	.
11:12:16	11.2044	1363	1298	1.6	1.5	-0.8	.
11:12:46	11.2128	1186	1125	1.4	1.4	-0.7	.
11:13:16	11.2211	858	823	1.1	1.1	-0.5	.
11:13:46	11.2294	1374	1303	1.6	1.5	-0.8	.
11:14:16	11.2378	1373	1305	1.6	1.5	-0.8	.
11:14:46	11.2461	1375	1314	1.6	1.5	-0.8	.
11:15:16	11.2544	1367	1316	1.0	1.5	2.3	49.6
11:15:46	11.2628	1305	1323	1.1	1.5	-0.8	.
11:16:16	11.2711	1252	1449	1.6	1.5	-4.5	.
11:16:46	11.2794	1273	1611	1.6	1.7	-4.6	.
11:17:16	11.2878	1295	1657	1.6	2.7	-4.6	.
11:17:46	11.2961	1301	1604	1.6	-3.6	-4.7	.
11:18:16	11.3044	1301	1583	1.6	1.5	-4.6	.
11:18:45	11.3125	1305	1603	1.6	1.5	-4.6	.
11:19:24	11.3233	1301	1624	1.6	2.1	-4.6	.
11:19:54	11.3317	1306	1603	1.6	-4.1	-4.7	.
11:20:24	11.3400	1306	1571	1.6	-0.1	-4.6	.
11:20:54	11.3483	1309	1577	1.6	1.5	-4.6	.
11:21:24	11.3567	1314	1587	1.6	1.5	-4.6	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:21:54	11.3650	1319	1587	1.6	1.5	-4.6	.
11:22:24	11.3733	1325	1583	1.6	1.5	-4.6	.
11:22:54	11.3817	1332	1576	1.6	1.5	-4.6	.
11:23:23	11.3897	1339	1568	1.6	1.5	-4.6	.
11:26:38	11.4439	1370	1533	1.6	1.6	-4.6	.
11:27:08	11.4522	1368	1517	1.6	1.5	-4.6	.
11:27:38	11.4606	1370	1504	1.6	1.7	-4.6	.
11:28:08	11.4689	1373	1494	1.6	1.5	-4.6	.
11:28:38	11.4772	1370	1484	1.6	1.8	-4.6	.
11:29:08	11.4856	1351	1466	1.6	1.8	-4.6	.
11:29:38	11.4939	1350	1460	1.6	1.5	-4.6	.
11:30:08	11.5022	1356	1463	1.6	1.5	-4.5	.
11:30:38	11.5106	1359	1463	1.6	1.5	-4.5	.
11:31:07	11.5186	1363	1460	1.6	1.5	-4.5	.
11:31:37	11.5269	1367	1457	1.6	1.5	-4.5	.
11:32:07	11.5353	1374	1456	1.6	1.5	-4.5	.
11:32:37	11.5436	1378	1452	1.6	1.5	-4.5	.
11:33:07	11.5519	1382	1449	1.6	1.5	-4.5	.
11:33:37	11.5603	1386	1446	1.6	1.5	-4.5	.
11:34:07	11.5686	1394	1445	1.6	1.5	-4.5	.
11:34:37	11.5769	1394	1443	1.6	1.5	-4.5	.
11:35:00	.	.	.	.	.	.	39.4
11:39:35	11.6597	1437	1545	1.6	1.6	-4.3	.
11:40:16	11.6711	1414	1521	1.6	1.5	-4.6	.
11:40:46	11.6794	1422	1539	1.6	1.5	-4.6	.
11:41:16	11.6878	1424	1550	1.6	1.5	-4.6	.
11:41:46	11.6961	1420	1550	1.6	1.5	-4.6	.
11:42:16	11.7044	1416	1543	1.6	1.5	-4.6	.
11:42:46	11.7128	1414	1534	1.6	1.5	-4.6	.
11:43:16	11.7211	1416	1527	1.6	1.5	-4.6	.
11:43:46	11.7294	1420	1517	1.6	1.5	-4.6	.
11:44:16	11.7378	1422	1506	1.6	1.5	-4.6	.
11:44:46	11.7461	1425	1499	1.6	1.5	-4.6	.
11:45:16	11.7544	1429	1490	1.6	1.5	-4.6	.
11:45:46	11.7628	1428	1482	1.6	1.5	-4.6	.
11:46:16	11.7711	1418	1472	1.6	1.5	-4.6	.
11:46:46	11.7794	1421	1465	1.6	1.5	-4.6	.
11:47:15	11.7875	1425	1458	1.6	1.5	-4.6	.
11:47:45	11.7958	1430	1450	1.6	1.5	-4.6	.
11:48:15	11.8042	1435	1442	1.6	1.5	-4.6	.
11:48:45	11.8125	1437	1435	1.6	1.5	-4.6	.
11:49:15	11.8208	1438	1429	1.6	1.5	-4.6	.
11:49:45	11.8292	1442	1426	1.6	1.5	-4.6	.
11:50:15	11.8375	1445	1423	1.6	1.5	-4.6	.
11:50:45	11.8458	1427	1421	0.4	1.5	1.5	55.3
11:51:15	11.8542	1361	1443	1.6	1.5	-3.3	.
11:51:45	11.8625	1332	1593	1.6	2.0	-4.3	.
11:52:15	11.8708	1351	1673	1.6	-4.0	-4.7	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:52:45	11.8792	1357	1618	1.6	-4.1	-4.7	.
11:53:15	11.8875	1373	1550	1.6	-0.9	-4.7	.
11:53:45	11.8958	1362	1523	1.6	1.5	-4.6	.
11:54:15	11.9042	1364	1528	1.6	1.5	-4.6	.
11:54:45	11.9125	1365	1536	1.6	1.5	-4.6	.
11:55:15	11.9208	1371	1547	1.6	1.5	-4.6	.
11:55:45	11.9292	1371	1552	1.6	1.5	-4.6	.
11:56:15	11.9375	1371	1554	1.6	1.5	-4.6	.
11:56:45	11.9458	1375	1552	1.6	1.5	-4.6	.
11:57:14	11.9539	1379	1549	1.6	1.5	-4.6	.
11:57:44	11.9622	1381	1546	1.6	1.5	-4.6	.
11:58:14	11.9706	1387	1543	1.6	1.5	-4.6	.
11:58:44	11.9789	1389	1542	1.6	1.5	-4.6	.
11:59:14	11.9872	1407	1548	1.6	1.5	-4.6	.
11:59:44	11.9956	1422	1549	1.6	1.5	-4.6	.
12:00:14	12.0039	1427	1544	1.6	1.5	-4.6	.
12:00:44	12.0122	1430	1541	1.6	1.5	-4.6	.
12:01:14	12.0206	1434	1537	1.6	1.5	-4.6	.
12:01:44	12.0289	1437	1533	1.6	1.5	-4.6	.
12:02:14	12.0372	1440	1533	1.6	1.5	-4.6	.
12:02:44	12.0456	1445	1534	1.6	1.5	-4.6	.
12:03:14	12.0539	1446	1532	1.6	1.5	-4.6	.
12:03:44	12.0622	1448	1531	1.6	1.5	-4.6	.
12:04:14	12.0706	1450	1529	1.6	1.5	-4.6	.
12:04:44	12.0789	1453	1528	1.6	1.5	-4.6	.
12:05:14	12.0872	1454	1526	1.6	1.5	-4.6	.
12:05:44	12.0956	1454	1525	1.6	1.5	-4.6	.
12:06:14	12.1039	1458	1525	1.6	1.5	-4.6	.
12:06:43	12.1119	1462	1524	1.6	1.5	-4.6	.
12:07:13	12.1203	1466	1523	1.6	1.5	-4.6	.
12:07:43	12.1286	1466	1524	1.6	1.5	-4.6	.
12:08:13	12.1369	1470	1526	1.6	1.5	-4.6	.
12:08:43	12.1453	1477	1527	1.6	1.5	-4.6	.
12:09:13	12.1536	1481	1525	1.6	1.5	-4.6	.
12:09:43	12.1619	1479	1524	1.6	1.5	-4.6	.
12:10:13	12.1703	1479	1524	1.5	1.5	-3.5	.
12:10:43	12.1786	1470	1518	-1.2	1.5	6.3	49.0
12:11:13	12.1869	1391	1589	-0.6	1.9	-2.5	.
12:11:43	12.1953	1370	1738	1.6	-4.0	-4.5	.
12:12:16	12.2044	1369	1804	1.6	-4.1	-4.7	.
12:14:04	12.2344	1432	1680	1.6	-4.2	-4.7	.
12:14:49	12.2469	1441	1638	1.6	-4.1	-4.7	.
12:15:19	12.2553	1472	1585	1.6	-4.1	-4.7	.
12:15:49	12.2636	1475	1552	1.6	-3.1	-4.7	.
12:16:19	12.2719	1474	1539	1.6	1.5	-4.6	.
12:16:49	12.2803	1472	1565	1.6	1.5	-4.6	.
12:17:19	12.2886	1473	1585	1.6	1.8	-4.6	.
12:17:49	12.2969	1473	1577	1.6	-4.0	-4.7	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:18:19	12.3053	1469	1537	1.6	0.9	-4.6	.
12:18:49	12.3136	1469	1539	1.6	1.5	-4.6	.
12:19:19	12.3219	1474	1554	1.6	1.5	-4.6	.
12:19:49	12.3303	1480	1564	1.6	1.5	-4.6	.
12:20:19	12.3386	1484	1570	1.6	1.5	-4.6	.
12:20:49	12.3469	1487	1573	1.6	1.5	-4.6	.
12:21:19	12.3553	1494	1573	1.6	1.5	-4.6	.
12:21:49	12.3636	1503	1572	1.6	1.5	-4.6	.
12:22:19	12.3719	1508	1570	1.6	1.5	-4.6	.
12:22:49	12.3803	1511	1567	1.6	1.5	-4.6	.
12:23:19	12.3886	1517	1564	1.6	1.5	-4.6	.
12:23:49	12.3969	1520	1561	1.6	1.5	-4.6	.
12:24:19	12.4053	1518	1557	1.6	1.5	-4.6	.
12:24:48	12.4133	1521	1556	1.6	1.5	-4.6	.
12:25:18	12.4217	1522	1554	1.6	1.5	-4.6	.
12:25:48	12.4300	1527	1552	1.6	1.5	-4.6	.
12:26:18	12.4383	1532	1550	1.6	1.5	-4.6	.
12:26:48	12.4467	1539	1549	1.6	1.5	-4.6	.
12:27:18	12.4550	1533	1547	1.6	1.5	-4.6	.
12:27:48	12.4633	1537	1545	1.6	1.5	-4.6	.
12:28:18	12.4717	1541	1545	1.6	1.5	-4.6	.
12:28:48	12.4800	1546	1543	1.6	1.5	-4.6	.
12:29:18	12.4883	1550	1542	1.6	1.5	-4.6	.
12:29:48	12.4967	1552	1540	1.6	1.5	-4.6	.
12:30:18	12.5050	1539	1534	0.7	1.5	0.2	41.7
12:30:48	12.5133	1453	1570	1.4	1.7	-3.6	.
12:31:18	12.5217	1493	1652	-4.1	-4.0	-4.2	.
12:31:48	12.5300	1542	1560	0.0	-2.0	-3.4	.
12:32:18	12.5383	1479	1538	1.6	1.5	-4.6	.
12:32:47	12.5464	1502	1584	1.6	1.8	-4.6	.
12:33:17	12.5547	1516	1595	1.6	-4.0	-4.7	.
12:33:47	12.5631	1508	1558	1.6	-1.9	-4.7	.
12:34:17	12.5714	1488	1546	1.6	1.5	-4.6	.
12:34:47	12.5797	1478	1567	1.6	1.5	-4.6	.
12:35:17	12.5881	1482	1587	1.6	1.5	-4.6	.
12:35:47	12.5964	1500	1594	1.6	2.6	-4.6	.
12:36:17	12.6047	1508	1554	1.6	-1.2	-4.6	.
12:36:47	12.6131	1490	1543	1.6	1.5	-4.6	.
12:37:17	12.6214	1489	1563	1.6	1.5	-4.6	.
12:37:47	12.6297	1491	1581	1.6	1.5	-4.6	.
12:38:17	12.6381	1500	1593	1.6	1.5	-4.6	.
12:38:47	12.6464	1503	1597	1.6	1.7	-4.6	.
12:39:17	12.6547	1520	1585	1.6	-4.0	-4.7	.
12:39:47	12.6631	1520	1543	1.6	0.9	-4.6	.
12:40:17	12.6714	1522	1543	1.6	1.5	-4.6	.
12:40:47	12.6797	1526	1558	1.6	1.5	-4.6	.
12:41:17	12.6881	1525	1569	1.6	1.5	-4.6	.
12:41:47	12.6964	1529	1578	1.6	1.5	-4.6	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:42:17	12.7047	1539	1584	1.6	1.5	-4.6	.
12:42:47	12.7131	1539	1586	1.6	1.5	-4.6	.
12:43:16	12.7211	1541	1590	1.6	1.5	-4.6	.
12:43:46	12.7294	1542	1592	1.6	1.5	-4.6	.
12:44:16	12.7378	1536	1593	1.6	1.5	-4.6	.
12:44:46	12.7461	1538	1597	1.6	1.7	-4.6	.
12:45:16	12.7544	1546	1585	0.1	-4.0	-0.4	.
12:45:46	12.7628	1481	1543	0.1	1.2	0.3	41.3
12:46:16	12.7711	1448	1659	1.6	2.5	-4.5	.
12:46:46	12.7794	1440	1712	1.6	-4.0	-4.7	.
12:47:16	12.7878	1440	1689	1.6	-4.1	-4.7	.
12:47:46	12.7961	1458	1660	1.6	-4.1	-4.7	.
12:48:16	12.8044	1462	1624	1.6	-4.1	-4.7	.
12:48:46	12.8128	1471	1596	1.6	-4.1	-4.7	.
12:49:16	12.8211	1481	1574	1.6	-4.1	-4.7	.
12:49:46	12.8294	1482	1554	1.6	-2.0	-4.7	.
12:50:16	12.8378	1481	1568	1.6	1.5	-4.6	.
12:50:46	12.8461	1491	1603	1.6	2.4	-4.6	.
12:51:15	12.8542	1491	1585	1.6	-4.0	-4.7	.
12:51:45	12.8625	1491	1554	1.6	-1.2	-4.7	.
12:52:15	12.8708	1493	1570	1.6	1.5	-4.6	.
12:52:45	12.8792	1500	1604	1.6	2.4	-4.6	.
12:53:15	12.8875	1508	1585	1.6	-4.0	-4.7	.
12:53:45	12.8958	1509	1555	1.6	-0.8	-4.7	.
12:54:15	12.9042	1508	1570	1.6	1.5	-4.6	.
12:54:45	12.9125	1517	1603	1.6	2.3	-4.6	.
12:55:15	12.9208	1525	1588	1.6	-4.0	-4.7	.
12:55:45	12.9292	1525	1554	1.6	-0.5	-4.7	.
12:56:15	12.9375	1531	1568	1.6	1.5	-4.6	.
12:56:45	12.9458	1536	1600	1.6	2.1	-4.6	.
12:57:15	12.9542	1538	1591	1.6	-4.0	-4.7	.
12:57:45	12.9625	1533	1555	1.6	-0.5	-4.7	.
12:58:15	12.9708	1529	1564	1.6	1.5	-4.6	.
12:58:45	12.9792	1536	1595	1.6	1.7	-4.6	.
12:59:15	12.9875	1544	1600	1.6	-4.0	-4.7	.
12:59:45	12.9958	1536	1562	1.6	-1.5	-4.7	.
13:00:15	13.0042	1536	1559	0.9	1.5	-0.1	40.0
13:00:45	13.0125	1541	1597	-1.3	1.9	-0.7	.
13:01:15	13.0208	1590	1683	-4.7	-4.0	-2.8	.
13:01:44	13.0289	1571	1588	-2.4	-3.9	-2.7	.
13:02:14	13.0372	1531	1530	1.6	1.5	-3.7	.
13:02:44	13.0456	1496	1567	1.6	1.5	-4.6	.
13:03:14	13.0539	1491	1598	1.6	2.6	-4.5	.
13:03:44	13.0622	1517	1582	1.6	-4.0	-4.7	.
13:04:14	13.0706	1515	1554	1.6	0.8	-4.6	.
13:04:44	13.0789	1517	1579	1.6	1.5	-4.6	.
13:05:14	13.0872	1525	1606	1.6	2.4	-4.6	.
13:05:44	13.0956	1530	1584	1.6	-4.1	-4.7	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:06:21	13.1058	1534	1556	1.6	0.8	-4.6	.
13:06:54	13.1150	1539	1580	1.6	1.5	-4.6	.
13:07:24	13.1233	1548	1606	1.6	2.5	-4.6	.
13:07:54	13.1317	1546	1574	1.6	-2.9	-4.7	.
13:08:24	13.1400	1544	1554	1.6	1.5	-4.6	.
13:08:54	13.1483	1543	1577	1.6	1.5	-4.6	.
13:09:24	13.1567	1543	1598	1.6	1.5	-4.6	.
13:09:54	13.1650	1551	1603	1.6	-4.1	-4.7	.
13:10:24	13.1733	1546	1563	1.6	-1.1	-4.7	.
13:10:53	13.1814	1542	1561	1.6	1.5	-4.6	.
13:11:23	13.1897	1544	1588	1.6	1.5	-4.6	.
13:11:53	13.1981	1557	1610	1.6	2.3	-4.6	.
13:12:23	13.2064	1566	1585	1.6	-3.8	-4.7	.
13:12:53	13.2147	1561	1557	1.6	1.5	-4.6	.
13:13:23	13.2231	1566	1576	1.6	1.5	-4.6	.
13:13:53	13.2314	1562	1592	-0.7	1.5	-4.3	.
13:14:23	13.2397	1512	1540	-1.4	1.5	-3.3	.
13:14:53	13.2481	1469	1470	-1.4	1.5	-2.6	.
13:15:23	13.2564	1432	1416	-1.4	1.5	1.1	40.1
13:15:53	13.2647	1479	1440	-1.4	1.5	-0.5	.
13:16:23	13.2731	1433	1635	1.3	2.3	-2.4	.
13:16:53	13.2814	1461	1799	1.6	-4.0	-4.6	.
13:17:23	13.2897	1477	1834	1.6	-4.1	-4.7	.
13:17:53	13.2981	1491	1835	1.6	-4.1	-4.7	.
13:18:23	13.3064	1484	1820	1.6	-4.1	-4.7	.
13:18:53	13.3147	1471	1801	1.6	-4.1	-4.7	.
13:19:23	13.3231	1483	1775	1.6	-4.1	-4.7	.
13:20:00	13.3333	1503	1762	1.6	-4.1	-4.7	.
13:20:30	13.3417	1524	1742	1.6	-4.1	-4.7	.
13:21:00	13.3500	1521	1724	1.6	-4.1	-4.7	.
13:21:30	13.3583	1504	1706	1.6	-4.1	-4.7	.
13:21:59	13.3664	1497	1694	1.6	-4.1	-4.7	.
13:22:29	13.3747	1504	1683	1.6	-4.1	-4.7	.
13:22:59	13.3831	1512	1673	1.6	-4.1	-4.7	.
13:23:29	13.3914	1516	1664	1.6	-4.1	-4.7	.
13:23:59	13.3997	1537	1658	1.6	-4.1	-4.7	.
13:24:29	13.4081	1551	1649	1.6	-4.1	-4.7	.
13:24:59	13.4164	1556	1639	1.6	-4.1	-4.7	.
13:25:29	13.4247	1567	1629	1.6	-4.1	-4.7	.
13:25:59	13.4331	1568	1621	1.6	-4.1	-4.7	.
13:26:29	13.4414	1568	1615	1.6	-4.1	-4.7	.
13:26:59	13.4497	1581	1609	1.6	-4.1	-4.7	.
13:27:29	13.4581	1589	1604	1.6	-4.1	-4.7	.
13:27:59	13.4664	1591	1601	1.6	-4.1	-4.7	.
13:28:29	13.4747	1603	1598	1.6	-4.1	-4.7	.
13:28:59	13.4831	1620	1594	1.6	-4.1	-4.7	.
13:29:29	13.4914	1576	1590	1.6	-4.1	-4.7	.
13:29:59	13.4997	1553	1582	-2.8	-4.1	-4.4	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:30:29	13.5081	1507	1653	-1.1	-4.1	-4.0	42.8
13:30:58	13.5161	1531	1765	1.6	-4.1	-4.3	.
13:31:28	13.5244	1573	1758	1.6	-4.1	-4.7	.
13:31:58	13.5328	1549	1720	1.6	-4.1	-4.7	.
13:32:28	13.5411	1542	1688	1.6	-4.1	-4.7	.
13:32:58	13.5494	1538	1657	1.6	-4.1	-4.7	.
13:33:28	13.5578	1543	1625	1.6	-4.1	-4.7	.
13:33:58	13.5661	1545	1601	1.6	-4.1	-4.7	.
13:34:28	13.5744	1551	1581	1.6	-4.1	-4.7	.
13:34:58	13.5828	1558	1566	1.6	-4.1	-4.7	.
13:35:28	13.5911	1554	1556	1.6	0.4	-4.7	.
13:35:58	13.5994	1554	1595	1.6	2.0	-4.6	.
13:36:28	13.6078	1552	1609	1.6	-4.0	-4.7	.
13:36:58	13.6161	1551	1587	1.6	-4.1	-4.7	.
13:37:28	13.6244	1552	1566	1.6	-3.2	-4.7	.
13:37:58	13.6328	1558	1565	1.6	1.5	-4.6	.
13:38:28	13.6411	1565	1607	1.6	2.4	-4.6	.
13:38:58	13.6494	1570	1601	1.6	-4.0	-4.7	.
13:39:28	13.6578	1574	1572	1.6	-3.5	-4.7	.
13:39:58	13.6661	1552	1560	1.6	1.5	-4.6	.
13:40:28	13.6744	1545	1595	1.6	1.9	-4.6	.
13:40:58	13.6828	1551	1605	1.6	-4.0	-4.7	.
13:41:28	13.6911	1554	1573	1.6	-2.7	-4.7	.
13:41:57	13.6992	1556	1562	1.6	1.5	-4.6	.
13:42:27	13.7075	1562	1597	1.6	1.9	-4.6	.
13:42:57	13.7158	1568	1607	1.6	-4.0	-4.7	.
13:43:27	13.7242	1560	1561	-2.2	-1.8	-4.3	.
13:44:04	13.7344	1527	1495	-1.7	1.5	-3.7	.
13:44:34	13.7428	1479	1430	-1.4	1.5	-3.0	.
13:45:04	13.7511	1443	1387	-1.0	1.5	-2.5	40.6
13:45:34	13.7594	1488	1365	-0.9	1.5	-3.1	.
13:46:04	13.7678	1471	1465	0.9	1.5	-3.5	.
13:46:33	13.7758	1498	1646	1.6	2.5	-4.6	.
13:47:03	13.7842	1494	1681	1.6	-4.0	-4.7	.
13:47:33	13.7925	1489	1676	1.6	-4.1	-4.7	.
13:48:03	13.8008	1487	1685	1.6	-4.1	-4.7	.
13:48:33	13.8092	1473	1689	1.6	-4.1	-4.7	.
13:49:03	13.8175	1474	1687	1.6	-4.1	-4.7	.
13:49:33	13.8258	1482	1675	1.6	-4.1	-4.7	.
13:50:03	13.8342	1485	1664	1.6	-4.1	-4.7	.
13:50:33	13.8425	1489	1657	1.6	-4.1	-4.7	.
13:51:03	13.8508	1493	1649	1.6	-4.1	-4.7	.
13:51:33	13.8592	1517	1650	1.6	-4.1	-4.7	.
13:52:03	13.8675	1522	1632	1.6	-4.1	-4.7	.
13:52:33	13.8758	1532	1611	1.6	-4.1	-4.7	.
13:53:03	13.8842	1537	1587	1.6	-4.1	-4.7	.
13:53:33	13.8925	1544	1566	1.6	-4.1	-4.7	.
13:54:03	13.9008	1548	1554	1.6	1.3	-4.6	.

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:54:33	13.9092	1554	1586	1.6	1.8	-4.6	.
13:55:03	13.9175	1557	1587	-3.5	-3.7	-4.3	.
13:55:33	13.9258	1537	1500	-2.1	1.5	-3.9	.
13:56:02	13.9339	1514	1436	-1.4	1.5	-3.3	.
13:56:32	13.9422	1486	1391	-1.4	1.5	-2.7	.
13:57:02	13.9506	1468	1361	-1.4	1.5	-2.4	.
13:57:32	13.9589	1503	1341	1.5	1.5	-3.7	.
13:58:02	13.9672	1542	1388	1.6	1.5	-4.6	.
13:58:32	13.9756	1559	1461	1.6	1.5	-4.6	.
13:59:02	13.9839	1564	1521	1.6	1.5	-4.6	.
13:59:32	13.9922	1563	1561	-0.0	1.5	-4.5	.
14:00:02	14.0006	1536	1534	-1.4	1.5	-3.5	.
14:00:32	14.0089	1497	1475	-1.4	1.5	-2.7	39.1
14:01:02	14.0172	1505	1533	-1.4	1.6	-2.3	.
14:01:32	14.0256	1515	1642	-4.6	-4.0	-2.3	.
14:02:02	14.0339	1563	1511	-3.0	-0.8	-2.6	.
14:02:32	14.0422	1491	1472	0.3	1.5	-4.0	.
14:03:02	14.0506	1494	1518	1.6	1.5	-4.4	.
14:03:32	14.0589	1504	1630	1.6	2.5	-4.6	.
14:04:02	14.0672	1490	1657	1.6	-4.0	-4.7	.
14:04:32	14.0756	1495	1650	1.6	-4.1	-4.7	.
14:05:02	14.0839	1501	1630	1.6	-4.1	-4.7	.
14:05:31	14.0919	1510	1609	1.6	-4.1	-4.7	.
14:06:01	14.1003	1527	1597	1.6	-4.1	-4.7	.
14:06:31	14.1086	1544	1584	1.6	-4.1	-4.7	.
14:07:01	14.1169	1549	1570	1.6	-4.1	-4.7	.
14:07:31	14.1253	1551	1558	1.6	-3.8	-4.7	.
14:08:01	14.1336	1548	1558	1.6	1.5	-4.6	.
14:08:31	14.1419	1547	1504	1.3	2.5	-4.6	.
14:09:01	14.1503	1547	1561	-3.5	-2.2	-4.1	.
14:09:31	14.1586	1530	1476	-1.8	1.5	-3.7	.
14:10:01	14.1669	1515	1420	-1.4	1.5	-3.1	.
14:10:31	14.1753	1501	1382	-1.4	1.5	-2.6	.
14:11:01	14.1836	1490	1353	-1.4	1.5	-2.3	.
14:11:31	14.1919	1477	1330	-1.4	1.5	-2.1	.
14:12:01	14.2003	1486	1314	0.5	1.5	-2.8	.
14:12:31	14.2086	1518	1351	1.6	1.5	-4.6	.
14:13:01	14.2169	1533	1438	1.6	1.5	-4.6	.
14:13:31	14.2253	1540	1520	1.6	1.5	-4.6	.
14:14:01	14.2336	1549	1580	1.1	1.6	-4.6	.
14:14:31	14.2419	1550	1580	-4.3	-2.8	-4.3	.
14:15:01	14.2503	1529	1488	-1.9	1.5	-3.9	59.1

Table B.1-6 Process data for Run 6

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	858.44	823.41	39.1000
MAX	1619.56	1834.84	59.2000
MEAN	1421.14	1462.05	46.4800
STD	126.33	197.81	7.8799

Table B.1-6 Process data for Run 6
Total test period only

FILENAME: CC6_925.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	858.44	823.41	39.1000
MAX	1619.56	1834.84	59.2000
MEAN	1420.91	1462.00	45.5786
STD	126.37	198.01	7.3310

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
9:40:13	9.6703	132	118	.	-4.1	-4.0	.
9:40:28	9.6744	174	122	.	-1.0	-3.7	.
9:40:43	9.6786	318	126	.	1.5	-3.8	.
9:40:58	9.6828	461	143	.	1.5	-4.2	.
9:41:13	9.6869	571	170	.	1.5	-4.6	.
9:41:28	9.6911	651	198	.	1.5	-4.6	.
9:41:43	9.6953	710	234	.	1.5	-4.6	.
9:41:58	9.6994	751	267	.	1.5	-4.6	.
9:42:13	9.7036	778	298	.	1.5	-4.6	.
9:42:46	9.7128	791	317	.	1.5	-4.6	.
9:43:01	9.7169	836	410	.	1.5	-4.6	.
9:43:16	9.7211	847	441	.	1.5	-4.6	.
9:43:31	9.7253	859	477	.	1.5	-4.6	.
9:43:46	9.7294	866	504	.	1.5	-4.6	.
9:44:01	9.7336	873	530	.	1.5	-4.6	.
9:44:16	9.7378	880	555	.	1.5	-4.6	.
9:44:31	9.7419	886	575	.	1.5	-4.6	.
9:44:46	9.7461	887	594	.	1.5	-4.6	.
9:45:01	9.7503	891	612	.	1.5	-4.6	.
9:45:16	9.7544	899	630	.	1.5	-4.6	.
9:45:31	9.7586	908	651	.	1.5	-4.6	.
9:45:46	9.7628	906	661	.	1.5	-4.6	.
9:46:01	9.7669	913	674	.	1.5	-4.6	.
9:46:16	9.7711	918	687	.	1.5	-4.6	.
9:46:31	9.7753	926	701	.	1.5	-4.6	.
9:46:46	9.7794	926	708	.	1.5	-4.6	.
9:47:01	9.7836	927	717	.	1.5	-4.6	.
9:47:15	9.7875	931	726	.	1.5	-4.6	.
9:47:30	9.7917	938	734	.	1.5	-4.6	.
9:47:45	9.7958	946	745	.	1.5	-4.6	.
9:48:00	9.8000	945	748	.	1.5	-4.6	.
9:48:15	9.8042	948	756	.	1.5	-4.6	.
9:48:30	9.8083	951	763	.	1.5	-4.6	.
9:48:45	9.8125	952	765	.	1.5	-4.6	.
9:49:00	9.8167	954	770	.	1.5	-4.6	.
9:49:15	9.8208	958	775	.	1.5	-4.6	.
9:49:30	9.8250	960	780	.	1.5	-4.6	.
9:49:45	9.8292	966	784	.	1.5	-4.6	.
9:50:00	9.8333	970	788	.	1.5	-4.6	.
9:50:15	9.8375	976	796	.	1.5	-4.6	.
9:50:30	9.8417	973	796	.	1.5	-4.6	.
9:50:45	9.8458	975	800	.	1.5	-4.6	.
9:51:00	9.8500	978	803	.	1.5	-4.6	.
9:51:15	9.8542	981	806	.	1.5	-4.6	.
9:51:30	9.8583	985	809	.	1.5	-4.6	.
9:51:45	9.8625	988	813	.	1.5	-4.6	.
9:52:00	9.8667	987	815	.	1.5	-4.6	.
9:52:15	9.8708	993	818	.	1.5	-4.6	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
9:52:30	9.8750	996	821	.	1.5	-4.6	.
9:52:44	9.8789	995	823	.	1.5	-4.6	.
9:52:59	9.8831	1001	826	.	1.5	-4.6	.
9:53:14	9.8872	1002	828	.	1.5	-4.6	.
9:53:29	9.8914	1003	830	.	1.5	-4.6	.
9:53:44	9.8956	1005	833	.	1.5	-4.6	.
9:53:59	9.8997	1009	835	.	1.5	-4.6	.
9:54:14	9.9039	1017	842	.	1.5	-4.6	.
9:54:29	9.9081	1015	839	.	1.5	-4.6	.
9:54:44	9.9122	1017	840	.	1.5	-4.6	.
9:54:59	9.9164	1017	842	.	1.5	-4.6	.
9:55:14	9.9206	1017	844	.	1.5	-4.6	.
9:55:29	9.9247	1017	846	.	1.5	-4.6	.
9:55:44	9.9289	1018	848	.	1.5	-4.6	.
9:55:59	9.9331	1019	849	.	1.5	-4.6	.
9:56:14	9.9372	1024	851	.	1.5	-4.6	.
9:56:29	9.9414	1023	853	.	1.5	-4.6	.
9:56:44	9.9456	1021	855	.	1.5	-4.6	.
9:56:59	9.9497	1020	856	.	1.5	-4.6	.
9:57:14	9.9539	1024	858	.	1.5	-4.6	.
9:57:29	9.9581	1031	863	.	1.5	-4.6	.
9:57:44	9.9622	1030	861	.	1.5	-4.6	.
9:57:59	9.9664	1031	863	.	1.5	-4.6	.
9:58:14	9.9706	1036	869	.	1.5	-4.6	.
9:58:29	9.9747	1035	867	.	1.5	-4.6	.
9:58:44	9.9789	1042	868	.	1.5	-4.6	.
9:58:59	9.9831	1042	869	.	1.5	-4.6	.
9:59:14	9.9872	1045	871	.	1.5	-4.6	.
9:59:29	9.9914	1047	872	.	1.5	-4.6	.
9:59:43	9.9953	1047	874	.	1.5	-4.6	.
9:59:58	9.9994	1051	876	.	1.5	-4.6	.
10:00:13	10.0036	1053	877	.	1.5	-4.6	.
10:00:28	10.0078	1050	879	.	1.5	-4.6	.
10:00:43	10.0119	945	877	.	1.5	-4.4	40.2
10:00:58	10.0161	821	866	.	1.5	-3.8	.
10:01:13	10.0203	803	846	.	1.5	-3.9	.
10:01:28	10.0244	868	844	.	1.5	-4.6	.
10:01:43	10.0286	866	905	.	1.5	-4.6	.
10:01:58	10.0328	858	1011	.	1.5	-4.6	.
10:02:13	10.0369	874	1116	.	1.5	-4.6	.
10:02:28	10.0411	890	1212	.	1.5	-4.6	.
10:02:43	10.0453	908	1303	.	1.5	-4.6	.
10:02:58	10.0494	919	1387	.	1.5	-4.6	.
10:03:13	10.0536	926	1462	.	1.5	-4.6	.
10:03:28	10.0578	933	1528	.	1.5	-4.6	.
10:03:43	10.0619	946	1583	.	1.5	-4.6	.
10:03:58	10.0661	954	1629	.	1.5	-4.6	.
10:04:13	10.0703	959	1667	.	1.5	-4.6	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:04:28	10.0744	959	1697	.	1.5	-4.6	.
10:04:43	10.0786	960	1716	.	1.8	-4.6	.
10:04:58	10.0828	969	1703	.	-3.9	-4.7	.
10:05:12	10.0867	970	1708	.	-4.1	-4.7	.
10:05:27	10.0908	971	1708	.	-4.1	-4.7	.
10:05:42	10.0950	972	1704	.	-4.1	-4.7	.
10:05:57	10.0992	974	1696	.	-4.1	-4.7	.
10:06:12	10.1033	979	1684	.	-4.1	-4.7	.
10:06:27	10.1075	982	1666	.	-4.1	-4.7	.
10:06:42	10.1117	984	1646	.	-4.1	-4.7	.
10:06:57	10.1158	989	1624	.	-4.1	-4.7	.
10:07:12	10.1200	985	1634	.	-0.3	-4.7	.
10:07:27	10.1242	985	1627	.	1.5	-4.6	.
10:07:42	10.1283	990	1640	.	1.5	-4.6	.
10:07:57	10.1325	994	1656	.	1.5	-4.6	.
10:08:12	10.1367	1000	1685	.	1.5	-4.6	.
10:08:27	10.1408	1007	1679	.	2.2	-4.6	.
10:08:42	10.1450	1023	1649	.	-3.9	-4.7	.
10:08:57	10.1492	1027	1632	.	-4.1	-4.7	.
10:09:12	10.1533	1030	1614	.	-4.1	-4.7	.
10:09:27	10.1575	1023	1655	.	1.2	-4.7	.
10:09:42	10.1617	1025	1663	.	1.5	-4.6	.
10:09:57	10.1658	1031	1673	.	1.5	-4.6	.
10:10:12	10.1700	1041	1656	.	1.5	-4.6	.
10:10:27	10.1742	1046	1666	.	1.5	-4.6	.
10:10:42	10.1783	1053	1668	.	2.0	-4.6	.
10:10:57	10.1825	1061	1643	.	-3.9	-4.7	.
10:11:12	10.1867	1063	1621	.	-4.1	-4.7	.
10:11:26	10.1906	1056	1625	.	0.2	-4.7	.
10:11:41	10.1947	1063	1607	.	1.5	-4.6	.
10:11:56	10.1989	1069	1615	.	1.5	-4.6	.
10:12:11	10.2031	1072	1630	.	1.5	-4.6	.
10:12:26	10.2072	1079	1628	.	1.5	-4.6	.
10:12:41	10.2114	1089	1609	.	1.5	-4.6	.
10:12:56	10.2156	1095	1605	.	1.5	-4.6	.
10:13:11	10.2197	1096	1600	.	1.5	-4.6	.
10:13:26	10.2239	1100	1595	.	1.5	-4.6	.
10:13:41	10.2281	1104	1589	.	1.5	-4.6	.
10:13:56	10.2322	1091	1575	.	1.5	-4.6	.
10:14:11	10.2364	1094	1565	.	1.5	-4.6	.
10:14:26	10.2406	1099	1556	.	1.5	-4.6	.
10:14:41	10.2447	1106	1546	.	1.5	-4.6	.
10:14:56	10.2489	1110	1547	.	1.5	-4.6	.
10:15:11	10.2531	1114	1535	.	1.5	-4.6	.
10:15:26	10.2572	1128	1518	.	1.5	-4.6	.
10:15:41	10.2614	1098	1490	.	1.5	-4.3	43.5
10:15:56	10.2656	1097	1447	.	1.5	-3.8	.
10:16:11	10.2697	1062	1421	.	1.5	-3.8	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:16:26	10.2739	1044	1455	.	1.5	-4.0	.
10:16:41	10.2781	1055	1528	.	1.5	-4.6	.
10:16:56	10.2822	1054	1601	.	1.5	-4.6	.
10:17:10	10.2861	1050	1659	.	1.9	-4.6	.
10:17:25	10.2903	1049	1695	.	-3.9	-4.7	.
10:17:40	10.2944	1046	1742	.	-4.1	-4.7	.
10:17:55	10.2986	1044	1782	.	-4.1	-4.7	.
10:18:10	10.3028	1044	1816	.	-4.1	-4.7	.
10:18:25	10.3069	1042	1843	.	-4.1	-4.7	.
10:18:40	10.3111	1041	1863	.	-4.1	-4.7	.
10:18:55	10.3153	1042	1878	.	-4.1	-4.7	.
10:19:10	10.3194	1043	1888	.	-4.1	-4.7	.
10:19:25	10.3236	1045	1892	.	-4.1	-4.7	.
10:19:40	10.3278	1046	1892	.	-4.1	-4.7	.
10:19:55	10.3319	1048	1887	.	-4.1	-4.7	.
10:20:10	10.3361	1049	1879	.	-4.1	-4.7	.
10:20:25	10.3403	1052	1868	.	-4.1	-4.7	.
10:20:48	10.3467	1054	1860	.	-4.1	-4.7	.
10:21:03	10.3508	1059	1835	.	-4.1	-4.7	.
10:21:18	10.3550	1061	1821	.	-4.1	-4.7	.
10:21:33	10.3592	1065	1805	.	-4.1	-4.7	.
10:21:48	10.3633	1071	1788	.	-4.1	-4.7	.
10:22:03	10.3675	1074	1767	.	-4.1	-4.7	.
10:22:18	10.3717	1079	1746	.	-4.1	-4.7	.
10:22:33	10.3758	1083	1725	.	-4.1	-4.7	.
10:22:48	10.3800	1086	1704	.	-4.1	-4.7	.
10:23:03	10.3842	1090	1683	.	-4.1	-4.7	.
10:23:18	10.3883	1092	1663	.	-4.1	-4.7	.
10:23:33	10.3925	1097	1645	.	-4.1	-4.7	.
10:23:47	10.3964	1104	1626	.	-4.1	-4.7	.
10:24:02	10.4006	1110	1606	.	-4.1	-4.7	.
10:24:17	10.4047	1116	1587	.	-3.3	-4.7	.
10:24:32	10.4089	1116	1585	.	1.5	-4.6	.
10:24:47	10.4131	1121	1588	.	1.5	-4.6	.
10:25:08	10.4189	1127	1595	.	1.5	-4.6	.
10:25:23	10.4231	1141	1612	.	1.5	-4.6	.
10:25:38	10.4272	1142	1611	.	1.5	-4.6	.
10:25:53	10.4314	1147	1610	.	1.5	-4.6	.
10:26:08	10.4356	1153	1608	.	1.5	-4.6	.
10:26:23	10.4397	1158	1603	.	1.5	-4.6	.
10:26:38	10.4439	1165	1597	.	1.5	-4.6	.
10:26:53	10.4481	1170	1589	.	1.5	-4.6	.
10:27:08	10.4522	1175	1579	.	1.5	-4.6	.
10:27:23	10.4564	1182	1570	.	1.5	-4.6	.
10:27:38	10.4606	1186	1567	.	1.5	-4.6	.
10:27:53	10.4647	1192	1555	.	1.5	-4.6	.
10:28:08	10.4689	1196	1543	.	1.5	-4.6	.
10:28:23	10.4731	1201	1534	.	1.5	-4.6	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:28:38	10.4772	1206	1532	.	1.5	-4.6	.
10:28:52	10.4811	1210	1521	.	1.5	-4.6	.
10:29:07	10.4853	1215	1515	.	1.5	-4.6	.
10:29:22	10.4894	1220	1511	.	1.5	-4.6	.
10:29:37	10.4936	1223	1505	.	1.5	-4.6	.
10:29:52	10.4978	1227	1498	.	1.5	-4.6	.
10:30:07	10.5019	1230	1492	.	1.5	-4.6	.
10:30:22	10.5061	1227	1480	.	1.5	-4.5	.
10:30:37	10.5103	1181	1449	.	1.5	-3.5	39.4
10:30:52	10.5144	1168	1437	.	1.5	-4.2	.
10:31:07	10.5186	1145	1489	.	1.5	-4.6	.
10:31:22	10.5228	1143	1586	.	1.5	-4.6	.
10:31:37	10.5269	1133	1662	.	2.3	-4.6	.
10:31:52	10.5311	1124	1734	.	-3.9	-4.7	.
10:32:07	10.5353	1119	1811	.	-4.1	-4.7	.
10:32:22	10.5394	1117	1878	.	-4.1	-4.7	.
10:32:37	10.5436	1116	1933	.	-4.1	-4.7	.
10:32:52	10.5478	1116	1977	.	-4.1	-4.7	.
10:33:07	10.5519	1117	2010	.	-4.1	-4.7	.
10:33:22	10.5561	1118	2035	.	-4.1	-4.7	.
10:33:37	10.5603	1119	2054	.	-4.1	-4.7	.
10:33:52	10.5644	1120	2066	.	-4.1	-4.7	.
10:34:06	10.5683	1123	2071	.	-4.1	-4.7	.
10:34:21	10.5725	1125	2067	.	-4.1	-4.7	.
10:34:36	10.5767	1126	2059	.	-4.1	-4.7	.
10:34:51	10.5808	1128	2051	.	-4.1	-4.7	.
10:35:06	10.5850	1131	2042	.	-4.1	-4.7	.
10:35:21	10.5892	1132	2032	.	-4.1	-4.7	.
10:35:36	10.5933	1135	2021	.	-4.1	-4.7	.
10:35:51	10.5975	1138	2007	.	-4.1	-4.7	.
10:36:06	10.6017	1140	1994	.	-4.1	-4.7	.
10:36:21	10.6058	1145	1980	.	-4.1	-4.7	.
10:36:36	10.6100	1149	1966	.	-4.1	-4.7	.
10:36:51	10.6142	1153	1952	.	-4.1	-4.7	.
10:37:06	10.6183	1157	1937	.	-4.1	-4.7	.
10:37:21	10.6225	1162	1921	.	-4.1	-4.7	.
10:37:36	10.6267	1167	1905	.	-4.1	-4.7	.
10:37:51	10.6308	1172	1889	.	-4.1	-4.7	.
10:38:06	10.6350	1176	1874	.	-4.1	-4.7	.
10:38:21	10.6392	1181	1859	.	-4.1	-4.7	.
10:38:35	10.6431	1186	1844	.	-4.1	-4.7	.
10:38:50	10.6472	1189	1828	.	-4.1	-4.7	.
10:39:05	10.6514	1192	1813	.	-4.1	-4.7	.
10:39:22	10.6561	1195	1801	.	-4.1	-4.7	.
10:43:27	10.7242	1267	1691	.	-4.4	-4.9	.
10:43:57	10.7325	1240	1565	.	-0.2	-4.7	.
10:44:27	10.7408	1247	1593	.	1.7	-4.6	.
10:44:57	10.7492	1244	1610	.	-4.0	-4.7	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:45:27	10.7575	1226	1572	.	-2.8	-4.5	.
10:45:56	10.7656	1184	1544	.	1.5	-3.9	38.8
10:46:26	10.7739	1140	1658	.	2.6	-4.4	.
10:46:56	10.7822	1141	1807	.	-4.0	-4.7	.
10:47:26	10.7906	1156	1928	.	-4.1	-4.7	.
10:47:56	10.7989	1154	2008	.	-4.1	-4.7	.
10:48:26	10.8072	1157	2055	.	-4.1	-4.7	.
10:48:56	10.8156	1178	2086	.	-4.1	-4.7	.
10:49:26	10.8239	1173	2087	.	-4.1	-4.7	.
10:50:09	10.8358	1182	2077	.	-4.1	-4.7	.
10:55:11	10.9197	1362	1711	.	-4.2	-4.7	.
10:55:41	10.9281	1361	1671	.	-4.1	-4.7	.
10:56:11	10.9364	1374	1655	.	-4.1	-4.7	.
10:56:41	10.9447	1372	1647	.	-4.1	-4.7	.
10:57:11	10.9531	1384	1642	.	-4.1	-4.7	.
10:57:41	10.9614	1379	1637	.	-4.1	-4.7	.
10:58:11	10.9697	1372	1635	.	-4.1	-4.7	.
10:58:43	10.9786	1387	1638	.	-4.1	-4.7	.
10:59:13	10.9869	1392	1636	.	-4.1	-4.7	.
10:59:43	10.9953	1391	1631	.	-4.1	-4.7	.
11:00:13	11.0036	1439	1621	.	-4.1	-4.7	.
11:00:43	11.0119	1431	1599	.	-4.1	-4.4	43.0
11:01:13	11.0203	1407	1582	.	1.0	-4.0	.
11:01:43	11.0286	1430	1643	.	2.7	-4.3	.
11:02:13	11.0369	1394	1682	.	-4.0	-4.4	.
11:02:43	11.0453	1248	1801	.	-4.1	-4.1	.
11:03:13	11.0536	1214	1939	.	-4.1	-4.5	.
11:03:43	11.0619	1206	2027	.	-4.1	-4.7	.
11:04:13	11.0703	1205	2086	.	-4.1	-4.7	.
11:04:43	11.0786	1216	2126	.	-4.1	-4.7	.
11:05:13	11.0869	1219	2157	.	-4.1	-4.7	.
11:05:43	11.0953	1231	2183	.	-4.1	-4.7	.
11:06:13	11.1036	1235	2203	.	-4.1	-4.7	.
11:06:43	11.1119	1254	2219	.	-4.1	-4.7	.
11:07:13	11.1203	1262	2226	.	-4.1	-4.7	.
11:07:43	11.1286	1265	2232	.	-4.1	-4.7	.
11:08:13	11.1369	1275	2241	.	-4.1	-4.7	.
11:08:42	11.1450	1291	2244	.	-4.1	-4.7	.
11:09:12	11.1533	1307	2243	.	-4.1	-4.7	.
11:09:42	11.1617	1308	2237	.	-4.1	-4.7	.
11:10:12	11.1700	1329	2227	.	-4.1	-4.7	.
11:10:42	11.1783	1343	2212	.	-4.1	-4.7	.
11:11:12	11.1867	1350	2194	.	-4.1	-4.7	.
11:11:42	11.1950	1372	2179	.	-4.1	-4.7	.
11:12:12	11.2033	1376	2164	.	-4.1	-4.7	.
11:12:42	11.2117	1387	2150	.	-4.1	-4.7	.
11:13:12	11.2200	1414	2137	.	-4.1	-4.7	.
11:13:42	11.2283	1428	2122	.	-4.1	-4.7	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:14:12	11.2367	1485	2141	.	-4.1	-4.1	.
11:14:42	11.2450	1456	2099	.	-4.1	-4.7	.
11:15:12	11.2533	1443	2077	.	-4.1	-4.7	.
11:15:42	11.2617	1465	1995	.	-4.1	-4.2	39.7
11:16:12	11.2700	1439	1952	.	-4.1	-4.0	.
11:16:42	11.2783	1427	1971	.	-4.2	-4.0	.
11:17:12	11.2867	1442	1967	.	-4.1	-4.0	.
11:17:42	11.2950	1455	1959	.	-4.1	-4.0	.
11:18:11	11.3031	1459	1950	.	-4.1	-4.0	.
11:18:41	11.3114	1452	1944	.	-4.1	-4.0	.
11:19:11	11.3197	1318	1977	.	-4.1	-4.0	.
11:19:41	11.3281	1274	2100	.	-4.1	-4.0	.
11:20:11	11.3364	1262	2188	.	-4.1	-4.0	.
11:20:41	11.3447	1267	2248	.	-4.1	-4.0	.
11:21:11	11.3531	1277	2287	.	-4.1	-4.0	.
11:21:41	11.3614	1289	2308	.	-4.1	-4.0	.
11:22:11	11.3697	1307	2305	.	-4.1	-4.0	.
11:22:41	11.3781	1325	2273	.	-4.1	-3.9	.
11:23:11	11.3864	1325	2242	.	-4.1	-3.9	.
11:23:41	11.3947	1328	2244	.	-4.1	-4.7	.
11:24:11	11.4031	1331	2232	.	-4.1	-4.7	.
11:24:41	11.4114	1339	2216	.	-4.1	-4.7	.
11:25:11	11.4197	1347	2192	.	-4.1	-4.7	.
11:25:41	11.4281	1348	2160	.	-4.1	-4.7	.
11:26:11	11.4364	1356	2134	.	-4.1	-4.7	.
11:26:40	11.4444	1362	2106	.	-4.1	-4.7	.
11:27:10	11.4528	1368	2078	.	-4.1	-4.7	.
11:27:40	11.4611	1381	2049	.	-4.1	-4.6	.
11:28:12	11.4700	1384	1980	.	-4.2	-4.2	.
11:28:42	11.4783	1360	1796	.	-4.1	-4.0	.
11:29:12	11.4867	1438	1660	.	-4.1	-2.9	.
11:29:42	11.4950	1422	1501	.	-3.6	-3.0	.
11:30:12	11.5033	1416	1407	.	1.5	-3.5	.
11:30:42	11.5117	1459	1463	.	1.5	-3.6	40.8
11:31:12	11.5200	1389	1595	.	2.4	-3.1	.
11:31:42	11.5283	1362	1715	.	-4.1	-4.1	.
11:32:12	11.5367	1342	1738	.	-4.1	-4.1	.
11:32:42	11.5450	1334	1715	.	-4.1	-4.1	.
11:33:12	11.5533	1326	1674	.	-4.1	-4.0	.
11:33:41	11.5614	1318	1626	.	-4.1	-4.0	.
11:34:11	11.5697	1332	1542	.	-3.6	-3.0	.
11:34:41	11.5781	1325	1442	.	1.5	-3.5	.
11:35:11	11.5864	1309	1489	.	1.5	-3.6	.
11:35:41	11.5947	1310	1513	.	1.5	-2.9	.
11:36:11	11.6031	1300	1531	.	1.5	-2.5	.
11:36:41	11.6114	1316	1550	.	1.5	-2.3	.
11:37:11	11.6197	1329	1553	.	1.5	-2.2	.
11:37:41	11.6281	1336	1550	.	1.5	-2.1	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:38:11	11.6364	1333	1547	.	1.5	-2.1	.
11:38:41	11.6447	1318	1539	.	1.5	-2.0	.
11:39:11	11.6531	1314	1533	.	1.5	-2.0	.
11:39:41	11.6614	1295	1521	.	1.5	-2.0	.
11:40:11	11.6697	1274	1508	.	1.5	-2.0	.
11:40:41	11.6781	1249	1496	.	1.5	-2.0	.
11:41:11	11.6864	1235	1481	.	1.5	-2.0	.
11:41:41	11.6947	1231	1469	.	1.5	-2.0	.
11:42:11	11.7031	1232	1456	.	1.5	-2.0	.
11:42:41	11.7114	1235	1443	.	1.5	-2.0	.
11:43:11	11.7197	1241	1429	.	1.5	-2.0	.
11:43:40	11.7278	1246	1415	.	1.5	-2.0	.
11:44:10	11.7361	1248	1402	.	1.5	-2.0	.
11:44:40	11.7444	1252	1388	.	1.5	-2.0	.
11:45:10	11.7528	1253	1376	.	1.5	-2.0	.
11:45:40	11.7611	1350	1369	.	1.5	-2.1	38.0
11:46:10	11.7694	1390	1404	.	1.5	-2.0	.
11:46:40	11.7778	1398	1523	.	1.5	-2.0	.
11:47:10	11.7861	1417	1653	.	2.5	-2.4	.
11:47:40	11.7944	1413	1686	.	-4.0	-4.1	.
11:48:10	11.8028	1398	1668	.	-4.1	-4.1	.
11:48:40	11.8111	1405	1641	.	-4.1	-4.0	.
11:49:10	11.8194	1380	1613	.	-4.1	-4.0	.
11:49:40	11.8278	1344	1588	.	-4.1	-4.0	.
11:50:10	11.8361	1341	1560	.	-1.6	-3.9	.
11:50:40	11.8444	1346	1553	.	1.5	-3.7	.
11:51:10	11.8528	1359	1574	.	1.5	-3.0	.
11:51:40	11.8611	1361	1577	.	1.5	-2.5	.
11:52:10	11.8694	1363	1572	.	1.5	-2.2	.
11:52:39	11.8775	1368	1561	.	1.5	-2.1	.
11:53:09	11.8858	1379	1547	.	1.5	-2.1	.
11:53:39	11.8942	1385	1534	.	1.5	-2.0	.
11:54:09	11.9025	1390	1517	.	1.5	-2.0	.
11:54:39	11.9108	1385	1497	.	1.5	-2.0	.
11:55:09	11.9192	1361	1476	.	1.5	-2.0	.
11:55:39	11.9275	1327	1457	.	1.5	-2.0	.
11:56:09	11.9358	1301	1439	.	1.5	-2.0	.
11:56:39	11.9442	1287	1420	.	1.5	-2.0	.
11:57:09	11.9525	1279	1402	.	1.5	-2.0	.
11:57:39	11.9608	1269	1386	.	1.5	-2.0	.
11:58:09	11.9692	1264	1371	.	1.5	-2.0	.
11:58:39	11.9775	1259	1359	.	1.5	-2.0	.
11:59:09	11.9858	1256	1347	.	1.5	-2.0	.
11:59:39	11.9942	1254	1333	.	1.5	-2.0	.
12:00:09	12.0025	1251	1321	.	1.5	-2.0	.
12:00:39	12.0108	1296	1313	.	1.5	-2.0	41.8
12:01:09	12.0192	1323	1327	.	1.5	-2.0	
12:01:39	12.0275	1308	1393	.	1.5	-2.0	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:02:09	12.0358	1295	1477	.	1.5	-2.0	.
12:02:39	12.0442	1276	1565	.	1.6	-2.1	.
12:03:09	12.0525	1274	1659	.	-4.0	-2.4	.
12:03:39	12.0608	1284	1660	.	-4.1	-3.3	.
12:04:08	12.0689	1286	1630	.	-4.1	-3.8	.
12:04:38	12.0772	1286	1596	.	-4.1	-4.0	.
12:05:08	12.0856	1288	1555	.	-1.6	-4.0	.
12:05:38	12.0939	1295	1541	.	1.5	-3.8	.
12:06:08	12.1022	1302	1553	.	1.5	-3.3	.
12:06:38	12.1106	1310	1559	.	1.5	-2.8	.
12:07:08	12.1189	1316	1554	.	1.5	-2.5	.
12:07:38	12.1272	1338	1549	.	1.5	-2.3	.
12:08:08	12.1356	1345	1543	.	1.5	-2.2	.
12:08:38	12.1439	1336	1535	.	1.5	-2.1	.
12:09:08	12.1522	1344	1534	.	1.5	-2.1	.
12:09:38	12.1606	1360	1528	.	1.5	-2.1	.
12:10:08	12.1689	1371	1515	.	1.5	-2.0	.
12:10:38	12.1772	1377	1501	.	1.5	-2.0	.
12:11:08	12.1856	1385	1489	.	1.5	-2.0	.
12:11:38	12.1939	1401	1479	.	1.5	-2.0	.
12:12:08	12.2022	1389	1467	.	1.5	-2.0	.
12:12:38	12.2106	1371	1452	.	1.5	-2.0	.
12:13:08	12.2189	1372	1434	.	1.5	-2.0	.
12:13:38	12.2272	1364	1425	.	1.5	-2.0	.
12:14:07	12.2353	1341	1419	.	1.5	-2.0	.
12:14:37	12.2436	1329	1413	.	1.5	-2.0	.
12:15:07	12.2519	1325	1408	.	1.5	-2.0	.
12:15:37	12.2603	1309	1405	.	1.5	-2.0	41.8
12:16:07	12.2686	1353	1404	.	1.5	-2.0	.
12:16:37	12.2769	1408	1463	.	1.5	-2.0	.
12:17:07	12.2853	1416	1575	.	1.7	-2.0	.
12:17:37	12.2936	1383	1660	.	-4.0	-2.4	.
12:18:07	12.3019	1359	1679	.	-4.1	-3.3	.
12:18:37	12.3103	1353	1682	.	-4.1	-3.8	.
12:19:07	12.3186	1362	1679	.	-4.1	-4.0	.
12:19:37	12.3269	1372	1683	.	-4.1	-4.0	.
12:20:07	12.3353	1375	1684	.	-4.1	-4.0	.
12:20:37	12.3436	1383	1678	.	-4.1	-4.0	.
12:21:07	12.3519	1387	1669	.	-4.1	-4.0	.
12:21:37	12.3603	1389	1660	.	-4.1	-4.0	.
12:22:07	12.3686	1392	1650	.	-4.1	-4.0	.
12:22:37	12.3769	1398	1640	.	-4.1	-4.0	.
12:23:07	12.3853	1408	1625	.	-4.1	-4.0	.
12:23:37	12.3936	1415	1608	.	-4.1	-4.0	.
12:24:07	12.4019	1421	1592	.	-4.1	-4.0	.
12:24:37	12.4103	1419	1573	.	-4.1	-4.0	.
12:25:06	12.4183	1416	1545	.	-0.2	-4.0	.
12:25:36	12.4267	1416	1558	.	1.5	-3.6	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:26:06	12.4350	1411	1595	.	1.8	-3.0	.
12:26:36	12.4433	1410	1607	.	-4.0	-2.8	.
12:27:06	12.4517	1406	1558	.	-1.7	-3.4	.
12:27:36	12.4600	1410	1538	.	1.5	-3.6	.
12:28:06	12.4683	1414	1552	.	1.5	-3.1	.
12:28:36	12.4767	1412	1569	.	1.5	-2.6	.
12:29:06	12.4850	1417	1584	.	1.5	-2.3	.
12:29:36	12.4933	1414	1595	.	1.5	-2.2	.
12:30:06	12.5017	1409	1598	.	1.5	-2.1	.
12:30:36	12.5100	1441	1594	.	1.5	-2.1	38.7
12:31:06	12.5183	1420	1606	.	2.0	-2.1	.
12:31:36	12.5267	1367	1685	.	-4.0	-3.1	.
12:32:06	12.5350	1332	1704	.	-4.1	-3.8	.
12:32:36	12.5433	1324	1708	.	-4.1	-3.9	.
12:33:06	12.5517	1323	1703	.	-4.1	-4.0	.
12:33:36	12.5600	1323	1691	.	-4.1	-4.0	.
12:34:05	12.5681	1321	1675	.	-4.1	-4.0	.
12:34:35	12.5764	1322	1659	.	-4.1	-4.0	.
12:35:05	12.5847	1323	1643	.	-4.1	-4.0	.
12:35:35	12.5931	1330	1628	.	-4.1	-4.0	.
12:36:05	12.6014	1337	1603	.	-4.1	-4.0	.
12:36:35	12.6097	1344	1575	.	-4.1	-4.0	.
12:37:05	12.6181	1351	1544	.	-0.4	-4.0	.
12:37:35	12.6264	1360	1557	.	1.5	-3.7	.
12:38:05	12.6347	1366	1597	.	1.9	-3.0	.
12:38:35	12.6431	1365	1606	.	-4.0	-2.8	.
12:39:05	12.6514	1372	1564	.	-2.4	-3.4	.
12:39:35	12.6597	1402	1543	.	1.5	-3.6	.
12:40:05	12.6681	1416	1560	.	1.5	-3.2	.
12:40:35	12.6764	1421	1575	.	1.5	-2.7	.
12:41:05	12.6847	1423	1583	.	1.5	-2.3	.
12:41:35	12.6931	1427	1586	.	1.5	-2.2	.
12:42:05	12.7014	1431	1592	.	1.5	-2.2	.
12:42:35	12.7097	1432	1597	.	1.5	-2.1	.
12:43:05	12.7181	1432	1617	.	2.4	-2.4	.
12:43:35	12.7264	1422	1591	.	-4.0	-4.0	.
12:44:05	12.7347	1424	1549	.	1.0	-4.0	.
12:44:34	12.7428	1432	1569	.	1.5	-3.4	.
12:45:04	12.7511	1436	1598	.	1.5	-2.7	.
12:45:34	12.7594	1422	1617	.	2.6	-2.8	42.5
12:46:04	12.7678	1465	1590	.	-0.8	-3.9	.
12:46:34	12.7761	1505	1675	.	2.7	-3.9	.
12:47:04	12.7844	1489	1802	.	-4.0	-4.3	.
12:47:34	12.7928	1425	1892	.	-4.1	-4.2	.
12:48:04	12.8011	1379	1934	.	-4.1	-4.1	.
12:48:34	12.8094	1371	1932	.	-4.1	-4.1	.
12:49:04	12.8178	1387	1919	.	-4.1	-4.1	.
12:49:34	12.8261	1405	1909	.	-4.1	-4.1	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:50:04	12.8344	1410	1898	.	-4.1	-4.1	.
12:50:34	12.8428	1407	1876	.	-4.1	-4.1	.
12:51:04	12.8511	1406	1850	.	-4.1	-4.1	.
12:51:34	12.8594	1408	1827	.	-4.1	-4.0	.
12:52:04	12.8678	1421	1801	.	-4.1	-4.0	.
12:52:34	12.8761	1430	1776	.	-4.1	-4.0	.
12:53:04	12.8844	1440	1751	.	-4.1	-4.0	.
12:53:34	12.8928	1447	1725	.	-4.1	-4.0	.
12:54:04	12.9011	1450	1706	.	-4.1	-4.0	.
12:54:34	12.9094	1464	1688	.	-4.1	-4.0	.
12:55:04	12.9178	1468	1674	.	-4.1	-4.0	.
12:55:34	12.9261	1470	1656	.	-4.1	-4.0	.
12:56:03	12.9342	1468	1636	.	-4.1	-4.0	.
12:56:33	12.9425	1464	1615	.	-4.1	-4.0	.
12:57:03	12.9508	1456	1590	.	-4.1	-4.0	.
12:57:33	12.9592	1453	1567	.	-4.1	-4.0	.
12:58:03	12.9675	1459	1547	.	1.4	-3.9	.
12:58:33	12.9758	1459	1584	.	1.5	-3.4	.
12:59:03	12.9842	1460	1616	.	2.6	-3.2	.
12:59:33	12.9925	1460	1596	.	-4.0	-4.2	.
13:00:03	13.0008	1482	1558	.	-0.4	-4.1	.
13:00:33	13.0092	1491	1575	.	1.5	-3.6	42.0
13:01:03	13.0175	1501	1657	.	2.7	-3.4	.
13:01:33	13.0258	1474	1770	.	-4.0	-4.3	.
13:02:03	13.0342	1454	1847	.	-4.1	-4.2	.
13:02:33	13.0425	1451	1880	.	-4.1	-4.1	.
13:03:03	13.0508	1458	1880	.	-4.1	-4.1	.
13:03:33	13.0592	1467	1853	.	-4.1	-4.1	.
13:04:03	13.0675	1469	1811	.	-4.1	-4.1	.
13:04:33	13.0758	1466	1773	.	-4.1	-4.1	.
13:05:03	13.0842	1441	1730	.	-4.1	-4.1	.
13:05:33	13.0925	1405	1683	.	-4.1	-4.0	.
13:06:03	13.1008	1387	1640	.	-4.1	-4.0	.
13:06:33	13.1092	1383	1599	.	-4.1	-4.0	.
13:07:03	13.1175	1376	1561	.	-3.3	-4.0	.
13:07:33	13.1258	1366	1541	.	1.5	-3.7	.
13:08:02	13.1339	1330	1538	.	1.5	-3.5	.
13:08:32	13.1422	1326	1558	.	1.5	-2.8	.
13:09:02	13.1506	1331	1568	.	1.5	-2.5	.
13:09:32	13.1589	1339	1572	.	1.5	-2.3	.
13:10:02	13.1672	1351	1571	.	1.5	-2.2	.
13:10:32	13.1756	1349	1565	.	1.5	-2.2	.
13:11:02	13.1839	1359	1559	.	1.5	-2.2	.
13:11:32	13.1922	1373	1549	.	1.5	-2.2	.
13:12:02	13.2006	1377	1539	.	1.5	-2.1	.
13:12:32	13.2089	1383	1531	.	1.5	-2.1	.
13:13:02	13.2172	1389	1524	.	1.5	-2.1	.
13:13:32	13.2256	1390	1514	.	1.5	-2.1	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:14:02	13.2339	1391	1509	.	1.5	-2.1	.
13:14:32	13.2422	1390	1501	.	1.5	-2.1	.
13:15:02	13.2506	1397	1493	.	1.5	-2.1	.
13:15:32	13.2589	1428	1483	.	1.5	-2.1	40.2
13:16:02	13.2672	1511	1486	.	1.5	-2.2	.
13:16:31	13.2753	1498	1630	.	2.2	-2.3	.
13:17:01	13.2836	1498	1745	.	-4.0	-3.7	.
13:17:31	13.2919	1474	1781	.	-4.1	-4.1	.
13:18:01	13.3003	1470	1784	.	-4.1	-4.1	.
13:18:31	13.3086	1461	1770	.	-4.1	-4.0	.
13:19:01	13.3169	1448	1752	.	-4.1	-4.0	.
13:19:31	13.3253	1437	1743	.	-4.1	-4.0	.
13:20:01	13.3336	1434	1731	.	-4.1	-4.0	.
13:20:31	13.3419	1426	1718	.	-4.1	-4.0	.
13:21:01	13.3503	1421	1708	.	-4.1	-4.0	.
13:21:31	13.3586	1431	1694	.	-4.1	-4.0	.
13:22:01	13.3669	1457	1683	.	-4.1	-4.0	.
13:22:31	13.3753	1438	1674	.	-4.1	-4.0	.
13:23:01	13.3836	1444	1659	.	-4.1	-4.0	.
13:23:31	13.3919	1452	1643	.	-4.1	-4.0	.
13:24:01	13.4003	1456	1627	.	-4.1	-4.0	.
13:24:30	13.4083	1460	1606	.	-4.1	-4.0	.
13:25:00	13.4167	1457	1587	.	-4.1	-4.0	.
13:25:30	13.4250	1455	1562	.	-1.8	-4.0	.
13:26:00	13.4333	1472	1568	.	1.5	-3.7	.
13:26:30	13.4417	1464	1605	.	1.7	-3.1	.
13:27:00	13.4500	1471	1624	.	2.7	-3.4	.
13:27:30	13.4583	1466	1587	.	-4.0	-4.3	.
13:28:00	13.4667	1486	1552	.	1.1	-3.9	.
13:28:30	13.4750	1489	1548	.	1.5	-3.6	.
13:29:00	13.4833	1490	1555	.	1.5	-2.8	.
13:29:30	13.4917	1476	1556	.	1.5	-2.4	.
13:30:00	13.5000	1463	1558	.	1.5	-2.2	.
13:30:30	13.5083	1476	1559	.	1.5	-2.1	41.1
13:31:08	13.5189	1499	1585	.	1.5	-2.1	.
13:31:38	13.5272	1506	1738	.	-4.1	-2.2	.
13:32:08	13.5356	1503	1780	.	-4.1	-3.0	.
13:32:38	13.5439	1510	1787	.	-4.1	-3.6	.
13:33:08	13.5522	1508	1772	.	-4.1	-3.8	.
13:33:38	13.5606	1500	1741	.	-4.1	-3.9	.
13:34:08	13.5689	1505	1715	.	-4.1	-3.9	.
13:34:38	13.5772	1507	1693	.	-4.1	-4.0	.
13:35:08	13.5856	1496	1665	.	-4.1	-4.0	.
13:35:38	13.5939	1476	1632	.	-4.1	-4.0	.
13:36:08	13.6022	1478	1599	.	-4.1	-4.0	.
13:36:37	13.6103	1467	1566	.	-2.0	-4.0	.
13:37:07	13.6186	1459	1564	.	1.5	-3.7	.
13:37:37	13.6269	1455	1592	.	1.5	-3.0	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:38:07	13.6353	1444	1613	.	1.5	-2.5	.
13:38:37	13.6436	1445	1622	.	1.5	-2.2	.
13:39:07	13.6519	1440	1624	.	1.5	-2.1	.
13:39:37	13.6603	1439	1620	.	1.5	-2.1	.
13:40:07	13.6686	1437	1615	.	1.5	-2.0	.
13:40:37	13.6769	1430	1609	.	1.5	-2.0	.
13:41:07	13.6853	1427	1601	.	1.5	-2.0	.
13:41:37	13.6936	1430	1589	.	1.5	-2.0	.
13:42:07	13.7019	1429	1577	.	1.5	-2.0	.
13:42:37	13.7103	1432	1564	.	1.5	-2.0	.
13:43:07	13.7186	1431	1553	.	1.5	-2.0	.
13:43:37	13.7269	1434	1541	.	1.5	-2.0	.
13:44:07	13.7353	1436	1531	.	1.5	-2.0	.
13:44:37	13.7436	1444	1522	.	1.5	-2.0	.
13:45:06	13.7517	1446	1515	.	1.5	-2.0	.
13:45:36	13.7600	1452	1509	.	1.5	-2.0	39.2
13:46:06	13.7683	1529	1522	.	1.5	-2.0	.
13:46:36	13.7767	1525	1652	.	2.3	-2.2	.
13:47:06	13.7850	1513	1741	.	-4.0	-3.9	.
13:47:36	13.7933	1518	1800	.	-4.1	-4.1	.
13:48:06	13.8017	1515	1842	.	-4.1	-4.0	.
13:48:36	13.8100	1524	1865	.	-4.1	-4.0	.
13:49:06	13.8183	1523	1864	.	-4.1	-4.0	.
13:49:36	13.8267	1536	1847	.	-4.1	-4.0	.
13:50:06	13.8350	1538	1824	.	-4.1	-4.0	.
13:50:36	13.8433	1529	1794	.	-4.1	-4.0	.
13:51:06	13.8517	1540	1763	.	-4.1	-4.0	.
13:51:36	13.8600	1547	1737	.	-4.1	-4.0	.
13:52:06	13.8683	1552	1719	.	-4.1	-4.0	.
13:52:36	13.8767	1549	1703	.	-4.1	-4.0	.
13:53:06	13.8850	1539	1687	.	-4.1	-4.0	.
13:53:36	13.8933	1533	1665	.	-4.1	-4.0	.
13:54:06	13.9017	1522	1640	.	-4.1	-4.0	.
13:54:36	13.9100	1512	1612	.	-4.1	-4.0	.
13:55:06	13.9183	1501	1585	.	-4.1	-4.0	.
13:55:36	13.9267	1468	1554	.	-0.9	-4.0	.
13:56:06	13.9350	1451	1566	.	1.5	-3.6	.
13:56:35	13.9431	1467	1601	.	1.5	-2.9	.
13:57:05	13.9514	1501	1613	.	2.6	-3.0	.
13:57:35	13.9597	1504	1556	.	-1.7	-4.1	.
13:58:05	13.9681	1530	1535	.	1.5	-3.7	.
13:58:35	13.9764	1508	1542	.	1.5	-3.0	.
13:59:05	13.9847	1518	1556	.	1.5	-2.5	.
13:59:35	13.9931	1534	1561	.	1.5	-2.2	.
14:00:05	14.0014	1512	1564	.	1.5	-2.1	.
14:00:35	14.0097	1502	1564	.	1.5	-2.1	40.1
14:01:05	14.0181	1504	1594	.	1.7	-2.0	.
14:01:35	14.0264	1497	1649	.	-4.0	-2.3	.

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:02:05	14.0347	1488	1756	.	-4.1	-3.2	.
14:02:35	14.0431	1484	1916	.	-4.1	-3.7	.
14:03:05	14.0514	1480	2076	.	-4.1	-3.8	.
14:03:35	14.0597	1479	2198	.	-4.1	-3.9	.
14:04:05	14.0681	1486	2278	.	-4.1	-3.9	.
14:04:35	14.0764	1489	2330	.	-4.1	-3.9	.
14:05:05	14.0847	1492	2368	.	-4.1	-3.9	.
14:05:34	14.0928	1501	2401	.	-4.1	-3.9	.
14:06:04	14.1011	1495	2424	.	-4.1	-3.9	.
14:06:34	14.1094	1504	2442	.	-4.1	-3.9	.
14:15:00	.	.	.	.	.	.	40.1
14:30:00	.	.	.	.	.	.	38.5

Table B.1-7 Process data for Run 7

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	131.80	117.64	38.0000
MAX	1552.29	2442.05	43.5000
MEAN	1253.25	1559.93	40.4947
STD	209.61	403.69	1.5943

Table B.1-7 Process data for Run 7
Total test period only

FILENAME: CC7_926.SSD
TEST DATE: September 26, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	803.06	844.25	38.0000
MAX	1552.29	2400.84	43.5000
MEAN	1296.73	1668.83	40.6353
STD	166.84	253.16	1.6062

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:45:06	13.7517	1236	952	1.6	1.5	-4.6	.
13:45:36	13.7600	1220	956	0.7	1.5	-4.6	41.5
13:46:06	13.7683	1017	944	-1.1	1.5	-3.8	.
13:46:36	13.7767	1037	964	1.6	1.5	-3.9	.
13:47:06	13.7850	1061	1160	1.6	1.5	-4.6	.
13:47:36	13.7933	1083	1357	1.6	1.5	-4.6	.
13:48:06	13.8017	1087	1513	1.6	1.5	-4.5	.
13:48:36	13.8100	1098	1631	1.6	1.5	-4.6	.
13:49:06	13.8183	1105	1695	1.6	1.7	-4.6	.
13:49:36	13.8267	1114	1704	1.6	-4.0	-4.7	.
13:50:06	13.8350	1117	1720	1.6	-4.1	-4.7	.
13:50:36	13.8433	1125	1729	1.6	-4.1	-4.7	.
13:51:06	13.8517	1131	1727	1.6	-4.1	-4.7	.
13:51:35	13.8597	1139	1710	1.6	-4.1	-4.7	.
13:52:05	13.8681	1147	1686	1.6	-4.1	-4.7	.
13:52:35	13.8764	1160	1660	1.6	-4.1	-4.7	.
13:53:05	13.8847	1169	1631	1.6	-4.1	-4.7	.
13:53:35	13.8931	1178	1609	1.6	-4.1	-4.7	.
13:54:05	13.9014	1188	1584	1.6	-4.1	-4.7	.
13:54:35	13.9097	1194	1587	1.6	1.1	-4.7	.
13:55:05	13.9181	1205	1617	1.6	1.5	-4.6	.
13:55:35	13.9264	1213	1627	1.6	2.2	-4.6	.
13:56:05	13.9347	1218	1590	1.6	-3.8	-4.7	.
13:56:35	13.9431	1221	1584	1.6	1.5	-4.6	.
13:57:05	13.9514	1231	1597	1.6	1.5	-4.6	.
13:57:35	13.9597	1234	1619	1.6	1.5	-4.6	.
13:58:05	13.9681	1240	1620	1.6	2.4	-4.6	.
13:58:35	13.9764	1244	1576	1.6	-1.4	-4.7	.
13:59:05	13.9847	1250	1557	1.6	1.5	-4.6	.
13:59:34	13.9928	1255	1565	1.6	1.5	-4.6	.
14:00:04	14.0011	1262	1560	1.6	1.5	-4.6	.
14:00:34	14.0094	1269	1544	-0.6	1.6	-4.2	38.6
14:01:04	14.0178	1187	1577	1.6	0.1	-3.8	.
14:01:34	14.0261	1148	1665	1.6	2.7	-4.6	.
14:02:04	14.0344	1147	1767	1.6	-4.0	-4.7	.
14:02:34	14.0428	1160	1860	1.6	-4.1	-4.7	.
14:03:04	14.0511	1172	1934	1.6	-4.1	-4.7	.
14:03:34	14.0594	1184	1996	1.6	-4.1	-4.7	.
14:04:04	14.0678	1201	2042	1.6	-4.1	-4.7	.
14:04:34	14.0761	1213	2070	1.6	-4.1	-4.7	.
14:05:04	14.0844	1223	2079	1.6	-4.1	-4.7	.
14:05:34	14.0928	1229	2071	1.6	-4.1	-4.7	.
14:06:04	14.1011	1241	2049	1.6	-4.1	-4.7	.
14:06:34	14.1094	1247	2022	1.6	-4.1	-4.7	.
14:07:04	14.1178	1257	1993	1.6	-4.1	-4.7	.
14:07:34	14.1261	1268	1954	1.6	-4.1	-4.7	.
14:08:04	14.1344	1271	1911	1.6	-4.1	-4.7	.
14:08:34	14.1428	1274	1872	1.6	-4.1	-4.7	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:09:04	14.1511	1285	1834	1.6	-4.1	-4.7	.
14:09:33	14.1592	1298	1791	1.6	-4.1	-4.7	.
14:10:03	14.1675	1309	1756	1.6	-4.1	-4.7	.
14:10:33	14.1758	1319	1728	1.6	-4.1	-4.7	.
14:11:03	14.1842	1323	1708	1.6	-4.1	-4.7	.
14:11:33	14.1925	1329	1696	1.6	-4.1	-4.7	.
14:12:03	14.2008	1335	1681	1.6	-4.1	-4.7	.
14:12:33	14.2092	1340	1658	1.6	-4.1	-4.7	.
14:13:03	14.2175	1343	1628	1.6	-4.1	-4.7	.
14:13:33	14.2258	1348	1597	1.6	-4.1	-4.7	.
14:14:03	14.2342	1367	1569	1.6	-4.1	-4.7	.
14:14:33	14.2425	1369	1546	1.6	0.2	-4.7	.
14:15:03	14.2508	1381	1562	1.6	1.5	-4.6	.
14:15:33	14.2592	1401	1579	-0.5	1.5	-4.4	38.9
14:16:03	14.2675	1462	1643	-1.0	2.5	-4.0	.
14:16:33	14.2758	1462	1768	-4.7	-4.0	-4.3	.
14:17:03	14.2842	1417	1827	-4.7	-4.1	-4.2	.
14:17:33	14.2925	1383	1817	-4.7	-4.1	-4.1	.
14:18:02	14.3006	1310	1795	0.0	-4.1	-4.1	.
14:18:32	14.3089	1282	1910	1.6	-4.1	-4.6	.
14:19:02	14.3172	1287	2014	1.6	-4.1	-4.7	.
14:19:32	14.3256	1286	2072	1.6	-4.1	-4.7	.
14:20:02	14.3339	1293	2096	1.6	-4.1	-4.7	.
14:20:32	14.3422	1298	2089	1.6	-4.1	-4.7	.
14:21:02	14.3506	1305	2058	1.6	-4.1	-4.7	.
14:21:32	14.3589	1315	2009	1.6	-4.1	-4.7	.
14:22:02	14.3672	1321	1970	1.6	-4.1	-4.7	.
14:22:32	14.3756	1332	1934	1.6	-4.1	-4.7	.
14:23:02	14.3839	1340	1897	1.6	-4.1	-4.7	.
14:23:32	14.3922	1359	1869	1.6	-4.1	-4.7	.
14:24:02	14.4006	1364	1842	1.6	-4.1	-4.7	.
14:24:32	14.4089	1371	1801	1.6	-4.1	-4.7	.
14:25:02	14.4172	1382	1752	1.6	-4.1	-4.7	.
14:25:32	14.4256	1389	1708	1.2	-4.1	-4.7	.
14:26:02	14.4339	1390	1620	-4.1	-4.1	-3.6	.
14:26:32	14.4422	1318	1433	-3.2	-1.2	-3.1	.
14:27:02	14.4506	1264	1417	-1.5	1.5	-4.0	.
14:27:31	14.4586	1242	1389	-1.4	1.5	-3.3	.
14:28:01	14.4669	1237	1364	-1.4	1.5	-2.7	.
14:28:31	14.4753	1235	1341	-1.4	1.5	-2.4	.
14:30:57	14.5158	1314	1413	-1.7	1.6	-2.2	40.8
14:31:27	14.5242	1269	1579	-1.3	1.9	-2.2	.
14:31:58	14.5328	1332	1723	-4.7	-4.0	-2.7	.
14:32:28	14.5411	1263	1839	1.6	-4.1	-3.3	.
14:32:58	14.5494	1260	1948	1.6	-4.1	-4.6	.
14:33:28	14.5578	1268	2030	1.6	-4.1	-4.7	.
14:33:58	14.5661	1274	2090	1.6	-4.1	-4.7	.
14:34:28	14.5744	1285	2123	1.6	-4.1	-4.7	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:34:58	14.5828	1294	2145	1.6	-4.1	-4.7	.
14:35:28	14.5911	1301	2155	1.6	-4.1	-4.7	.
14:35:58	14.5994	1317	2156	1.6	-4.1	-4.7	.
14:36:28	14.6078	1323	2149	1.6	-4.1	-4.7	.
14:36:58	14.6161	1329	2138	1.6	-4.1	-4.7	.
14:37:28	14.6244	1333	2119	1.6	-4.1	-4.7	.
14:37:58	14.6328	1346	2092	1.6	-4.1	-4.7	.
14:38:27	14.6408	1352	2054	1.6	-4.1	-4.7	.
14:38:57	14.6492	1363	2016	1.6	-4.1	-4.7	.
14:39:27	14.6575	1375	1981	1.6	-4.1	-4.7	.
14:39:57	14.6658	1382	1920	-4.2	-4.1	-4.3	.
14:40:27	14.6742	1368	1739	-4.2	-4.1	-3.0	.
14:40:57	14.6825	1355	1556	-4.2	-4.1	-3.2	.
14:41:27	14.6908	1356	1389	-3.2	-1.0	-3.1	.
14:41:57	14.6992	1317	1403	-1.5	1.5	-4.0	.
14:42:27	14.7075	1263	1393	-1.4	1.5	-3.3	.
14:42:57	14.7158	1244	1388	-1.4	1.5	-2.8	.
14:43:27	14.7242	1239	1382	-1.4	1.5	-2.5	.
14:43:57	14.7325	1240	1373	-1.4	1.5	-2.4	.
14:45:00	.	.	.	.	.	.	39.6
14:46:58	14.7828	1393	1663	-3.2	-2.8	-2.3	.
14:47:28	14.7911	1368	1627	-4.6	-4.1	-2.6	.
14:47:58	14.7994	1360	1585	-4.6	-4.1	-3.3	.
14:48:28	14.8078	1358	1536	-3.3	-0.5	-3.7	.
14:48:58	14.8161	1355	1530	-1.6	1.5	-3.6	.
14:49:28	14.8244	1345	1548	-1.4	1.5	-3.0	.
14:49:58	14.8328	1341	1557	-1.4	1.5	-2.6	.
14:50:28	14.8411	1343	1556	-1.4	1.5	-2.3	.
14:50:58	14.8494	1341	1551	-1.4	1.5	-2.2	.
14:51:28	14.8578	1345	1544	-1.4	1.5	-2.2	.
14:51:58	14.8661	1345	1535	-1.4	1.5	-2.2	.
14:52:28	14.8744	1350	1527	-1.4	1.5	-2.2	.
14:52:58	14.8828	1352	1518	-1.4	1.5	-2.2	.
14:53:28	14.8911	1353	1505	-1.4	1.5	-2.2	.
14:53:58	14.8994	1359	1492	-1.4	1.5	-2.2	.
14:54:28	14.9078	1363	1478	-1.4	1.5	-2.2	.
14:54:58	14.9161	1369	1482	-1.4	1.5	-2.2	.
14:55:28	14.9244	1359	1497	-1.4	1.5	-2.2	.
14:55:57	14.9325	1357	1491	-1.4	1.5	-2.2	.
14:56:27	14.9408	1358	1479	-1.4	1.5	-2.2	.
14:56:57	14.9492	1362	1467	-1.4	1.5	-2.2	.
14:57:27	14.9575	1366	1453	-1.4	1.5	-2.2	.
14:57:57	14.9658	1368	1437	-1.4	1.5	-2.2	.
14:58:27	14.9742	1372	1422	-1.4	1.5	-2.2	.
14:58:57	14.9825	1379	1408	-1.4	1.5	-2.2	.
14:59:27	14.9908	1386	1396	-1.4	1.5	-2.2	.
14:59:57	14.9992	1409	1356	-1.1	1.9	-2.5	.
15:00:27	15.0075	1433	1360	-1.4	1.5	-4.2	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:00:57	15.0158	1462	1486	-1.3	1.8	-3.5	40.0
15:01:27	15.0242	1460	1718	-0.8	2.8	-3.5	.
15:01:57	15.0325	1461	1906	-4.7	-4.0	-4.3	.
15:02:27	15.0408	1507	1999	-4.7	-4.1	-4.1	.
15:02:57	15.0492	1497	1999	-4.7	-4.1	-4.0	.
15:03:27	15.0575	1450	1967	-4.7	-4.1	-4.0	.
15:03:57	15.0658	1437	1925	-4.7	-4.2	-4.0	.
15:04:27	15.0742	1430	1876	-4.7	-4.1	-4.0	.
15:04:57	15.0825	1449	1829	-4.7	-4.1	-4.0	.
15:05:27	15.0908	1456	1790	-4.7	-4.1	-3.9	.
15:05:56	15.0989	1452	1755	-4.7	-4.1	-3.9	.
15:06:26	15.1072	1460	1723	-4.7	-4.1	-3.9	.
15:06:56	15.1156	1479	1686	-4.7	-4.1	-3.9	.
15:07:26	15.1239	1497	1649	-4.7	-4.1	-3.9	.
15:07:56	15.1322	1500	1615	-4.7	-4.1	-4.0	.
15:08:26	15.1406	1493	1585	-4.7	-4.1	-4.0	.
15:08:56	15.1489	1495	1556	-4.7	-4.1	-4.0	.
15:09:26	15.1572	1502	1523	-2.7	0.7	-3.9	.
15:09:56	15.1656	1502	1546	-1.5	1.5	-3.4	.
15:10:26	15.1739	1473	1576	-1.4	1.5	-2.7	.
15:10:56	15.1822	1460	1595	-1.1	2.3	-2.4	.
15:11:26	15.1906	1484	1552	-4.1	-2.7	-3.2	.
15:11:56	15.1989	1491	1477	-1.6	1.5	-3.6	.
15:12:26	15.2072	1466	1499	-1.4	1.5	-3.5	.
15:12:56	15.2156	1466	1508	-1.4	1.5	-2.8	.
15:13:26	15.2239	1473	1518	-1.4	1.5	-2.5	.
15:13:56	15.2322	1472	1521	-1.4	1.5	-2.3	.
15:14:26	15.2406	1468	1516	-1.4	1.5	-2.1	.
15:14:56	15.2489	1463	1514	-1.4	1.5	-2.1	.
15:15:25	15.2569	1464	1510	-1.4	1.5	-2.0	40.5
15:15:55	15.2653	1514	1516	-1.4	1.5	-2.0	.
15:16:25	15.2736	1503	1619	-1.2	2.1	-2.1	.
15:16:55	15.2819	1477	1697	-4.7	-4.0	-3.5	.
15:17:25	15.2903	1477	1715	-4.7	-4.1	-4.0	.
15:17:55	15.2986	1495	1715	-4.7	-4.1	-4.0	.
15:18:25	15.3069	1508	1698	-4.7	-4.1	-4.0	.
15:18:55	15.3153	1508	1674	-4.7	-4.1	-4.0	.
15:19:25	15.3236	1517	1641	-4.7	-4.1	-4.0	.
15:19:55	15.3319	1522	1612	-4.7	-4.1	-4.0	.
15:20:25	15.3403	1521	1586	-4.7	-4.1	-4.0	.
15:20:55	15.3486	1506	1553	-4.2	-2.5	-4.0	.
15:21:25	15.3569	1479	1541	-1.8	1.5	-3.8	.
15:21:55	15.3653	1459	1556	-1.4	1.5	-3.1	.
15:22:25	15.3736	1448	1570	-1.4	1.5	-2.6	.
15:22:55	15.3819	1439	1575	-1.4	1.5	-2.2	.
15:23:25	15.3903	1428	1569	-1.4	1.5	-2.1	.
15:23:55	15.3986	1428	1560	-1.4	1.5	-2.1	.
15:24:25	15.4069	1429	1548	-1.4	1.5	-2.0	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:24:55	15.4153	1425	1538	-1.4	1.5	-2.0	.
15:25:25	15.4236	1435	1529	-1.4	1.5	-2.0	.
15:25:54	15.4317	1435	1520	-1.4	1.5	-2.0	.
15:26:24	15.4400	1421	1514	-1.4	1.5	-2.0	.
15:26:54	15.4483	1426	1509	-1.4	1.5	-2.0	.
15:27:24	15.4567	1417	1503	-1.4	1.5	-2.0	.
15:27:54	15.4650	1415	1496	-1.4	1.5	-2.0	.
15:28:24	15.4733	1403	1486	-1.4	1.5	-2.0	.
15:28:54	15.4817	1397	1477	-1.4	1.5	-2.0	.
15:29:24	15.4900	1393	1468	-1.4	1.5	-2.0	.
15:29:54	15.4983	1391	1458	-1.4	1.5	-2.0	.
15:30:24	15.5067	1478	1457	-1.4	1.5	-2.0	39.5
15:30:54	15.5150	1555	1540	-1.4	1.6	-2.0	.
15:31:24	15.5233	1498	1730	-4.7	-4.1	-2.3	.
15:31:54	15.5317	1457	1870	-4.7	-4.1	-3.2	.
15:32:24	15.5400	1443	1924	-4.7	-4.1	-3.7	.
15:32:54	15.5483	1451	1947	-4.7	-4.1	-3.9	.
15:33:24	15.5567	1457	1948	-4.7	-4.1	-4.1	.
15:33:53	15.5647	1462	1938	-4.7	-4.1	-4.0	.
15:34:23	15.5731	1469	1921	-4.7	-4.1	-4.0	.
15:34:53	15.5814	1478	1900	-4.7	-4.1	-4.0	.
15:35:23	15.5897	1494	1876	-4.7	-4.1	-4.0	.
15:35:53	15.5981	1502	1848	-4.7	-4.1	-4.0	.
15:36:23	15.6064	1508	1814	-4.7	-4.1	-4.0	.
15:36:53	15.6147	1517	1778	-4.7	-4.1	-4.0	.
15:37:23	15.6231	1521	1744	-4.7	-4.1	-4.0	.
15:37:53	15.6314	1528	1707	-4.7	-4.1	-4.0	.
15:38:23	15.6397	1532	1671	-4.7	-4.1	-4.0	.
15:38:53	15.6481	1534	1634	-4.7	-4.1	-4.0	.
15:39:23	15.6564	1531	1602	-4.7	-4.1	-4.0	.
15:39:53	15.6647	1529	1573	-4.7	-4.1	-4.0	.
15:40:23	15.6731	1525	1543	-3.9	-1.8	-4.0	.
15:40:53	15.6814	1526	1542	-1.7	1.5	-3.7	.
15:41:23	15.6897	1527	1573	-1.4	1.5	-3.0	.
15:41:53	15.6981	1514	1600	-1.3	1.9	-2.5	.
15:42:22	15.7061	1514	1592	-4.6	-4.0	-2.5	.
15:42:52	15.7144	1599	1521	-2.6	0.3	-2.7	.
15:43:22	15.7228	1524	1508	-1.5	1.5	-3.8	.
15:43:52	15.7311	1545	1529	-1.4	1.5	-3.0	.
15:44:22	15.7394	1541	1541	-1.4	1.5	-2.5	.
15:44:52	15.7478	1543	1548	-1.4	1.5	-2.2	.
15:45:22	15.7561	1545	1551	-1.4	1.5	-2.1	.
15:45:52	15.7644	1545	1548	-1.5	1.5	-2.1	.
15:46:22	15.7728	1540	1558	-1.6	1.5	-2.1	.
15:46:52	15.7811	1521	1684	-1.0	2.6	-2.6	44.8
15:47:22	15.7894	1545	1912	-4.7	-4.0	-4.1	.
15:47:52	15.7978	1496	2036	-4.7	-4.1	-4.1	.
15:48:22	15.8061	1463	2031	-4.7	-4.1	-4.0	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
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TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
15:48:52	15.8144	1449	1979	-4.7	-4.1	-4.0	.
15:49:22	15.8228	1446	1906	-4.7	-4.1	-4.0	.
15:49:52	15.8311	1445	1842	-4.7	-4.1	-4.0	.
15:50:22	15.8394	1449	1792	-4.7	-4.1	-4.0	.
15:50:52	15.8478	1456	1744	-4.7	-4.1	-4.0	.
15:51:22	15.8561	1458	1696	-4.7	-4.1	-4.0	.
15:51:51	15.8642	1464	1653	-4.7	-4.1	-4.0	.
15:52:21	15.8725	1470	1615	-4.7	-4.1	-4.0	.
15:52:51	15.8808	1474	1581	-4.7	-4.1	-4.0	.
15:53:21	15.8892	1476	1550	-4.5	-3.3	-4.0	.
15:53:51	15.8975	1489	1544	-2.0	1.5	-3.8	.
15:54:21	15.9058	1499	1572	-1.5	1.5	-3.3	.
15:54:51	15.9142	1510	1599	-1.2	2.1	-2.7	.
15:55:21	15.9225	1516	1586	-4.6	-4.0	-3.5	.
15:55:51	15.9308	1584	1522	-2.4	0.5	-3.0	.
15:56:21	15.9392	1520	1510	-1.5	1.5	-3.9	.
15:56:51	15.9475	1531	1530	-1.4	1.5	-3.1	.
15:57:21	15.9558	1539	1547	-1.4	1.5	-2.6	.
15:57:51	15.9642	1539	1555	-1.4	1.5	-2.3	.
15:58:21	15.9725	1546	1561	-1.4	1.5	-2.1	.
15:58:51	15.9808	1549	1564	-1.4	1.5	-2.1	.
15:59:21	15.9892	1551	1564	-1.4	1.5	-2.0	.
15:59:51	15.9975	1551	1563	-1.4	1.5	-2.0	.
16:00:21	16.0058	1546	1558	-1.4	1.5	-2.2	37.9
16:00:51	16.0142	1523	1563	-1.4	1.5	-2.3	.
16:01:21	16.0225	1531	1670	-1.0	2.5	-2.8	.
16:01:50	16.0306	1573	1804	-4.7	-4.0	-4.1	.
16:02:20	16.0389	1543	1844	-4.7	-4.1	-4.1	.
16:02:50	16.0472	1525	1842	-4.6	-4.1	-4.0	.
16:03:20	16.0556	1515	1835	-4.7	-4.1	-4.0	.
16:03:50	16.0639	1515	1827	-4.7	-4.1	-3.9	.
16:04:20	16.0722	1514	1818	-4.7	-4.1	-3.9	.
16:04:50	16.0806	1517	1802	-4.7	-4.1	-4.0	.
16:05:20	16.0889	1523	1778	-4.7	-4.1	-4.0	.
16:05:50	16.0972	1528	1748	-4.6	-4.1	-4.0	.
16:06:20	16.1056	1535	1714	-4.7	-4.1	-4.0	.
16:06:50	16.1139	1541	1677	-4.7	-4.1	-4.0	.
16:07:20	16.1222	1544	1639	-4.7	-4.1	-4.0	.
16:07:50	16.1306	1549	1606	-4.7	-4.1	-4.0	.
16:08:20	16.1389	1555	1577	-4.7	-4.1	-4.0	.
16:08:50	16.1472	1562	1548	-4.4	-3.3	-4.0	.
16:09:20	16.1556	1566	1536	-2.0	1.5	-3.8	.
16:09:50	16.1639	1575	1570	-1.4	1.5	-3.2	.
16:10:20	16.1722	1583	1602	-1.1	2.3	-2.7	.
16:10:50	16.1806	1589	1581	-4.6	-4.0	-3.9	.
16:11:20	16.1889	1637	1528	-2.6	0.3	-3.3	.
16:11:49	16.1969	1579	1514	-1.5	1.5	-3.9	.
16:12:19	16.2053	1600	1542	-1.4	1.5	-3.1	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
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SANFORD MWI TESTS
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TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
16:12:49	16.2136	1599	1557	-1.4	1.5	-2.5	.
16:13:19	16.2219	1603	1565	-1.6	1.5	-2.6	.
16:13:49	16.2303	1599	1569	-1.4	1.5	-2.6	.
16:14:19	16.2386	1600	1569	-1.4	1.5	-2.3	.
16:14:49	16.2469	1602	1565	-1.4	1.5	-2.2	.
16:15:19	16.2553	1598	1560	-1.4	1.5	-2.1	.
16:15:49	16.2636	1600	1564	-1.4	1.5	-2.0	40.0
16:16:19	16.2719	1557	1662	-1.0	2.5	-2.5	.
16:16:49	16.2803	1531	1773	-4.7	-4.0	-4.1	.
16:17:19	16.2886	1523	1833	-4.7	-4.1	-4.1	.
16:17:49	16.2969	1519	1860	-4.7	-4.1	-4.0	.
16:18:19	16.3053	1526	1858	-4.7	-4.1	-4.0	.
16:18:49	16.3136	1526	1839	-4.7	-4.1	-4.0	.
16:19:19	16.3219	1526	1811	-4.7	-4.1	-4.0	.
16:19:49	16.3303	1533	1777	-4.7	-4.1	-4.0	.
16:20:19	16.3386	1542	1744	-4.7	-4.1	-4.0	.
16:20:49	16.3469	1548	1711	-4.7	-4.1	-4.0	.
16:21:19	16.3553	1547	1677	-4.7	-4.1	-4.0	.
16:21:49	16.3636	1548	1644	-4.7	-4.1	-4.0	.
16:22:19	16.3719	1554	1615	-4.7	-4.1	-4.0	.
16:22:49	16.3803	1559	1584	-4.7	-4.1	-4.0	.
16:23:18	16.3883	1564	1558	-4.6	-4.1	-3.9	.
16:23:48	16.3967	1625	1517	-2.4	0.7	-3.1	.
16:24:18	16.4050	1562	1516	-1.5	1.5	-3.8	.
16:24:48	16.4133	1576	1551	-1.4	1.5	-3.0	.
16:25:18	16.4217	1578	1573	-1.4	1.5	-2.5	.
16:25:48	16.4300	1580	1587	-1.4	1.5	-2.3	.
16:26:18	16.4383	1581	1594	-1.4	1.5	-2.1	.
16:26:48	16.4467	1581	1594	-1.4	1.5	-2.1	.
16:27:18	16.4550	1585	1590	-1.4	1.5	-2.1	.
16:27:48	16.4633	1587	1585	-1.4	1.5	-2.1	.
16:28:18	16.4717	1586	1578	-1.4	1.5	-2.1	.
16:28:48	16.4800	1584	1568	-1.4	1.5	-2.0	.
16:29:18	16.4883	1580	1557	-1.4	1.5	-2.0	.
16:29:48	16.4967	1576	1548	-1.8	1.5	-2.4	.
16:30:18	16.5050	1569	1540	-1.5	1.5	-2.7	.
16:30:48	16.5133	1519	1543	-1.4	1.5	-2.4	39.0
16:31:17	16.5214	1518	1699	-0.9	2.6	-2.7	.
16:31:47	16.5297	1521	1920	-4.7	-4.0	-4.2	.
16:32:17	16.5381	1514	2002	-4.7	-4.1	-4.1	.
16:32:47	16.5464	1523	2008	-4.7	-4.1	-4.1	.
16:33:17	16.5547	1521	1986	-4.7	-4.1	-4.1	.
16:33:47	16.5631	1517	1956	-4.7	-4.1	-4.0	.
16:34:17	16.5714	1521	1940	-4.7	-4.1	-4.0	.
16:34:47	16.5797	1528	1920	-4.7	-4.1	-4.0	.
16:35:17	16.5881	1534	1893	-4.7	-4.1	-4.0	.
16:35:47	16.5964	1545	1858	-4.7	-4.1	-4.0	.
16:36:17	16.6047	1555	1820	-4.7	-4.1	-4.0	.

Table B.1-8 Process data for Run 8

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SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
16:36:47	16.6131	1561	1780	-4.7	-4.1	-4.0	.
16:37:17	16.6214	1561	1735	-4.7	-4.1	-4.0	.
16:37:47	16.6297	1562	1691	-4.7	-4.1	-4.1	.
16:38:17	16.6381	1564	1651	-4.6	-4.1	-4.0	.
16:38:47	16.6464	1563	1617	-4.7	-4.1	-4.1	.
16:39:17	16.6547	1566	1579	-4.6	-4.1	-4.0	.
16:39:47	16.6631	1663	1475	-3.1	-0.9	-2.8	.
16:40:17	16.6714	1564	1489	-1.5	1.5	-3.9	.
16:40:47	16.6797	1557	1523	-1.4	1.5	-3.3	.
16:41:16	16.6878	1568	1558	-1.4	1.5	-2.7	.
16:41:46	16.6961	1565	1579	-1.4	1.5	-2.3	.
16:42:16	16.7044	1568	1593	-1.4	1.5	-2.2	.
16:42:46	16.7128	1570	1598	-0.8	2.7	-2.9	.
16:43:16	16.7211	1587	1552	-4.0	-2.1	-3.9	.
16:43:46	16.7294	1586	1506	-1.6	1.5	-3.8	.
16:44:16	16.7378	1579	1523	-1.4	1.5	-3.3	.
16:44:46	16.7461	1578	1540	-1.4	1.5	-2.6	.
16:45:16	16.7544	1589	1557	-1.4	1.5	-2.3	.
16:45:46	16.7628	1623	1612	-1.1	2.3	-2.3	45.6
16:46:16	16.7711	1542	1665	-4.7	-4.0	-3.9	.
16:46:46	16.7794	1491	1687	-4.7	-4.1	-4.1	.
16:47:16	16.7878	1485	1698	-4.7	-4.1	-4.1	.
16:47:46	16.7961	1489	1702	-4.7	-4.1	-4.1	.
16:48:16	16.8044	1492	1701	-4.7	-4.1	-4.1	.
16:48:46	16.8128	1495	1699	-4.7	-4.1	-4.1	.
16:49:16	16.8211	1499	1685	-4.7	-4.1	-4.1	.
16:49:46	16.8294	1506	1683	-4.7	-4.1	-4.1	.
16:50:16	16.8378	1511	1674	-4.7	-4.1	-4.1	.
16:50:46	16.8461	1513	1664	-4.7	-4.1	-4.0	.
16:51:15	16.8542	1506	1645	-4.7	-4.1	-4.0	.
16:51:45	16.8625	1516	1628	-4.7	-4.1	-4.2	.
16:52:15	16.8708	1523	1609	-4.7	-4.1	-4.1	.
16:52:45	16.8792	1527	1586	-4.7	-4.1	-4.0	.
16:53:15	16.8875	1527	1563	-4.6	-4.1	-4.0	.
16:53:45	16.8958	1528	1539	-2.7	1.0	-4.0	.
16:54:15	16.9042	1537	1558	-1.6	1.5	-3.6	.
16:54:45	16.9125	1545	1594	-1.3	1.8	-2.9	.
16:55:15	16.9208	1545	1597	-4.6	-4.0	-2.7	.
16:55:45	16.9292	1605	1513	-2.7	-0.2	-2.5	.
16:56:15	16.9375	1550	1500	-1.5	1.5	-3.9	.
16:56:45	16.9458	1563	1530	-1.4	1.5	-3.2	.
16:57:15	16.9542	1567	1554	-1.4	1.5	-2.6	.
16:57:45	16.9625	1573	1569	-1.4	1.5	-2.3	.
16:58:15	16.9708	1573	1578	-1.4	1.5	-2.1	.
16:58:45	16.9792	1580	1580	-1.4	1.5	-2.1	.
16:59:15	16.9875	1579	1577	-1.4	1.5	-2.1	.
16:59:45	16.9958	1588	1571	-1.4	1.5	-2.1	.
17:00:14	17.0039	1592	1567	-1.4	1.5	-2.0	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
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TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
17:00:44	17.0122	1512	1557	-1.4	1.5	-2.0	39.4
17:01:14	17.0206	1523	1596	-1.3	2.0	-2.0	.
17:01:44	17.0289	1523	1690	-4.2	-4.1	-3.0	.
17:02:14	17.0372	1511	1729	-4.7	-4.1	-3.7	.
17:02:44	17.0456	1504	1753	-4.7	-4.1	-3.9	.
17:03:14	17.0539	1507	1770	-4.7	-4.1	-4.1	.
17:03:44	17.0622	1505	1770	-4.6	-4.1	-4.1	.
17:04:14	17.0706	1508	1757	-4.7	-4.1	-3.9	.
17:04:44	17.0789	1507	1749	-4.7	-4.1	-3.9	.
17:05:14	17.0872	1511	1742	-4.7	-4.1	-4.0	.
17:05:44	17.0956	1514	1734	-4.6	-4.1	-3.9	.
17:06:14	17.1039	1514	1728	-4.7	-4.1	-4.1	.
17:06:44	17.1122	1516	1716	-4.7	-4.1	-4.0	.
17:07:14	17.1206	1520	1705	-4.7	-4.1	-3.9	.
17:07:44	17.1289	1517	1691	-4.7	-4.1	-3.9	.
17:08:14	17.1372	1525	1674	-4.7	-4.1	-4.0	.
17:08:44	17.1456	1526	1659	-4.7	-4.1	-4.0	.
17:09:13	17.1536	1526	1640	-4.7	-4.1	-4.0	.
17:09:43	17.1619	1526	1621	-4.7	-4.1	-4.0	.
17:10:13	17.1703	1530	1606	-4.7	-4.1	-4.0	.
17:10:43	17.1786	1533	1591	-4.7	-4.1	-4.0	.
17:11:13	17.1869	1534	1578	-4.7	-4.1	-4.0	.
17:11:43	17.1953	1537	1567	-4.7	-4.1	-4.0	.
17:12:13	17.2036	1539	1552	-4.7	-4.1	-4.0	.
17:12:43	17.2119	1541	1540	-2.3	1.4	-3.9	.
17:13:13	17.2203	1544	1577	-1.5	1.6	-3.4	.
17:13:43	17.2286	1545	1605	-4.1	-4.1	-2.9	.
17:14:13	17.2369	1543	1577	-4.6	-4.1	-3.1	.
17:14:43	17.2453	1601	1510	-2.6	0.3	-2.9	.
17:15:13	17.2536	1547	1508	-1.6	1.5	-3.7	.
17:15:43	17.2619	1565	1547	-1.6	1.5	-3.0	39.6
17:16:13	17.2703	1539	1663	-2.1	0.5	-2.9	.
17:16:43	17.2786	1504	1859	-4.7	-4.1	-3.9	.
17:17:13	17.2869	1508	2017	-4.7	-4.1	-4.0	.
17:17:43	17.2953	1518	2082	-4.7	-4.1	-4.0	.
17:18:13	17.3036	1516	2085	-4.7	-4.1	-4.0	.
17:18:42	17.3117	1521	2059	-4.7	-4.1	-4.0	.
17:19:12	17.3200	1526	2026	-4.7	-4.1	-4.0	.
17:19:42	17.3283	1530	1992	-4.7	-4.1	-4.0	.
17:20:12	17.3367	1536	1958	-4.7	-4.1	-4.0	.
17:20:42	17.3450	1543	1922	-4.7	-4.1	-4.0	.
17:21:12	17.3533	1555	1886	-4.7	-4.1	-4.0	.
17:21:42	17.3617	1568	1858	-4.7	-4.1	-4.0	.
17:22:12	17.3700	1573	1845	-4.7	-4.1	-4.0	.
17:22:42	17.3783	1573	1838	-4.7	-4.1	-4.0	.
17:23:12	17.3867	1571	1824	-4.7	-4.1	-4.0	.
17:23:42	17.3950	1571	1802	-4.7	-4.1	-4.0	.
17:24:12	17.4033	1575	1778	-4.7	-4.1	-4.0	.

Table B.1-8 Process data for Run 8

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SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
17:24:42	17.4117	1568	1756	-4.7	-4.1	-4.0	.
17:25:12	17.4200	1570	1728	-4.7	-4.1	-4.0	.
17:25:42	17.4283	1570	1695	-4.7	-4.1	-4.0	.
17:26:12	17.4367	1567	1665	-4.7	-4.1	-4.0	.
17:26:42	17.4450	1590	1639	-4.7	-4.1	-4.0	.
17:27:11	17.4531	1590	1617	-4.7	-4.1	-4.0	.
17:27:41	17.4614	1577	1596	-4.7	-4.1	-4.0	.
17:28:11	17.4697	1578	1576	-4.7	-4.1	-4.0	.
17:28:41	17.4781	1570	1556	-4.7	-4.1	-4.0	.
17:29:11	17.4864	1578	1539	-3.2	-0.2	-3.9	.
17:29:41	17.4947	1581	1563	-1.5	1.5	-3.5	.
17:30:11	17.5031	1582	1602	-1.0	2.5	-3.1	38.8
17:30:41	17.5114	1547	1594	-4.6	-4.0	-4.1	.
17:31:11	17.5197	1525	1700	-4.7	-4.1	-4.1	.
17:31:41	17.5281	1504	1951	-4.7	-4.1	-4.0	.
17:32:11	17.5364	1489	2129	-4.7	-4.1	-4.0	.
17:32:41	17.5447	1484	2211	-4.7	-4.1	-4.0	.
17:33:11	17.5531	1494	2223	-4.7	-4.1	-4.0	.
17:33:41	17.5614	1509	2211	-4.7	-4.1	-4.0	.
17:34:11	17.5697	1521	2195	-4.7	-4.1	-4.0	.
17:34:41	17.5781	1528	2169	-4.7	-4.1	-4.0	.
17:35:11	17.5864	1539	2148	-4.7	-4.1	-4.0	.
17:35:41	17.5947	1552	2128	-4.7	-4.1	-4.0	.
17:36:11	17.6031	1566	2104	-4.7	-4.1	-4.0	.
17:36:40	17.6111	1579	2077	-4.7	-4.1	-4.0	.
17:37:10	17.6194	1592	2049	-4.7	-4.1	-4.0	.
17:37:40	17.6278	1603	2019	-4.7	-4.1	-4.0	.
17:38:10	17.6361	1611	1989	-4.7	-4.1	-4.0	.
17:38:40	17.6444	1625	1962	-4.7	-4.1	-4.0	.
17:39:10	17.6528	1630	1934	-4.7	-4.1	-4.0	.
17:39:40	17.6611	1634	1908	-4.7	-4.1	-4.0	.
17:40:10	17.6694	1631	1876	-4.7	-4.1	-4.0	.
17:40:40	17.6778	1629	1847	-4.7	-4.1	-4.0	.
17:41:10	17.6861	1630	1822	-4.7	-4.1	-4.0	.
17:41:40	17.6944	1629	1796	-4.7	-4.1	-4.0	.
17:42:10	17.7028	1627	1768	-4.7	-4.1	-4.0	.
17:42:40	17.7111	1615	1745	-4.7	-4.1	-4.0	.
17:43:10	17.7194	1625	1727	-4.7	-4.1	-4.0	.
17:43:40	17.7278	1620	1704	-4.7	-4.1	-4.0	.
17:44:10	17.7361	1619	1681	-4.7	-4.1	-4.0	.
17:44:40	17.7444	1625	1659	-4.7	-4.1	-4.0	.
17:45:10	17.7528	1618	1637	-4.7	-4.1	-4.0	.
17:45:39	17.7608	1594	1624	-4.7	-4.1	-4.0	39.8
17:46:09	17.7692	1552	1631	-4.7	-4.1	-3.9	.
17:46:39	17.7775	1519	1695	-4.7	-4.1	-4.0	.
17:47:09	17.7858	1527	1817	-4.7	-4.1	-4.0	.
17:47:39	17.7942	1541	1932	-4.7	-4.1	-4.1	.
17:48:09	17.8025	1555	2001	-4.7	-4.1	-4.1	.

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
17:48:39	17.8108	1568	2037	-4.7	-4.1	-4.1	.
17:49:09	17.8192	1586	2058	-4.7	-4.1	-4.1	.
17:49:39	17.8275	1602	2061	-4.7	-4.1	-4.0	.
17:50:09	17.8358	1611	2054	-4.7	-4.1	-4.0	.
17:50:39	17.8442	1607	2042	-4.7	-4.1	-4.0	.
18:00:00	.	.	.	.	.	.	43.0

Table B.1-8 Process data for Run 8

FILENAME: CC8_927.SSD
TEST DATE: September 27, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1017.13	943.69	37.9000
MAX	1663.29	2223.31	45.6000
MEAN	1458.46	1691.29	40.4056
STD	129.58	204.61	2.0944

Table B.1-8 Process data for Run 8
Total test period only

FILENAME: CC8_927.SSD SANFORD MWI TESTS
TEST DATE: September 27, 1990 PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1017.13	943.69	37.9000
MAX	1663.29	2223.31	45.6000
MEAN	1458.46	1691.29	40.2529
STD	129.58	204.61	2.0531

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:00:03	11.0008	1184	916	1.6	1.5	-4.6	46.6
11:00:33	11.0092	1184	921	1.6	1.5	-4.6	.
11:01:03	11.0175	1169	926	0.8	1.5	-4.6	.
11:01:33	11.0258	1005	868	0.6	1.5	-3.4	.
11:02:03	11.0342	1039	1023	1.6	1.5	-4.5	.
11:02:33	11.0425	1083	1236	1.6	1.5	-4.6	.
11:03:02	11.0506	1134	1387	1.6	1.8	-4.6	.
11:03:32	11.0589	1152	1429	1.6	1.5	-4.6	.
11:04:02	11.0672	1172	1426	1.6	1.5	-4.6	.
11:04:32	11.0756	1188	1408	1.6	1.5	-4.6	.
11:05:02	11.0839	1196	1387	1.6	1.5	-4.6	.
11:05:32	11.0922	1198	1367	1.6	1.5	-4.6	.
11:06:02	11.1006	1212	1347	1.6	1.5	-4.6	.
11:06:32	11.1089	1221	1323	1.6	1.5	-4.6	.
11:07:02	11.1172	1207	1296	1.6	1.5	-4.6	.
11:07:32	11.1256	1208	1266	1.6	1.5	-4.6	.
11:08:02	11.1339	1208	1234	1.6	1.5	-4.6	.
11:08:32	11.1422	1210	1205	1.6	1.8	-4.6	.
11:09:02	11.1506	1225	1150	1.6	1.5	-4.1	.
11:09:32	11.1589	1220	1151	1.6	1.7	-4.6	.
11:10:02	11.1672	1218	1114	1.6	1.2	-4.3	.
11:10:32	11.1756	1222	1115	1.6	1.5	-4.6	.
11:11:02	11.1839	1224	1109	1.6	1.5	-4.6	.
11:11:32	11.1922	1229	1105	1.6	1.5	-4.6	.
11:12:02	11.2006	1237	1102	1.6	1.5	-4.6	.
11:12:31	11.2086	1251	1102	1.6	1.5	-4.6	.
11:13:01	11.2169	1247	1098	1.6	1.5	-4.6	.
11:13:31	11.2253	1260	1097	1.6	1.5	-4.6	.
11:14:01	11.2336	1258	1094	1.6	1.5	-4.6	.
11:14:31	11.2419	1258	1093	1.6	1.5	-4.6	.
11:15:01	11.2503	1219	1087	0.6	1.5	-4.5	39.3
11:15:31	11.2586	1195	1151	1.6	1.5	-4.2	.
11:16:01	11.2669	1253	1342	1.6	1.5	-4.6	.
11:16:31	11.2753	1254	1447	1.6	1.5	-4.6	.
11:17:01	11.2836	1254	1466	1.6	1.5	-4.6	.
11:17:31	11.2919	1255	1452	1.6	1.5	-4.6	.
11:18:01	11.3003	1258	1421	1.6	1.5	-4.6	.
11:18:31	11.3086	1268	1385	1.6	1.5	-4.6	.
11:19:01	11.3169	1276	1354	1.6	1.5	-4.6	.
11:19:31	11.3253	1280	1320	1.6	1.5	-4.6	.
11:20:01	11.3336	1286	1298	1.6	1.5	-4.6	.
11:20:31	11.3419	1288	1280	1.6	1.5	-4.6	.
11:21:01	11.3503	1287	1265	1.6	1.5	-4.6	.
11:21:31	11.3586	1282	1256	1.6	1.5	-4.6	.
11:22:00	11.3667	1282	1248	1.6	1.5	-4.6	.
11:22:30	11.3750	1275	1242	1.6	1.5	-4.6	.
11:23:00	11.3833	1284	1234	1.6	1.5	-4.6	.
11:23:34	11.3928	1298	1228	1.6	1.5	-4.6	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:24:04	11.4011	1310	1220	1.6	1.5	-4.6	.
11:24:34	11.4094	1313	1213	1.6	1.5	-4.6	.
11:25:04	11.4178	1318	1209	1.6	1.5	-4.6	.
11:25:34	11.4261	1328	1204	1.6	1.5	-4.6	.
11:26:04	11.4344	1335	1200	1.6	1.5	-4.6	.
11:26:34	11.4428	1338	1198	1.6	1.5	-4.6	.
11:27:04	11.4511	1340	1192	1.6	1.5	-4.6	.
11:27:34	11.4594	1343	1190	1.6	1.5	-4.6	.
11:28:04	11.4678	1344	1189	1.6	1.5	-4.6	.
11:28:34	11.4761	1347	1189	1.6	1.5	-4.6	.
11:29:04	11.4844	1352	1190	1.6	1.5	-4.6	.
11:29:34	11.4928	1359	1193	1.6	1.5	-4.6	.
11:30:04	11.5011	1299	1185	0.7	1.5	-4.3	41.4
11:30:34	11.5094	1244	1274	1.6	1.5	-4.4	.
11:31:04	11.5178	1250	1466	1.6	1.5	-4.6	.
11:31:34	11.5261	1273	1588	1.6	1.5	-4.6	.
11:32:04	11.5344	1295	1620	1.6	1.5	-4.6	.
11:32:33	11.5425	1317	1622	1.6	1.5	-4.6	.
11:33:03	11.5508	1333	1610	1.6	1.5	-4.6	.
11:33:33	11.5592	1331	1593	1.6	1.5	-4.6	.
11:34:03	11.5675	1327	1575	1.6	1.5	-4.6	.
11:34:33	11.5758	1326	1564	1.6	1.5	-4.6	.
11:35:03	11.5842	1325	1556	1.6	1.5	-4.5	.
11:35:33	11.5925	1326	1539	1.6	1.5	-4.5	.
11:36:03	11.6008	1327	1523	1.6	1.5	-4.6	.
11:36:33	11.6092	1329	1507	1.6	1.5	-4.6	.
11:37:03	11.6175	1329	1489	1.6	1.5	-4.6	.
11:37:33	11.6258	1336	1476	1.6	1.5	-4.6	.
11:38:03	11.6342	1345	1462	1.6	1.5	-4.6	.
11:38:33	11.6425	1348	1451	1.6	1.5	-4.6	.
11:39:03	11.6508	1350	1442	1.6	1.5	-4.6	.
11:39:33	11.6592	1357	1436	1.6	1.5	-4.6	.
11:40:03	11.6675	1361	1430	1.6	1.5	-4.5	.
11:40:33	11.6758	1365	1422	1.6	1.5	-4.5	.
11:41:02	11.6839	1363	1415	1.6	1.5	-4.5	.
11:41:32	11.6922	1370	1409	1.6	1.5	-4.6	.
11:42:02	11.7006	1374	1404	1.6	1.5	-4.6	.
11:42:32	11.7089	1380	1399	1.6	1.5	-4.6	.
11:43:02	11.7172	1384	1394	1.6	1.5	-4.6	.
11:43:32	11.7256	1387	1390	1.6	1.5	-4.6	.
11:44:02	11.7339	1387	1384	1.6	1.5	-4.6	.
11:44:32	11.7422	1388	1379	1.6	1.5	-4.6	.
11:45:02	11.7506	1350	1370	0.6	1.5	-4.2	45.1
11:45:32	11.7589	1286	1442	1.6	1.5	-4.4	.
11:46:02	11.7672	1280	1610	1.6	1.6	-4.6	.
11:46:32	11.7756	1301	1676	1.6	-4.0	-4.7	.
11:47:02	11.7839	1314	1642	1.6	-4.1	-4.7	.
11:47:32	11.7922	1315	1592	1.6	-2.9	-4.7	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:48:02	11.8006	1313	1576	1.6	1.5	-4.6	.
11:48:32	11.8089	1316	1592	1.6	1.5	-4.6	.
11:49:02	11.8172	1324	1606	1.6	1.5	-4.6	.
11:49:32	11.8256	1330	1614	1.6	1.5	-4.6	.
11:50:02	11.8339	1338	1622	1.6	1.6	-4.6	.
11:52:20	11.8722	1381	1606	1.6	1.6	-4.7	.
11:52:50	11.8806	1364	1589	1.6	1.5	-4.6	.
11:53:20	11.8889	1366	1585	1.6	1.5	-4.6	.
11:54:05	11.9014	1370	1576	1.6	1.5	-4.6	.
11:54:35	11.9097	1374	1563	1.6	1.5	-4.6	.
11:55:05	11.9181	1378	1556	1.6	1.5	-4.6	.
11:55:35	11.9264	1376	1549	1.6	1.5	-4.6	.
11:56:05	11.9347	1378	1544	1.6	1.5	-4.6	.
11:56:35	11.9431	1381	1539	1.6	1.5	-4.6	.
11:57:05	11.9514	1382	1540	1.6	1.5	-4.6	.
11:57:35	11.9597	1380	1536	1.6	1.5	-4.6	.
11:58:04	11.9678	1379	1529	1.6	1.5	-4.6	.
11:58:37	11.9769	1381	1528	1.6	1.5	-4.6	.
11:59:07	11.9853	1383	1519	1.6	1.5	-4.6	.
11:59:37	11.9936	1390	1508	1.6	1.5	-4.6	.
12:00:07	12.0019	1389	1498	1.0	1.5	-4.6	.
12:00:36	12.0100	1308	1488	1.0	1.6	-4.1	47.4
12:01:06	12.0183	1255	1590	1.6	1.6	-4.4	.
12:01:36	12.0267	1281	1680	1.6	-4.0	-4.7	.
12:02:06	12.0350	1314	1672	1.6	-4.1	-4.7	.
12:02:36	12.0433	1324	1626	1.6	-4.1	-4.7	.
12:03:06	12.0517	1334	1582	1.6	-4.0	-4.7	.
12:03:36	12.0600	1329	1546	1.6	1.5	-4.7	.
12:04:06	12.0683	1337	1560	1.6	1.5	-4.6	.
12:04:36	12.0767	1353	1570	1.6	1.5	-4.5	.
12:05:06	12.0850	1355	1564	1.6	1.5	-4.6	.
12:05:36	12.0933	1361	1555	1.6	1.5	-4.5	.
12:06:06	12.1017	1368	1543	1.6	1.5	-4.5	.
12:06:36	12.1100	1372	1533	1.6	1.5	-4.5	.
12:07:06	12.1183	1381	1525	1.6	1.5	-4.5	.
12:07:36	12.1267	1384	1517	1.6	1.5	-4.5	.
12:08:06	12.1350	1392	1509	1.6	1.5	-4.5	.
12:08:36	12.1433	1401	1503	1.6	1.5	-4.5	.
12:09:06	12.1517	1405	1495	1.6	1.5	-4.5	.
12:09:36	12.1600	1406	1487	1.6	1.5	-4.5	.
12:10:01	12.1669	1412	1483	1.6	1.5	-4.4	.
12:10:16	12.1711	1417	1481	1.6	1.5	-4.5	.
12:10:31	12.1753	1415	1477	1.6	1.5	-4.6	.
12:10:46	12.1794	1418	1476	1.6	1.5	-4.4	.
12:11:01	12.1836	1418	1474	1.6	1.5	-4.6	.
12:15:09	12.2525	1397	1489	1.6	1.6	-4.3	39.5
12:15:39	12.2608	1371	1591	1.6	1.8	-4.6	.
12:16:09	12.2692	1378	1680	1.6	-4.0	-4.7	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:16:39	12.2775	1380	1671	1.6	-4.1	-4.7	.
12:17:09	12.2858	1363	1627	1.6	-4.1	-4.7	.
12:17:39	12.2942	1374	1581	1.6	-4.1	-4.7	.
12:18:09	12.3025	1391	1558	1.6	1.4	-4.6	.
12:18:39	12.3108	1401	1575	1.6	1.5	-4.6	.
12:19:09	12.3192	1404	1590	1.6	1.5	-4.6	.
12:19:39	12.3275	1406	1600	1.6	1.5	-4.6	.
12:20:09	12.3358	1412	1607	1.6	1.5	-4.6	.
12:20:39	12.3442	1392	1595	1.6	1.5	-4.6	.
12:21:09	12.3525	1394	1589	1.6	1.5	-4.6	.
12:21:39	12.3608	1399	1583	1.6	1.5	-4.6	.
12:22:09	12.3692	1408	1576	1.6	1.5	-4.5	.
12:22:38	12.3772	1403	1565	1.6	1.5	-4.6	.
12:23:08	12.3856	1409	1558	1.6	1.5	-4.6	.
12:23:38	12.3939	1414	1553	1.6	1.5	-4.6	.
12:24:08	12.4022	1415	1549	1.6	1.5	-4.6	.
12:24:38	12.4106	1418	1547	1.6	1.5	-4.6	.
12:25:08	12.4189	1421	1546	1.6	1.5	-4.6	.
12:25:38	12.4272	1419	1544	1.6	1.5	-4.6	.
12:26:08	12.4356	1423	1548	1.6	1.5	-4.6	.
12:26:23	12.4397	1432	1553	1.6	1.5	-4.6	.
12:26:38	12.4439	1426	1548	1.6	1.5	-4.5	.
12:26:53	12.4481	1427	1546	1.6	1.5	-4.6	.
12:27:08	12.4522	1429	1543	1.6	1.5	-4.6	.
12:27:23	12.4564	1429	1540	1.6	1.5	-4.6	.
12:27:38	12.4606	1430	1537	1.6	1.5	-4.6	.
12:27:53	12.4647	1432	1534	1.6	1.5	-4.6	.
12:28:08	12.4689	1438	1532	1.6	1.5	-4.6	.
12:28:23	12.4731	1441	1530	1.6	1.5	-4.6	.
12:28:38	12.4772	1440	1529	1.6	1.5	-4.6	.
12:28:53	12.4814	1443	1527	1.6	1.5	-4.6	.
12:29:08	12.4856	1443	1527	1.6	1.5	-4.6	.
12:29:23	12.4897	1444	1528	1.6	1.5	-4.6	.
12:29:38	12.4939	1446	1531	1.6	1.5	-4.6	.
12:29:52	12.4978	1451	1534	1.6	1.5	-4.6	.
12:30:07	12.5019	1466	1543	0.7	1.5	-4.6	.
12:30:22	12.5061	1425	1538	0.2	1.6	-4.4	39.9
12:30:37	12.5103	1361	1556	1.6	1.5	-4.0	.
12:30:52	12.5144	1334	1619	1.6	1.9	-4.3	.
12:31:07	12.5186	1362	1687	1.6	-3.9	-4.7	.
12:31:22	12.5228	1428	1731	1.6	-4.1	-4.7	.
12:31:37	12.5269	1449	1737	1.6	-4.1	-4.7	.
12:31:52	12.5311	1430	1724	1.6	-4.1	-4.7	.
12:32:07	12.5353	1426	1700	1.6	-4.1	-4.7	.
12:32:22	12.5394	1424	1671	1.6	-4.1	-4.7	.
12:32:37	12.5436	1425	1642	1.6	-4.1	-4.7	.
12:32:52	12.5478	1430	1614	1.6	-4.1	-4.7	.
12:33:07	12.5519	1434	1586	1.6	-4.1	-4.7	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:33:22	12.5561	1438	1559	1.6	-2.0	-4.7	.
12:33:37	12.5603	1440	1543	1.6	1.5	-4.6	.
12:33:52	12.5644	1442	1545	1.6	1.5	-4.6	.
12:34:07	12.5686	1446	1551	1.6	1.5	-4.6	.
12:34:22	12.5728	1445	1557	1.6	1.5	-4.6	.
12:34:37	12.5769	1448	1561	1.6	1.5	-4.6	.
12:34:52	12.5811	1446	1563	1.6	1.5	-4.6	.
12:35:07	12.5853	1446	1565	1.6	1.5	-4.6	.
12:35:22	12.5894	1447	1566	1.6	1.5	-4.6	.
12:35:36	12.5933	1447	1564	1.6	1.5	-4.6	.
12:35:51	12.5975	1449	1565	1.6	1.5	-4.6	.
12:36:06	12.6017	1451	1562	1.6	1.5	-4.6	.
12:36:21	12.6058	1454	1562	1.6	1.5	-4.6	.
12:36:36	12.6100	1454	1558	1.6	1.5	-4.6	.
12:36:51	12.6142	1459	1559	1.6	1.5	-4.6	.
12:37:06	12.6183	1460	1556	1.6	1.5	-4.6	.
12:37:21	12.6225	1461	1553	1.6	1.5	-4.6	.
12:37:36	12.6267	1463	1549	1.6	1.5	-4.6	.
12:37:51	12.6308	1466	1548	1.6	1.5	-4.6	.
12:38:06	12.6350	1468	1547	1.6	1.5	-4.6	.
12:38:21	12.6392	1470	1546	1.6	1.5	-4.6	.
12:38:36	12.6433	1471	1541	1.6	1.5	-4.6	.
12:39:06	12.6517	1477	1538	1.6	1.5	-4.6	.
12:39:36	12.6600	1481	1528	1.6	1.5	-4.6	.
12:40:06	12.6683	1484	1525	1.6	1.5	-4.6	.
12:40:36	12.6767	1484	1519	1.6	1.5	-4.6	.
12:41:06	12.6850	1485	1517	1.6	1.5	-4.6	.
12:41:36	12.6933	1489	1517	1.6	1.5	-4.6	.
12:42:06	12.7017	1492	1514	1.6	1.5	-4.6	.
12:42:36	12.7100	1492	1511	1.6	1.5	-4.6	.
12:43:06	12.7183	1499	1511	1.6	1.5	-4.6	.
12:43:35	12.7264	1502	1511	1.6	1.5	-4.6	.
12:44:05	12.7347	1506	1512	1.6	1.5	-4.6	.
12:44:35	12.7431	1508	1515	1.6	1.5	-4.6	.
12:45:05	12.7514	1511	1517	1.6	1.8	-4.6	.
12:45:35	12.7597	1512	1506	1.6	1.5	-4.6	39.6
12:46:05	12.7681	1510	1505	1.1	1.5	-4.6	.
12:46:35	12.7764	1460	1530	1.4	1.5	-4.2	.
12:47:05	12.7847	1452	1660	1.6	2.4	-4.6	.
12:47:35	12.7931	1473	1705	1.6	-4.0	-4.7	.
12:48:05	12.8014	1470	1660	1.6	-4.1	-4.7	.
12:48:35	12.8097	1452	1621	1.6	-4.1	-4.7	.
12:49:05	12.8181	1449	1598	1.6	-4.1	-4.7	.
12:49:35	12.8264	1457	1582	1.6	-4.1	-4.7	.
12:50:05	12.8347	1467	1564	1.6	-3.7	-4.7	.
12:50:35	12.8431	1458	1564	1.6	1.5	-4.6	.
12:51:05	12.8514	1464	1603	1.6	2.2	-4.6	.
12:51:35	12.8597	1461	1596	1.6	-4.0	-4.7	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:52:05	12.8681	1458	1562	1.6	-1.8	-4.7	.
12:52:35	12.8764	1456	1561	1.6	1.5	-4.6	.
12:53:05	12.8847	1458	1591	1.6	1.5	-4.6	.
12:53:34	12.8928	1470	1599	1.6	-4.1	-4.7	.
12:54:13	12.9036	1471	1566	1.6	-2.6	-4.7	.
12:54:43	12.9119	1471	1559	1.6	1.5	-4.6	.
12:55:13	12.9203	1477	1582	1.6	1.5	-4.6	.
12:55:43	12.9286	1481	1599	1.6	1.6	-4.6	.
12:56:13	12.9369	1487	1593	1.6	-4.0	-4.7	.
12:56:43	12.9453	1480	1550	1.6	0.0	-4.7	.
12:57:13	12.9536	1481	1552	1.6	1.5	-4.6	.
12:57:43	12.9619	1486	1570	1.6	1.5	-4.6	.
12:58:13	12.9703	1490	1583	1.6	1.5	-4.6	.
12:58:42	12.9783	1492	1593	1.6	1.5	-4.6	.
12:59:12	12.9867	1496	1600	1.6	1.5	-4.6	.
12:59:42	12.9950	1502	1606	1.6	1.9	-4.6	.
13:00:12	13.0033	1492	1582	-0.6	-3.8	-4.6	43.5
13:00:42	13.0117	1463	1549	0.2	1.5	-4.0	.
13:01:12	13.0200	1392	1671	1.6	2.5	-4.2	.
13:01:42	13.0283	1407	1785	1.6	-4.0	-4.7	.
13:02:12	13.0367	1387	1797	1.6	-4.1	-4.7	.
13:02:42	13.0450	1418	1791	1.6	-4.1	-4.7	.
13:03:12	13.0533	1452	1759	1.6	-4.1	-4.7	.
13:03:42	13.0617	1471	1724	1.6	-4.1	-4.7	.
13:04:12	13.0700	1499	1695	1.6	-4.1	-4.7	.
13:04:42	13.0783	1504	1663	1.6	-4.1	-4.7	.
13:05:12	13.0867	1505	1628	1.6	-4.1	-4.7	.
13:05:42	13.0950	1481	1597	1.6	-4.1	-4.7	.
13:06:12	13.1033	1472	1570	1.6	-4.1	-4.6	.
13:06:42	13.1117	1469	1548	1.6	-1.1	-4.7	.
13:07:12	13.1200	1470	1565	1.6	1.5	-4.6	.
13:07:42	13.1283	1480	1600	1.6	2.3	-4.6	.
13:08:12	13.1367	1484	1583	1.6	-4.0	-4.5	.
13:08:41	13.1447	1485	1551	1.6	-0.0	-4.7	.
13:09:11	13.1531	1488	1561	1.6	1.5	-4.6	.
13:09:41	13.1614	1496	1588	1.6	1.6	-4.6	.
13:10:11	13.1697	1505	1602	1.6	-4.0	-4.7	.
13:10:41	13.1781	1507	1562	1.6	-2.1	-4.7	.
13:11:11	13.1864	1513	1553	1.6	1.5	-4.6	.
13:11:41	13.1947	1513	1579	1.6	1.5	-4.6	.
13:12:11	13.2031	1515	1604	1.6	2.3	-4.6	.
13:12:41	13.2114	1521	1579	1.6	-3.8	-4.7	.
13:13:11	13.2197	1524	1548	1.6	1.5	-4.6	.
13:13:41	13.2281	1526	1566	1.6	1.5	-4.6	.
13:14:11	13.2364	1530	1590	1.6	1.5	-4.6	.
13:14:41	13.2447	1533	1605	1.6	2.4	-4.6	.
13:15:11	13.2531	1523	1575	0.3	-3.1	-4.6	.
13:15:41	13.2614	1448	1543	-1.4	1.5	-3.8	40.0

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:16:11	13.2697	1444	1664	1.6	2.5	-4.1	.
13:16:41	13.2781	1505	1749	1.6	-4.0	-4.7	.
13:17:11	13.2864	1529	1750	1.6	-4.1	-4.7	.
13:17:41	13.2947	1549	1715	1.6	-4.1	-4.7	.
13:18:11	13.3031	1564	1688	1.6	-4.1	-4.7	.
13:18:41	13.3114	1559	1662	1.6	-4.1	-4.7	.
13:19:11	13.3197	1559	1638	1.6	-4.1	-4.7	.
13:19:41	13.3281	1567	1620	1.6	-4.1	-4.7	.
13:20:11	13.3364	1562	1603	1.6	-4.1	-4.7	.
13:20:41	13.3447	1570	1590	1.6	-4.1	-4.7	.
13:21:10	13.3528	1564	1580	1.6	-4.1	-4.7	.
13:21:40	13.3611	1553	1566	1.6	-4.1	-4.7	.
13:22:10	13.3694	1562	1550	1.6	0.3	-4.7	.
13:22:40	13.3778	1560	1577	1.6	1.6	-4.6	.
13:23:10	13.3861	1563	1603	1.6	-4.0	-4.7	.
13:23:40	13.3944	1559	1576	1.6	-4.1	-4.7	.
13:24:10	13.4028	1537	1549	1.6	0.7	-4.6	.
13:24:40	13.4111	1526	1574	1.6	1.5	-4.6	.
13:25:10	13.4194	1530	1603	1.6	2.6	-4.6	.
13:25:40	13.4278	1554	1579	1.6	-4.0	-4.7	.
13:26:10	13.4361	1546	1548	1.6	0.9	-4.6	.
13:26:40	13.4444	1550	1571	1.6	1.5	-4.6	.
13:27:10	13.4528	1558	1602	1.6	2.4	-4.6	.
13:27:40	13.4611	1566	1583	1.6	-4.0	-4.7	.
13:28:10	13.4694	1566	1552	1.6	0.3	-4.6	.
13:28:40	13.4778	1567	1569	1.6	1.5	-4.6	.
13:29:10	13.4861	1574	1602	1.6	2.3	-4.6	.
13:29:40	13.4944	1571	1586	1.6	-4.0	-4.7	.
13:30:10	13.5028	1566	1553	1.2	-0.1	-4.7	47.0
13:30:39	13.5108	1484	1574	1.3	1.7	-4.6	.
13:31:09	13.5192	1479	1712	1.6	-4.0	-4.7	.
13:31:39	13.5275	1500	1782	1.6	-4.1	-4.7	.
13:32:09	13.5358	1502	1748	1.6	-4.1	-4.7	.
13:32:39	13.5442	1507	1701	1.6	-4.1	-4.7	.
13:33:09	13.5525	1513	1653	1.6	-4.1	-4.7	.
13:33:39	13.5608	1517	1614	1.6	-4.1	-4.7	.
13:34:09	13.5692	1523	1588	1.6	-4.1	-4.7	.
13:34:39	13.5775	1526	1573	1.6	-4.1	-4.7	.
13:35:09	13.5858	1530	1564	1.6	-4.1	-4.7	.
13:35:39	13.5942	1526	1558	1.6	-4.1	-4.7	.
13:36:09	13.6025	1525	1556	1.6	-4.1	-4.7	.
13:36:39	13.6108	1520	1551	1.6	-2.7	-4.7	.
13:37:09	13.6192	1520	1571	1.6	1.6	-4.6	.
13:37:39	13.6275	1518	1608	1.6	-4.0	-4.7	.
13:38:09	13.6358	1517	1592	1.6	-4.1	-4.7	.
13:38:39	13.6442	1523	1569	1.6	-4.1	-4.7	.
13:39:09	13.6525	1527	1553	1.3	-3.1	-4.7	.
13:39:39	13.6608	1523	1528	-1.3	1.5	-4.3	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:40:08	13.6689	1511	1476	-1.4	1.5	-3.8	.
13:40:38	13.6772	1505	1423	-1.4	1.5	-3.2	.
13:41:08	13.6856	1495	1380	-1.4	1.5	-2.7	.
13:41:38	13.6939	1485	1347	-1.4	1.5	-2.4	.
13:42:08	13.7022	1472	1323	-1.4	1.5	-2.3	.
13:42:38	13.7106	1477	1305	-1.4	1.5	-2.3	.
13:43:08	13.7189	1474	1289	-1.4	1.5	-2.2	.
13:43:38	13.7272	1468	1276	-1.4	1.5	-2.1	.
13:44:08	13.7356	1462	1267	-1.4	1.5	-2.1	.
13:44:38	13.7439	1479	1257	0.5	1.5	-2.6	.
13:45:08	13.7522	1507	1302	1.1	1.5	-4.6	47.4
13:45:38	13.7606	1470	1403	-1.4	1.5	-3.9	.
13:46:08	13.7689	1501	1568	-1.4	1.5	-3.0	.
13:46:38	13.7772	1498	1597	-1.4	1.5	-2.5	.
13:47:08	13.7856	1494	1536	-1.4	1.5	-2.3	.
13:47:38	13.7939	1476	1463	-1.4	1.5	-2.2	.
13:48:08	13.8022	1485	1415	1.5	1.5	-3.6	.
13:48:38	13.8106	1492	1468	1.6	1.5	-4.6	.
13:49:08	13.8189	1501	1539	1.6	1.5	-4.6	.
13:49:38	13.8272	1507	1590	1.6	1.5	-4.6	.
13:50:08	13.8356	1513	1616	1.6	2.5	-4.6	.
13:50:38	13.8439	1513	1588	1.6	-4.0	-4.7	.
13:51:07	13.8519	1513	1557	1.6	0.9	-4.6	.
13:51:37	13.8603	1517	1579	1.6	1.5	-4.6	.
13:52:07	13.8686	1519	1607	1.6	2.2	-4.6	.
13:52:37	13.8769	1525	1585	1.6	-4.0	-4.7	.
13:53:07	13.8853	1525	1549	1.6	0.9	-4.6	.
13:53:37	13.8936	1529	1567	1.6	1.5	-4.6	.
13:54:07	13.9019	1533	1597	1.6	1.8	-4.6	.
13:54:37	13.9103	1537	1597	1.6	-4.0	-4.7	.
13:55:07	13.9186	1538	1555	1.6	-1.0	-4.7	.
13:55:37	13.9269	1534	1559	1.6	1.5	-4.6	.
13:56:07	13.9353	1539	1590	1.6	1.6	-4.6	.
13:56:37	13.9436	1547	1601	1.6	-4.1	-4.7	.
13:57:07	13.9519	1546	1560	1.1	-1.8	-4.7	.
13:57:37	13.9603	1506	1524	-1.4	1.5	-3.9	.
13:58:07	13.9686	1468	1461	-1.4	1.5	-3.0	.
13:58:37	13.9769	1434	1407	-1.4	1.5	-2.5	.
13:59:07	13.9853	1445	1363	0.6	1.5	-3.0	.
13:59:37	13.9936	1519	1394	1.6	1.5	-4.6	.
14:00:07	14.0019	1530	1453	1.0	1.5	-4.6	.
14:00:37	14.0103	1460	1520	0.9	1.5	-4.1	41.6
14:01:06	14.0183	1500	1655	-0.9	2.4	-4.4	.
14:01:36	14.0267	1521	1658	-4.7	-4.1	-4.4	.
14:02:06	14.0350	1538	1569	-3.8	-1.8	-3.8	.
14:02:36	14.0433	1501	1502	-1.9	1.5	-4.2	.
14:03:06	14.0517	1450	1478	-1.4	1.5	-3.7	.
14:03:36	14.0600	1448	1467	1.0	1.5	-3.5	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:04:06	14.0683	1457	1602	1.6	2.0	-4.6	.
14:04:36	14.0767	1464	1709	1.6	-4.0	-4.7	.
14:05:06	14.0850	1460	1753	1.6	-4.1	-4.7	.
14:05:36	14.0933	1461	1781	1.6	-4.1	-4.7	.
14:06:06	14.1017	1466	1796	1.6	-4.1	-4.7	.
14:06:36	14.1100	1470	1799	1.6	-4.1	-4.7	.
14:07:06	14.1183	1476	1796	1.6	-4.1	-4.7	.
14:07:36	14.1267	1481	1789	1.6	-4.1	-4.7	.
14:08:06	14.1350	1490	1779	1.6	-4.1	-4.7	.
14:08:36	14.1433	1497	1764	1.6	-4.1	-4.7	.
14:09:06	14.1517	1502	1748	1.6	-4.1	-4.7	.
14:09:36	14.1600	1510	1733	1.6	-4.1	-4.7	.
14:10:06	14.1683	1512	1721	1.6	-4.1	-4.7	.
14:10:35	14.1764	1516	1706	1.6	-4.1	-4.7	.
14:11:05	14.1847	1526	1692	1.6	-4.1	-4.7	.
14:11:35	14.1931	1537	1680	1.6	-4.1	-4.7	.
14:12:05	14.2014	1539	1670	1.6	-4.1	-4.7	.
14:12:35	14.2097	1538	1661	1.6	-4.1	-4.7	.
14:13:05	14.2181	1554	1650	1.6	-4.1	-4.7	.
14:13:35	14.2264	1556	1640	1.6	-4.1	-4.7	.
14:14:05	14.2347	1562	1630	1.6	-4.1	-4.7	.
14:14:35	14.2431	1576	1623	1.6	-4.1	-4.7	.
14:15:05	14.2514	1594	1615	1.6	-4.1	-4.7	39.4
14:15:35	14.2597	1582	1606	-0.8	-4.1	-4.4	.
14:16:05	14.2681	1598	1611	-4.5	-4.1	-4.2	.
14:16:35	14.2764	1622	1531	-3.4	-1.4	-3.0	.
14:17:05	14.2847	1508	1459	-1.5	1.5	-4.0	.
14:17:35	14.2931	1489	1420	-1.4	1.5	-3.3	.
14:18:05	14.3014	1469	1388	-1.4	1.5	-2.8	.
14:18:35	14.3097	1459	1361	-0.3	1.5	-2.9	.
14:19:05	14.3181	1509	1381	1.6	1.5	-4.4	.
14:19:35	14.3264	1572	1509	1.6	1.5	-4.6	.
14:20:05	14.3347	1583	1590	1.6	1.8	-4.6	.
14:20:35	14.3431	1600	1636	1.6	-4.0	-4.7	.
14:21:04	14.3511	1604	1623	1.6	-4.1	-4.7	.
14:21:34	14.3594	1609	1604	1.6	-4.1	-4.7	.
14:22:04	14.3678	1613	1586	1.6	-4.1	-4.7	.
14:22:34	14.3761	1620	1569	1.6	-4.1	-4.6	.
14:23:04	14.3844	1623	1563	1.6	-4.1	-4.7	.
14:23:34	14.3928	1620	1561	1.6	0.7	-4.6	.
14:24:04	14.4011	1623	1606	1.6	2.2	-4.6	.
14:24:34	14.4094	1629	1615	1.6	-4.0	-4.7	.
14:25:04	14.4178	1632	1596	1.6	-4.1	-4.7	.
14:25:34	14.4261	1626	1579	1.6	-4.1	-4.7	.
14:26:04	14.4344	1622	1566	1.6	-4.1	-4.7	.
14:26:34	14.4428	1622	1557	1.5	-0.5	-4.7	.
14:27:04	14.4511	1577	1570	-1.2	1.5	-4.2	.
14:27:34	14.4594	1515	1516	-1.4	1.5	-3.1	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:28:04	14.4678	1479	1455	-1.4	1.5	-2.5	.
14:28:34	14.4761	1459	1406	-1.4	1.5	-2.3	.
14:29:04	14.4844	1437	1370	-1.4	1.5	-2.2	.
14:29:34	14.4928	1486	1354	1.6	1.5	-3.0	.
14:30:04	14.5011	1561	1418	1.5	1.5	-4.6	.
14:30:34	14.5094	1500	1501	0.5	1.5	-4.3	35.3
14:31:04	14.5178	1420	1627	1.6	2.1	-4.6	.
14:31:34	14.5261	1458	1789	1.6	-4.0	-4.7	.
14:32:03	14.5342	1543	1895	1.6	-4.1	-4.7	.
14:32:33	14.5425	1562	1902	1.6	-4.1	-4.7	.
14:33:03	14.5508	1556	1870	1.6	-4.1	-4.7	.
14:33:33	14.5592	1586	1826	1.6	-4.1	-4.7	.
14:34:03	14.5675	1598	1778	1.6	-4.1	-4.7	.
14:34:33	14.5758	1583	1734	1.6	-4.1	-4.7	.
14:35:03	14.5842	1593	1694	1.6	-4.1	-4.7	.
14:35:33	14.5925	1594	1661	1.6	-4.1	-4.7	.
14:36:03	14.6008	1581	1635	1.6	-4.1	-4.7	.
14:36:33	14.6092	1579	1616	1.6	-4.1	-4.7	.
14:37:03	14.6175	1567	1602	1.6	-4.1	-4.7	.
14:37:33	14.6258	1572	1595	1.6	-4.1	-4.7	.
14:38:03	14.6342	1570	1585	1.6	-4.1	-4.7	.
14:38:33	14.6425	1580	1575	1.6	-4.1	-4.7	.
14:39:03	14.6508	1564	1568	1.6	-4.1	-4.7	.
14:39:33	14.6592	1565	1560	1.6	-4.1	-4.7	.
14:40:03	14.6675	1570	1551	-0.6	-2.2	-4.6	.
14:40:33	14.6758	1534	1505	-1.6	1.5	-3.7	.
14:41:03	14.6842	1503	1454	-1.4	1.5	-3.0	.
14:41:33	14.6925	1477	1410	-1.4	1.5	-2.5	.
14:42:03	14.7008	1459	1376	-1.6	1.5	-2.3	.
14:42:32	14.7089	1448	1347	-1.3	1.5	-2.4	.
14:43:02	14.7172	1496	1344	1.6	1.5	-3.9	.
14:43:32	14.7256	1542	1416	1.6	1.5	-4.6	.
14:44:02	14.7339	1563	1507	1.6	1.5	-4.6	.
14:44:32	14.7422	1568	1579	1.6	1.5	-4.6	.
14:45:02	14.7506	1577	1619	1.4	2.7	-4.6	.
14:45:32	14.7589	1557	1584	-4.1	-4.1	-4.3	49.2
14:46:02	14.7672	1618	1623	-4.7	-4.1	-4.0	.
14:46:32	14.7756	1579	1594	-4.5	-4.1	-3.5	.
14:47:02	14.7839	1504	1494	-2.2	1.5	-4.1	.
14:47:32	14.7922	1489	1428	-1.4	1.5	-3.4	.
14:48:02	14.8006	1484	1384	-1.4	1.5	-2.7	.
14:48:32	14.8089	1480	1352	-0.1	1.5	-2.4	.
14:49:02	14.8172	1500	1409	1.6	1.5	-3.9	.
14:49:32	14.8256	1524	1558	1.6	1.7	-4.6	.
14:50:02	14.8339	1553	1653	1.6	-4.0	-4.7	.
14:50:32	14.8422	1558	1671	1.6	-4.1	-4.7	.
14:51:02	14.8506	1544	1665	1.6	-4.1	-4.7	.
14:51:32	14.8589	1523	1654	1.6	-4.1	-4.7	.

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
14:52:01	14.8669	1514	1641	1.6	-4.1	-4.7	.
14:52:31	14.8753	1523	1629	1.6	-4.1	-4.7	.
14:53:01	14.8836	1524	1622	1.6	-4.1	-4.7	.
14:53:31	14.8919	1529	1615	1.6	-4.1	-4.7	.
14:54:01	14.9003	1539	1610	1.6	-4.1	-4.7	.
14:54:31	14.9086	1539	1604	1.6	-4.1	-4.7	.
14:55:01	14.9169	1548	1600	1.6	-4.1	-4.7	.
14:55:31	14.9253	1554	1601	1.6	-4.2	-4.7	.
14:56:01	14.9336	1551	1594	1.6	-4.1	-4.7	.
14:56:31	14.9419	1560	1591	1.6	-4.1	-4.7	.
14:57:01	14.9503	1565	1588	1.6	-4.1	-4.7	.
14:57:31	14.9586	1566	1585	1.6	-4.1	-4.7	.
14:58:01	14.9669	1562	1584	1.6	-4.1	-4.7	.
14:58:31	14.9753	1574	1583	1.6	-4.1	-4.7	.
14:59:01	14.9836	1587	1580	0.8	-4.1	-4.7	.
14:59:31	14.9919	1586	1529	-3.1	-0.6	-3.8	.
15:00:01	15.0003	1538	1468	-1.5	1.5	-3.7	.
15:00:30	15.0083	1517	1416	-1.4	1.5	-3.3	30.6
15:01:00	15.0167	1512	1482	-1.4	1.5	-2.6	.
15:01:30	15.0250	1530	1598	-1.4	1.5	-2.2	.
15:02:00	15.0333	1507	1586	-1.4	1.5	-2.1	.
15:02:30	15.0417	1484	1540	-1.4	1.5	-2.1	.
15:03:00	15.0500	1477	1494	-1.4	1.5	-2.1	.
15:03:30	15.0583	1479	1459	-1.4	1.5	-2.0	.
15:04:00	15.0667	1476	1432	-1.4	1.5	-2.0	.
15:04:30	15.0750	1470	1406	-1.4	1.5	-2.0	.
15:05:00	15.0833	1464	1381	-1.1	1.5	-2.2	.
15:15:00	.	.	.	.	.	.	44.5
15:30:00	.	.	.	.	.	.	50.1
15:50:00	.	.	.	.	.	.	59.6

Table B.1-9 Process data for Run 9

FILENAME: CC9_928.SSD
TEST DATE: September 25, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1005.14	867.77	30.6000
MAX	1631.54	1902.08	59.6000
MEAN	1445.22	1522.84	43.3500
STD	107.54	153.27	6.1695

Table B.1-9 Process data for Run 9
Total test period only

FILENAME: CC9_928.SSD
TEST DATE: September 28, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	1005.14	867.77	30.6000
MAX	1631.54	1902.08	49.2000
MEAN	1445.18	1523.12	41.9294
STD	107.64	153.29	4.8601

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:15:03	10.2508	1091	899	1.3	1.5	-4.6	.
10:15:33	10.2592	971	883	0.7	1.5	-4.3	25.1
10:16:02	10.2672	998	956	1.6	1.5	-4.6	.
10:16:32	10.2756	1045	1167	1.6	1.5	-4.6	.
10:17:02	10.2839	1086	1316	1.6	1.5	-4.6	.
10:17:32	10.2922	1113	1356	1.6	1.5	-4.6	.
10:18:02	10.3006	1136	1343	1.6	1.5	-4.6	.
10:18:32	10.3089	1157	1314	1.6	1.5	-4.6	.
10:19:02	10.3172	1165	1280	1.6	1.5	-4.6	.
10:19:32	10.3256	1169	1249	1.6	1.5	-4.6	.
10:20:02	10.3339	1175	1224	1.6	1.5	-4.6	.
10:20:32	10.3422	1188	1201	1.6	1.5	-4.6	.
10:21:02	10.3506	1203	1174	1.6	1.5	-4.6	.
10:21:32	10.3589	1214	1147	1.6	1.5	-4.6	.
10:22:02	10.3672	1223	1123	1.6	1.5	-4.6	.
10:22:32	10.3756	1224	1104	1.6	1.5	-4.6	.
10:23:02	10.3839	1222	1086	1.6	1.5	-4.6	.
10:23:32	10.3922	1227	1075	1.6	1.5	-4.6	.
10:24:02	10.4006	1225	1066	1.6	1.5	-4.6	.
10:24:31	10.4086	1229	1061	1.6	1.5	-4.6	.
10:25:01	10.4169	1236	1055	1.6	1.5	-4.6	.
10:25:31	10.4253	1233	1050	1.6	1.5	-4.6	.
10:26:01	10.4336	1231	1045	1.6	1.5	-4.6	.
10:26:31	10.4419	1223	1041	1.6	1.5	-4.6	.
10:27:01	10.4503	1217	1039	1.6	1.5	-4.6	.
10:27:31	10.4586	1215	1036	1.6	1.5	-4.6	.
10:28:01	10.4669	1222	1034	1.6	1.5	-4.6	.
10:28:31	10.4753	1229	1033	1.6	1.5	-4.6	.
10:29:01	10.4836	1235	1032	1.6	1.5	-4.6	.
10:29:31	10.4919	1247	1030	1.6	1.5	-4.6	.
10:30:01	10.5003	1257	1030	1.3	1.5	-4.6	.
10:30:31	10.5086	1184	1022	1.0	1.5	-4.4	25.4
10:31:01	10.5169	1197	1145	1.6	1.5	-4.6	.
10:31:31	10.5253	1207	1279	1.6	1.5	-4.6	.
10:32:01	10.5336	1219	1310	1.6	1.5	-4.6	.
10:32:31	10.5419	1228	1296	1.6	1.5	-4.6	.
10:33:01	10.5503	1242	1276	1.6	1.5	-4.6	.
10:33:31	10.5586	1250	1257	1.6	1.5	-4.6	.
10:34:01	10.5669	1257	1239	1.6	1.5	-4.6	.
10:34:31	10.5753	1262	1223	1.6	1.5	-4.6	.
10:35:01	10.5836	1269	1209	1.6	1.5	-4.6	.
10:35:30	10.5917	1273	1196	1.6	1.5	-4.6	.
10:36:00	10.6000	1278	1186	1.6	1.5	-4.6	.
10:36:30	10.6083	1284	1177	1.6	1.5	-4.6	.
10:37:00	10.6167	1289	1170	1.6	1.5	-4.6	.
10:37:30	10.6250	1291	1164	1.6	1.5	-4.6	.
10:38:00	10.6333	1293	1160	1.6	1.5	-4.6	.
10:38:30	10.6417	1298	1157	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
10:39:00	10.6500	1304	1156	1.6	1.5	-4.6	.
10:39:30	10.6583	1305	1156	1.6	1.5	-4.6	.
10:40:00	10.6667	1304	1157	1.6	1.5	-4.6	.
10:40:30	10.6750	1307	1158	1.6	1.5	-4.6	.
10:41:00	10.6833	1310	1159	1.6	1.5	-4.6	.
10:41:30	10.6917	1313	1159	1.6	1.5	-4.6	.
10:42:00	10.7000	1318	1160	1.6	1.5	-4.6	.
10:42:40	10.7111	1324	1158	1.6	1.5	-4.6	.
10:43:10	10.7194	1325	1158	1.6	1.5	-4.6	.
10:43:40	10.7278	1323	1159	1.6	1.5	-4.6	.
10:44:10	10.7361	1326	1160	1.6	1.5	-4.6	.
10:44:40	10.7444	1331	1162	1.6	1.5	-4.6	.
10:45:10	10.7528	1319	1161	0.8	1.5	-4.6	.
10:45:40	10.7611	1289	1172	1.6	1.5	-4.5	25.4
10:46:10	10.7694	1308	1287	1.6	1.5	-4.6	.
10:46:40	10.7778	1320	1333	1.6	1.5	-4.6	.
10:47:10	10.7861	1329	1330	1.6	1.5	-4.6	.
10:47:40	10.7944	1329	1317	1.6	1.5	-4.6	.
10:48:10	10.8028	1329	1299	1.6	1.5	-4.6	.
10:48:40	10.8111	1329	1288	1.6	1.5	-4.6	.
10:49:10	10.8194	1322	1282	1.6	1.5	-4.6	.
10:49:40	10.8278	1315	1277	1.6	1.5	-4.6	.
10:50:10	10.8361	1315	1274	1.6	1.5	-4.6	.
10:50:40	10.8444	1314	1271	1.6	1.5	-4.6	.
10:51:10	10.8528	1317	1269	1.6	1.5	-4.6	.
10:51:39	10.8608	1320	1266	1.6	1.5	-4.6	.
10:52:09	10.8692	1324	1262	1.6	1.5	-4.6	.
10:52:39	10.8775	1327	1259	1.6	1.5	-4.6	.
10:53:09	10.8858	1330	1255	1.6	1.5	-4.6	.
10:53:39	10.8942	1331	1253	1.6	1.5	-4.6	.
10:54:09	10.9025	1333	1252	1.6	1.5	-4.6	.
10:54:39	10.9108	1336	1252	1.6	1.5	-4.6	.
10:55:09	10.9192	1337	1252	1.6	1.5	-4.6	.
10:55:39	10.9275	1338	1253	1.6	1.5	-4.6	.
10:56:09	10.9358	1340	1256	1.6	1.5	-4.6	.
10:56:39	10.9442	1346	1256	1.6	1.5	-4.6	.
10:57:09	10.9525	1350	1256	1.6	1.5	-4.6	.
10:57:39	10.9608	1354	1255	1.6	1.5	-4.6	.
10:58:09	10.9692	1355	1256	1.6	1.5	-4.6	.
10:58:39	10.9775	1356	1256	1.6	1.5	-4.6	.
10:59:09	10.9858	1361	1258	1.6	1.5	-4.6	.
10:59:39	10.9942	1364	1259	1.6	1.5	-4.6	.
11:00:09	11.0025	1362	1261	1.0	1.5	-4.6	.
11:00:39	11.0108	1317	1274	1.4	1.5	-4.4	24.6
11:01:09	11.0192	1328	1410	1.6	1.5	-4.6	.
11:01:39	11.0275	1338	1476	1.6	1.5	-4.6	.
11:02:08	11.0356	1346	1477	1.6	1.5	-4.6	.
11:02:38	11.0439	1352	1466	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:03:08	11.0522	1362	1452	1.6	1.5	-4.6	.
11:03:38	11.0606	1368	1438	1.6	1.5	-4.6	.
11:04:08	11.0689	1365	1428	1.6	1.5	-4.6	.
11:04:38	11.0772	1368	1415	1.6	1.5	-4.6	.
11:05:08	11.0856	1372	1406	1.6	1.5	-4.6	.
11:05:38	11.0939	1370	1396	1.6	1.5	-4.6	.
11:06:08	11.1022	1367	1386	1.6	1.5	-4.6	.
11:06:38	11.1106	1371	1377	1.6	1.5	-4.6	.
11:09:02	11.1506	1396	1376	1.6	1.6	-4.6	.
11:09:32	11.1589	1387	1364	1.6	1.5	-4.6	.
11:10:02	11.1672	1392	1363	1.6	1.5	-4.6	.
11:10:32	11.1756	1385	1359	1.6	1.5	-4.6	.
11:11:02	11.1839	1383	1354	1.6	1.5	-4.6	.
11:11:32	11.1922	1385	1350	1.6	1.5	-4.6	.
11:12:02	11.2006	1391	1346	1.6	1.5	-4.6	.
11:12:32	11.2089	1396	1342	1.6	1.5	-4.6	.
11:13:02	11.2172	1399	1337	1.6	1.5	-4.6	.
11:13:32	11.2256	1399	1333	1.6	1.5	-4.6	.
11:14:02	11.2339	1405	1334	1.6	1.5	-4.3	.
11:14:32	11.2422	1409	1333	1.6	1.5	-4.6	.
11:15:02	11.2506	1410	1331	1.3	1.5	-4.6	.
11:15:42	11.2617	1346	1331	0.9	1.5	-4.2	25.6
11:16:12	11.2700	1298	1513	1.6	1.5	-4.1	.
11:16:42	11.2783	1295	1609	1.6	1.5	-4.6	.
11:17:12	11.2867	1297	1648	1.6	1.5	-4.6	.
11:17:42	11.2950	1298	1655	1.6	1.5	-4.5	.
11:18:12	11.3033	1306	1652	1.6	1.5	-4.5	.
11:18:42	11.3117	1313	1630	1.6	1.5	-4.6	.
11:19:12	11.3200	1319	1603	1.6	1.5	-4.5	.
11:19:41	11.3281	1335	1575	1.6	1.5	-4.5	.
11:20:11	11.3364	1350	1546	1.6	1.5	-4.6	.
11:20:41	11.3447	1358	1520	1.6	1.5	-4.5	.
11:21:11	11.3531	1365	1499	1.6	1.5	-4.5	.
11:21:41	11.3614	1375	1482	1.6	1.5	-4.5	.
11:22:11	11.3697	1381	1467	1.6	1.5	-4.6	.
11:22:41	11.3781	1390	1457	1.6	1.5	-4.6	.
11:29:41	11.4947	1486	1377	1.6	1.6	-4.5	.
11:30:11	11.5031	1478	1368	1.5	1.5	-4.6	.
11:30:41	11.5114	1465	1363	0.9	1.5	-4.3	25.8
11:31:11	11.5197	1474	1404	1.6	1.5	-4.6	.
11:31:40	11.5278	1481	1432	1.6	1.5	-4.6	.
11:32:10	11.5361	1482	1434	1.6	1.5	-4.6	.
11:32:40	11.5444	1483	1432	1.6	1.5	-4.6	.
11:33:23	11.5564	1484	1430	1.6	1.5	-4.6	.
11:33:53	11.5647	1484	1428	1.6	1.5	-4.6	.
11:34:23	11.5731	1487	1424	1.6	1.5	-4.6	.
11:34:53	11.5814	1485	1416	1.6	1.5	-4.6	.
11:35:23	11.5897	1488	1408	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:35:53	11.5981	1491	1404	1.6	1.5	-4.6	.
11:36:23	11.6064	1495	1401	1.6	1.5	-4.6	.
11:36:53	11.6147	1497	1395	1.6	1.5	-4.6	.
11:37:23	11.6231	1498	1391	1.6	1.5	-4.6	.
11:37:53	11.6314	1498	1388	1.6	1.5	-4.6	.
11:38:23	11.6397	1498	1386	1.6	1.5	-4.6	.
11:38:53	11.6481	1498	1383	1.6	1.5	-4.6	.
11:39:23	11.6564	1501	1382	1.6	1.5	-4.6	.
11:39:53	11.6647	1505	1379	1.6	1.5	-4.6	.
11:40:22	11.6728	1508	1376	1.6	1.5	-4.6	.
11:40:52	11.6811	1511	1373	1.6	1.5	-4.6	.
11:41:22	11.6894	1515	1371	1.6	1.5	-4.6	.
11:41:52	11.6978	1521	1371	1.6	1.5	-4.6	.
11:42:22	11.7061	1525	1371	1.6	1.5	-4.6	.
11:42:52	11.7144	1525	1371	1.6	1.5	-4.6	.
11:43:22	11.7228	1531	1371	1.6	1.5	-4.6	.
11:43:52	11.7311	1531	1370	1.6	1.5	-4.6	.
11:44:22	11.7394	1535	1371	1.6	1.5	-4.6	.
11:44:52	11.7478	1538	1371	1.6	1.5	-4.6	.
11:45:22	11.7561	1496	1367	-0.6	1.5	-4.4	.
11:45:52	11.7644	1448	1409	-1.4	1.5	-3.3	25.2
11:46:22	11.7728	1424	1497	1.4	1.5	-3.7	.
11:46:52	11.7811	1418	1609	1.6	1.5	-4.6	.
11:47:22	11.7894	1402	1681	1.6	1.5	-4.6	.
11:47:52	11.7978	1400	1713	1.6	1.5	-4.6	.
11:48:22	11.8061	1397	1712	1.6	1.5	-4.6	.
11:48:52	11.8144	1403	1698	1.6	1.5	-4.6	.
11:49:22	11.8228	1410	1684	1.6	1.5	-4.6	.
11:49:52	11.8311	1420	1673	1.6	1.5	-4.6	.
11:50:21	11.8392	1419	1659	1.6	1.5	-4.6	.
11:50:51	11.8475	1420	1649	1.6	1.5	-4.6	.
11:51:21	11.8558	1424	1638	1.6	1.5	-4.6	.
11:51:51	11.8642	1430	1630	1.6	1.5	-4.6	.
11:52:21	11.8725	1436	1619	1.6	1.5	-4.6	.
11:52:51	11.8808	1460	1618	1.6	1.5	-4.6	.
11:53:21	11.8892	1465	1606	1.6	1.5	-4.6	.
11:53:51	11.8975	1471	1596	1.6	1.5	-4.6	.
11:54:21	11.9058	1474	1585	1.6	1.5	-4.6	.
11:54:51	11.9142	1479	1576	1.6	1.5	-4.6	.
11:55:21	11.9225	1481	1567	1.6	1.5	-4.6	.
11:55:51	11.9308	1485	1559	1.6	1.5	-4.6	.
11:56:21	11.9392	1492	1551	1.6	1.5	-4.6	.
11:56:51	11.9475	1497	1545	1.6	1.5	-4.6	.
11:57:21	11.9558	1501	1542	1.6	1.5	-4.6	.
11:57:51	11.9642	1501	1540	1.6	1.5	-4.6	.
11:58:21	11.9725	1499	1542	1.6	1.5	-4.6	.
11:58:51	11.9808	1499	1557	1.6	1.5	-4.6	.
11:59:21	11.9892	1501	1571	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
11:59:51	11.9975	1504	1575	1.6	1.5	-4.6	.
12:00:21	12.0058	1481	1572	0.6	1.5	-4.3	25.2
12:00:51	12.0142	1403	1623	1.6	1.5	-4.4	.
12:01:20	12.0222	1388	1760	1.6	1.5	-4.6	.
12:01:50	12.0306	1399	1889	1.6	1.5	-4.6	.
12:02:20	12.0389	1406	1963	1.6	2.7	-4.6	.
12:02:50	12.0472	1413	1967	1.6	-4.0	-4.7	.
12:03:20	12.0556	1423	1915	1.6	-4.1	-4.7	.
12:03:50	12.0639	1434	1852	1.6	-0.1	-4.7	.
12:04:20	12.0722	1442	1830	1.6	1.5	-4.6	.
12:04:50	12.0806	1445	1821	1.6	1.5	-4.6	.
12:05:20	12.0889	1453	1808	1.6	1.5	-4.6	.
12:05:50	12.0972	1460	1795	1.6	1.5	-4.6	.
12:06:20	12.1056	1460	1780	1.6	1.5	-4.6	.
12:06:50	12.1139	1466	1765	1.6	1.5	-4.6	.
12:07:20	12.1222	1474	1741	1.6	1.5	-4.6	.
12:07:50	12.1306	1480	1716	1.6	1.5	-4.6	.
12:08:20	12.1389	1507	1711	1.6	1.5	-4.6	.
12:08:50	12.1472	1534	1694	1.6	1.5	-4.6	.
12:09:20	12.1556	1536	1680	1.6	1.5	-4.6	.
12:09:50	12.1639	1549	1668	1.6	1.5	-4.6	.
12:10:20	12.1722	1556	1655	1.6	1.5	-4.6	.
12:10:49	12.1803	1560	1645	1.6	1.5	-4.6	.
12:11:19	12.1886	1565	1637	1.6	1.5	-4.6	.
12:11:49	12.1969	1569	1626	1.6	1.5	-4.6	.
12:12:19	12.2053	1554	1613	-0.2	1.5	-4.5	.
12:12:49	12.2136	1480	1558	-1.4	1.5	-3.4	.
12:13:19	12.2219	1434	1487	-1.4	1.5	-2.7	.
12:13:49	12.2303	1399	1432	-1.4	1.5	-2.3	.
12:14:19	12.2386	1431	1391	0.9	1.5	-3.2	.
12:14:49	12.2469	1520	1391	1.6	1.5	-4.6	.
12:15:19	12.2553	1558	1423	1.5	1.5	-4.6	.
12:15:49	12.2636	1492	1450	0.6	1.5	-4.1	26.0
12:16:19	12.2719	1457	1585	1.6	1.5	-4.5	.
12:16:49	12.2803	1476	1716	1.6	1.5	-4.6	.
12:17:19	12.2886	1481	1748	1.6	1.5	-4.6	.
12:17:49	12.2969	1485	1736	1.6	1.5	-4.6	.
12:18:19	12.3053	1490	1708	1.6	1.5	-4.6	.
12:18:49	12.3136	1496	1680	1.6	1.5	-4.6	.
12:19:19	12.3219	1502	1656	1.6	1.5	-4.6	.
12:19:49	12.3303	1508	1637	1.6	1.5	-4.6	.
12:20:18	12.3383	1517	1621	1.6	1.5	-4.6	.
12:20:48	12.3467	1522	1602	1.6	1.5	-4.6	.
12:21:18	12.3550	1527	1585	1.6	1.5	-4.6	.
12:21:48	12.3633	1532	1569	1.6	1.5	-4.6	.
12:22:18	12.3717	1533	1555	1.6	1.5	-4.6	.
12:22:48	12.3800	1535	1545	1.6	1.5	-4.6	.
12:23:18	12.3883	1541	1536	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:23:48	12.3967	1545	1527	1.6	1.5	-4.6	.
12:24:18	12.4050	1551	1517	1.6	1.5	-4.6	.
12:24:48	12.4133	1551	1509	0.6	1.5	-4.6	.
12:25:18	12.4217	1480	1478	-1.4	1.5	-3.8	.
12:25:48	12.4300	1413	1423	-1.4	1.5	-2.9	.
12:26:18	12.4383	1423	1377	0.8	1.5	-3.1	.
12:26:48	12.4467	1502	1366	1.6	1.5	-4.6	.
12:27:18	12.4550	1533	1384	1.6	1.5	-4.6	.
12:27:48	12.4633	1547	1402	1.6	1.5	-4.6	.
12:28:18	12.4717	1555	1415	1.6	1.5	-4.6	.
12:28:48	12.4800	1550	1425	0.4	1.5	-4.6	.
12:29:18	12.4883	1464	1409	-1.4	1.5	-3.7	.
12:29:47	12.4964	1398	1368	-1.3	1.5	-2.8	.
12:30:17	12.5047	1423	1331	0.7	1.5	-3.0	25.4
12:30:47	12.5131	1422	1399	1.6	1.5	-3.8	.
12:31:17	12.5214	1452	1613	1.6	1.5	-4.6	.
12:31:47	12.5297	1466	1752	1.6	1.5	-4.6	.
12:32:17	12.5381	1459	1783	1.6	1.5	-4.6	.
12:32:47	12.5464	1472	1782	1.6	1.5	-4.6	.
12:33:17	12.5547	1473	1765	1.6	1.5	-4.6	.
12:33:47	12.5631	1482	1743	1.6	1.5	-4.6	.
12:34:17	12.5714	1488	1723	1.6	1.5	-4.6	.
12:34:47	12.5797	1493	1703	1.6	1.5	-4.6	.
12:35:17	12.5881	1505	1684	1.6	1.5	-4.6	.
12:35:47	12.5964	1510	1667	1.6	1.5	-4.6	.
12:36:17	12.6047	1516	1650	1.6	1.5	-4.6	.
12:36:47	12.6131	1523	1634	1.6	1.5	-4.6	.
12:37:17	12.6214	1542	1624	1.6	1.5	-4.6	.
12:37:46	12.6294	1557	1614	1.6	1.5	-4.6	.
12:38:16	12.6378	1564	1600	1.6	1.5	-4.6	.
12:38:46	12.6461	1560	1592	0.1	1.5	-4.5	.
12:39:16	12.6544	1524	1548	-1.4	1.5	-3.6	.
12:39:46	12.6628	1498	1481	-1.4	1.5	-2.8	.
12:40:16	12.6711	1477	1430	-1.4	1.5	-2.4	.
12:40:46	12.6794	1454	1391	-1.4	1.5	-2.2	.
12:41:16	12.6878	1437	1361	-1.4	1.5	-2.1	.
12:41:46	12.6961	1428	1333	-0.2	1.5	-2.3	.
12:42:16	12.7044	1498	1335	1.6	1.5	-4.4	.
12:42:46	12.7128	1538	1371	1.6	1.5	-4.6	.
12:43:16	12.7211	1558	1410	1.6	1.5	-4.6	.
12:43:46	12.7294	1568	1442	1.6	1.5	-4.6	.
12:44:16	12.7378	1548	1455	-1.0	1.5	-4.3	.
12:44:46	12.7461	1496	1418	-1.4	1.5	-3.2	.
12:45:16	12.7544	1457	1376	-1.4	1.5	-2.6	.
12:45:46	12.7628	1508	1421	-1.4	1.5	-2.3	50.5
12:46:16	12.7711	1494	1611	0.6	1.5	-3.1	.
12:46:46	12.7794	1472	1777	1.6	1.5	-4.6	.
12:47:16	12.7878	1480	1857	1.6	1.5	-4.6	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
12:47:46	12.7961	1481	1860	1.6	1.5	-4.6	.
12:48:16	12.8044	1477	1837	1.6	1.5	-4.6	.
12:48:46	12.8128	1482	1809	1.6	1.5	-4.6	.
12:49:15	12.8208	1504	1785	1.6	1.5	-4.6	.
12:49:45	12.8292	1505	1756	1.6	1.5	-4.6	.
12:50:15	12.8375	1508	1735	1.6	1.5	-4.6	.
12:50:45	12.8458	1515	1722	1.6	1.5	-4.6	.
12:51:15	12.8542	1516	1703	1.6	1.5	-4.6	.
12:51:45	12.8625	1519	1697	1.6	1.5	-4.6	.
12:52:15	12.8708	1524	1688	1.6	1.5	-4.6	.
12:52:45	12.8792	1530	1686	1.6	1.5	-4.6	.
12:53:15	12.8875	1533	1679	1.6	1.5	-4.6	.
12:53:45	12.8958	1538	1674	1.6	1.5	-4.6	.
12:54:15	12.9042	1542	1671	1.6	1.5	-4.6	.
12:54:45	12.9125	1545	1664	1.6	1.5	-4.6	.
12:55:15	12.9208	1549	1660	1.6	1.5	-4.6	.
12:55:45	12.9292	1553	1657	1.6	1.5	-4.6	.
12:56:15	12.9375	1556	1648	1.6	1.5	-4.6	.
12:56:45	12.9458	1560	1645	1.6	1.5	-4.6	.
12:57:15	12.9542	1539	1628	-1.1	1.5	-4.2	.
12:57:45	12.9625	1485	1557	-1.4	1.5	-3.2	.
12:58:15	12.9708	1450	1488	-1.4	1.5	-2.5	.
12:58:45	12.9792	1435	1436	-0.6	1.5	-2.3	.
12:59:15	12.9875	1504	1418	1.6	1.5	-4.2	.
12:59:44	12.9956	1539	1469	1.6	1.5	-4.6	.
13:00:14	13.0039	1551	1525	1.6	1.5	-4.6	.
13:00:44	13.0122	1560	1565	1.6	1.5	-4.6	.
13:01:14	13.0206	1564	1592	1.6	1.5	-4.6	.
13:01:44	13.0289	1554	1602	-0.4	1.5	-4.4	.
13:02:14	13.0372	1494	1552	-1.4	1.5	-3.4	.
13:02:44	13.0456	1443	1475	-1.4	1.5	-2.7	.
13:03:14	13.0539	1422	1427	-0.8	1.5	-2.3	.
13:03:44	13.0622	1501	1399	1.6	1.5	-4.0	.
13:04:14	13.0706	1544	1440	1.6	1.5	-4.6	.
13:04:44	13.0789	1557	1489	1.6	1.5	-4.6	.
13:05:14	13.0872	1565	1526	1.6	1.5	-4.6	.
13:05:44	13.0956	1566	1552	0.5	1.5	-4.6	.
13:06:14	13.1039	1513	1533	-1.4	1.5	-3.7	.
13:06:44	13.1122	1457	1468	-1.4	1.5	-2.8	.
13:07:13	13.1203	1430	1415	-1.4	1.5	-2.4	.
13:07:43	13.1286	1469	1372	1.2	1.5	-2.3	.
13:08:13	13.1369	1535	1394	1.6	1.5	-4.4	.
13:08:43	13.1453	1560	1444	1.6	1.5	-4.6	.
13:09:13	13.1536	1571	1486	1.6	1.5	-4.6	.
13:09:43	13.1619	1560	1512	-0.5	1.5	-4.4	.
13:10:13	13.1703	1489	1476	-1.4	1.5	-3.4	.
13:10:43	13.1786	1442	1421	-1.4	1.5	-2.6	.
13:11:13	13.1869	1423	1376	-0.7	1.5	-2.4	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:11:43	13.1953	1506	1354	1.6	1.5	-4.0	.
13:12:13	13.2036	1553	1386	1.6	1.5	-4.6	.
13:12:43	13.2119	1571	1428	1.6	1.5	-4.6	.
13:13:13	13.2203	1565	1459	-0.2	1.5	-4.5	.
13:13:43	13.2286	1498	1437	-1.4	1.5	-3.5	.
13:14:13	13.2369	1449	1390	-1.4	1.5	-2.7	.
13:14:43	13.2453	1423	1352	-1.3	1.5	-2.4	.
13:15:13	13.2536	1489	1329	1.5	1.5	-3.0	.
13:15:43	13.2619	1515	1355	0.1	1.5	-4.0	25.4
13:16:12	13.2700	1463	1529	1.1	1.5	-4.2	.
13:16:42	13.2783	1504	1711	-1.4	1.5	-3.9	.
13:17:12	13.2867	1506	1756	0.3	1.5	-3.4	.
13:17:42	13.2950	1479	1815	1.6	1.5	-4.6	.
13:18:12	13.3033	1495	1878	1.6	1.5	-4.6	.
13:18:42	13.3117	1521	1900	1.6	1.5	-4.6	.
13:19:12	13.3200	1539	1895	1.6	1.5	-4.6	.
13:19:42	13.3283	1548	1879	1.6	1.5	-4.6	.
13:20:12	13.3367	1545	1858	1.6	1.5	-4.6	.
13:20:42	13.3450	1552	1838	1.6	1.5	-4.6	.
13:21:12	13.3533	1563	1821	1.6	1.5	-4.6	.
13:21:42	13.3617	1564	1804	1.6	1.5	-4.6	.
13:22:12	13.3700	1571	1788	1.6	1.5	-4.6	.
13:22:42	13.3783	1598	1774	1.6	1.5	-4.6	.
13:23:12	13.3867	1579	1757	-0.4	1.5	-4.4	.
13:23:42	13.3950	1527	1675	-1.4	1.5	-3.4	.
13:24:12	13.4033	1496	1584	-1.4	1.5	-2.7	.
13:24:42	13.4117	1481	1513	-1.4	1.5	-2.3	.
13:25:12	13.4200	1501	1458	0.7	1.5	-2.7	.
13:25:42	13.4283	1545	1471	1.6	1.5	-4.5	.
13:26:12	13.4367	1566	1529	1.6	1.5	-4.6	.
13:26:42	13.4450	1576	1575	1.6	1.5	-4.6	.
13:27:12	13.4533	1563	1596	-1.0	1.5	-4.3	.
13:27:41	13.4614	1521	1539	-1.4	1.5	-3.2	.
13:28:11	13.4697	1492	1475	-1.4	1.5	-2.6	.
13:28:41	13.4781	1474	1424	-1.4	1.5	-2.3	.
13:29:11	13.4864	1507	1390	1.2	1.5	-3.3	.
13:29:41	13.4947	1555	1411	1.6	1.5	-4.6	.
13:30:11	13.5031	1562	1463	0.4	1.5	-4.6	.
13:30:41	13.5114	1549	1546	-1.4	1.5	-3.6	25.0
13:31:11	13.5197	1620	1709	-1.4	1.5	-2.8	.
13:31:41	13.5281	1597	1763	-1.4	1.5	-2.4	.
13:32:11	13.5364	1538	1731	1.3	1.5	-3.3	.
13:32:41	13.5447	1536	1770	1.6	1.5	-4.6	.
13:33:11	13.5531	1552	1793	1.6	1.5	-4.6	.
13:33:41	13.5614	1568	1784	1.6	1.5	-4.6	.
13:34:11	13.5697	1576	1766	1.6	1.5	-4.6	.
13:34:41	13.5781	1573	1749	1.6	1.5	-4.6	.
13:35:11	13.5864	1563	1732	-0.4	1.5	-4.4	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:35:41	13.5947	1529	1658	-1.4	1.5	-3.4	.
13:36:11	13.6031	1500	1568	-1.4	1.5	-2.7	.
13:36:41	13.6114	1486	1499	-1.4	1.5	-2.3	.
13:37:11	13.6197	1496	1446	-0.0	1.5	-2.3	.
13:37:41	13.6281	1553	1443	1.6	1.5	-3.6	.
13:38:10	13.6361	1584	1496	1.6	1.5	-4.6	.
13:38:40	13.6444	1586	1544	0.5	1.5	-4.6	.
13:39:10	13.6528	1537	1536	-1.4	1.5	-3.7	.
13:39:40	13.6611	1496	1482	-1.4	1.5	-2.8	.
13:40:10	13.6694	1471	1434	-1.4	1.5	-2.4	.
13:40:40	13.6778	1455	1393	-1.4	1.5	-2.2	.
13:41:10	13.6861	1501	1375	1.6	1.5	-2.7	.
13:41:40	13.6944	1557	1408	1.6	1.5	-4.6	.
13:42:10	13.7028	1579	1459	0.9	1.5	-4.6	.
13:42:40	13.7111	1535	1471	-1.4	1.5	-3.9	.
13:43:10	13.7194	1485	1425	-1.4	1.5	-3.0	.
13:43:40	13.7278	1456	1392	-1.4	1.5	-2.5	.
13:44:10	13.7361	1441	1359	-0.7	1.5	-2.3	.
13:44:40	13.7444	1511	1347	1.2	1.5	-4.0	.
13:45:10	13.7528	1486	1390	0.7	1.5	-4.4	.
13:45:40	13.7611	1516	1568	-1.4	1.5	-3.9	25.1
13:46:10	13.7694	1508	1617	-1.4	1.5	-2.9	.
13:46:40	13.7778	1522	1568	-1.4	1.5	-2.4	.
13:47:10	13.7861	1526	1503	-1.4	1.5	-2.2	.
13:47:40	13.7944	1515	1448	-1.4	1.5	-2.1	.
13:48:09	13.8025	1496	1405	-1.4	1.5	-2.1	.
13:48:39	13.8108	1497	1370	0.1	1.5	-2.5	.
13:49:09	13.8192	1527	1387	1.6	1.5	-4.5	.
13:49:39	13.8275	1547	1465	1.6	1.5	-4.6	.
13:50:09	13.8358	1553	1527	1.6	1.5	-4.6	.
13:50:39	13.8442	1561	1571	0.9	1.5	-4.6	.
13:51:09	13.8525	1530	1561	-1.4	1.5	-3.9	.
13:51:39	13.8608	1490	1493	-1.4	1.5	-2.9	.
13:52:09	13.8692	1472	1435	-1.4	1.5	-2.4	.
13:52:39	13.8775	1463	1386	-0.5	1.5	-2.6	.
13:53:09	13.8858	1517	1379	1.6	1.5	-4.3	.
13:53:39	13.8942	1551	1431	1.6	1.5	-4.6	.
13:54:09	13.9025	1569	1483	1.6	1.5	-4.6	.
13:54:39	13.9108	1547	1506	-1.1	1.5	-4.2	.
13:55:09	13.9192	1496	1462	-1.4	1.5	-3.2	.
13:55:39	13.9275	1465	1409	-1.4	1.5	-2.6	.
13:56:09	13.9358	1451	1370	-0.8	1.5	-2.3	.
13:56:38	13.9439	1516	1353	1.6	1.5	-3.5	.
13:57:08	13.9522	1554	1391	1.6	1.5	-4.6	.
13:57:38	13.9606	1569	1438	0.6	1.5	-4.6	.
13:58:08	13.9689	1524	1440	-1.4	1.5	-3.7	.
13:58:38	13.9772	1483	1399	-1.4	1.5	-2.9	.
13:59:08	13.9856	1458	1360	-1.4	1.5	-2.4	.

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

TIME	DEC. TIME	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	LOWER CHAMBER BURNER	UPPER CHAMBER BURNER	CHARGE DOOR	WASTE CHARGED (LBS)
13:59:38	13.9939	1439	1332	-0.9	1.5	-2.4	.
14:00:08	14.0022	1419	1337	0.6	1.5	-3.8	44.4
14:00:38	14.0106	1441	1518	1.6	1.5	-4.2	.
14:01:08	14.0189	1520	1729	1.6	1.5	-4.6	.
14:01:38	14.0272	1546	1860	1.6	1.5	-4.6	.
14:02:08	14.0356	1532	1908	1.6	1.5	-4.6	.
14:02:38	14.0439	1535	1907	1.6	1.5	-4.6	.
14:03:08	14.0522	1532	1884	1.6	1.5	-4.6	.
14:03:38	14.0606	1533	1866	1.6	1.5	-4.6	.
14:04:08	14.0689	1535	1837	1.6	1.5	-4.6	.
14:04:38	14.0772	1547	1818	1.6	1.5	-4.6	.
14:05:08	14.0856	1553	1798	1.6	1.5	-4.6	.
14:05:38	14.0939	1554	1778	1.6	1.5	-4.6	.
14:06:07	14.1019	1555	1762	0.9	1.5	-4.6	.
14:06:37	14.1103	1529	1708	-1.4	1.5	-3.9	.
14:07:07	14.1186	1489	1614	-1.4	1.5	-2.9	.
14:07:37	14.1269	1455	1539	-1.4	1.5	-2.4	.
14:08:07	14.1353	1437	1478	-1.4	1.5	-2.2	.
14:08:37	14.1436	1439	1434	-0.1	1.5	-2.5	.
14:09:07	14.1519	1492	1435	1.6	1.5	-4.5	.
14:09:37	14.1603	1537	1494	1.6	1.5	-4.6	.
14:10:07	14.1686	1563	1544	1.6	1.5	-4.6	.
14:10:37	14.1769	1583	1577	1.1	1.5	-4.6	.
14:11:07	14.1853	1538	1576	-1.4	1.5	-3.9	.
14:11:37	14.1936	1477	1509	-1.4	1.5	-3.0	.
14:12:07	14.2019	1443	1453	-1.4	1.5	-2.5	.
14:12:37	14.2103	1421	1404	-0.8	1.5	-2.4	.
14:13:07	14.2186	1481	1390	1.6	1.5	-4.2	.
14:13:37	14.2269	1530	1433	1.6	1.5	-4.6	.
14:14:07	14.2353	1559	1484	1.6	1.5	-4.6	.
14:14:37	14.2436	1564	1520	-0.1	1.5	-4.5	.
14:15:06	14.2517	1511	1495	-1.4	1.5	-3.5	.
14:15:36	14.2600	1457	1439	-1.4	1.5	-2.7	.
14:16:06	14.2683	1432	1396	-1.4	1.5	-2.4	.
14:16:36	14.2767	1440	1363	0.4	1.5	-2.6	.
14:17:06	14.2850	1510	1377	1.6	1.5	-4.6	.
14:17:36	14.2933	1554	1431	1.6	1.5	-4.6	.
14:18:06	14.3017	1580	1479	1.3	1.5	-4.6	.
14:18:36	14.3100	1548	1490	-1.3	1.5	-4.0	.
14:19:06	14.3183	1492	1443	-1.4	1.5	-3.0	.
14:19:36	14.3267	1453	1397	-1.4	1.5	-2.5	.
14:20:06	14.3350	1432	1362	-1.2	1.5	-2.4	.
14:20:36	14.3433	1484	1343	1.6	1.5	-4.1	.
14:21:06	14.3517	1538	1378	1.6	1.5	-4.6	.
14:21:36	14.3600	1565	1430	1.6	1.5	-4.6	.
14:30:00	.	.	.	.	.	.	29.4

Table B.1-10 Process data for Run 10

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	970.86	883.39	24.6000
MAX	1620.41	1966.75	50.5000
MEAN	1445.32	1473.32	28.3437
STD	110.85	202.71	7.6157

Table B.1-10 Process data for Run 10
Total test period only

FILENAME: CC10_102.SSD
TEST DATE: October 2, 1990

SANFORD MWI TESTS
PROCESS DATA LISTINGS

	LOWER CHAMBER TEMP.(F)	UPPER CHAMBER TEMP.(F)	WASTE CHARGED (LBS)
MIN	970.86	883.39	24.6000
MAX	1620.41	1966.75	50.5000
MEAN	1444.87	1473.61	28.2733
STD	110.87	203.09	7.8776

MICROBIAL SPIKING LOG

FACILITY Central Carolina

LOCATION Sanford, NC

BY LJR

	TEST DATE	TEST NUMBER	PIPE #1	PIPE #2	PIPE #3	BAG #1	BAG #2	BAG #3	BAG #4	COMMENTS
SU 13:40 FC 14:00	9/20/90	1 (1-1)	AS AL 14:00	BS BL 16:15	① CS CL 18:15	14:00	15:15	16:00	17:00	① Last chg. 18:15 18:20 testing completed
SU 09:25 FC 09:45	9/21/90	2 (2-1)	AS AL 09:45	BS BL 12:03	CS + CL 15:45	09:45	11:00	12:03	12:45	LC 15:45 TC 14:37
SU 09:25 FC 09:45	9/22/90	3 (1-2)	AS AL 09:45	BS BL 12:15	CS CL 14:30	09:45	11:00	12:00	13:00	LC 14:30 TC 14:14
SU 11:20 FC 11:40	9/23/90	4 (2-2)	AS AL 11:40	BS BL 14:15	CS CL 17:45	11:40	12:45	13:45	14:45	LC 17:45 STET TC 15:45
SU 11:25 FC 11:45	9/24/90	5 (3-1)	AS AL 11:45	BS BL 13:45	CS CL 15:50	11:45	12:40	13:45	14:40	LC 15:50 TC 15:45
SU 09:45 FC 10:10	9/25/90	6 (3-2)	AS AL 10:10	BS BL 12:10	CS CL 14:15	10:10	11:15	12:10	13:15	LC 14:15 TC 14:15
SU 09:40 FC 10:00	9/26/90	7 (2-3)	AS AL 10:00	BS BL 12:00	CS CL 14:30	10:00	11:00	12:00	13:00	LC 14:30 TC 14:06
SU 11:25 FC 13:45	9/27/90	8 (2-4)	AS AL 13:45	BS BL 16:15	CS CL 18:00	13:45	14:45	15:46	16:45	LC 18:00 TC 17:56
SU 10:40 FC 11:00	9/28/90	9 (3-3)	AS AL 11:00	BS BL 13:15	CS CL 15:53	11:00	12:00	13:00	14:00	LC 15:35 TC 15:05
SU 09:55 FC 10:15	10/2/90	10 (1-3)	AS AL 10:15	BS BL 12:15	CS CL 14:30	10:15	11:15	12:15	13:15	LC 14:30 TC 14:21

12:30 Blank Spikes

FC - First Charge, SU - Startup, LC - Last Charge, TC - Testing Completed.

ASH PH LOG

FACILITY AMI Central Carolina ~~CAPE FEAR MEMORIAL HOSPITAL~~

LOCATION ~~WILMINGTON, NC~~ Sanford, NC

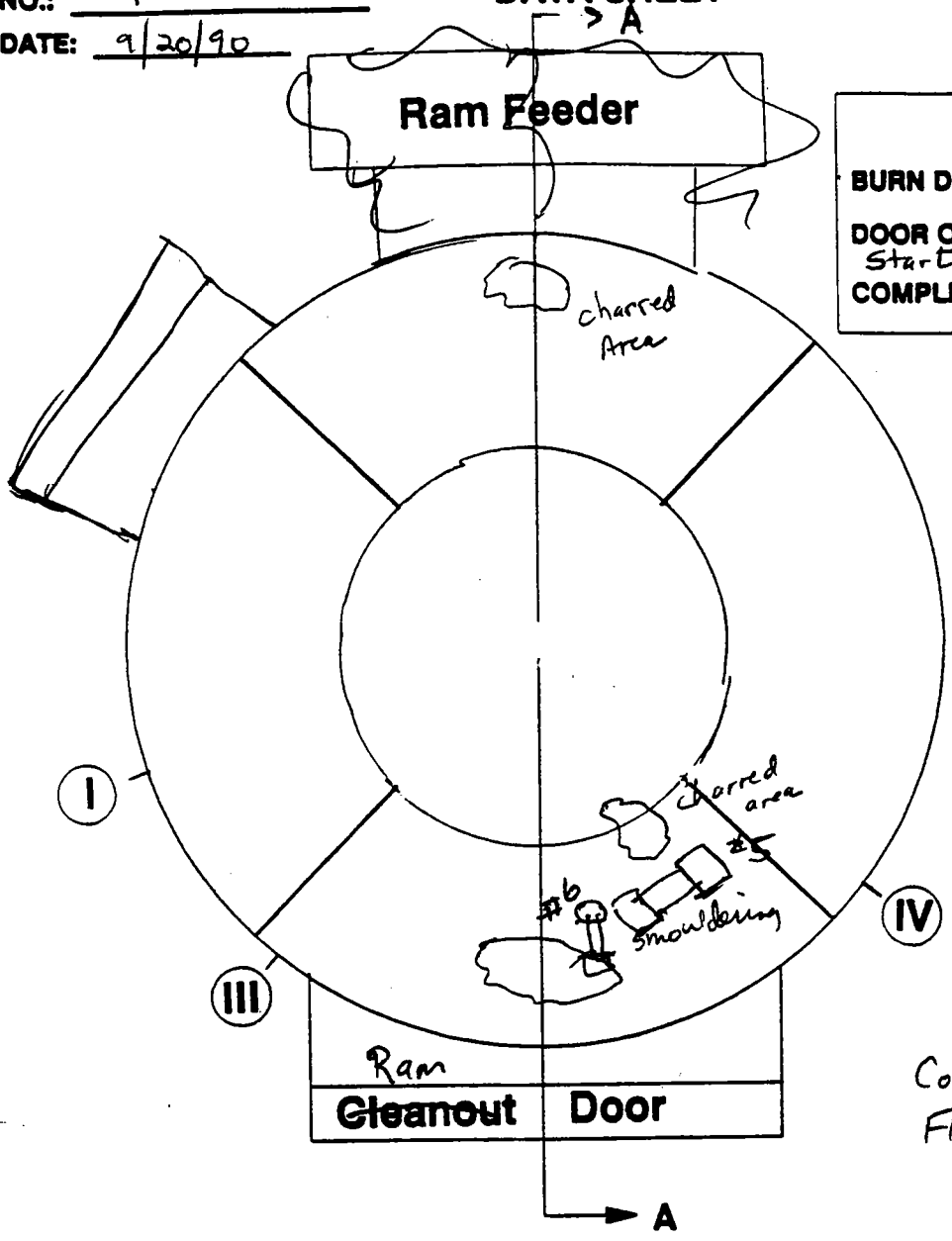
BY LJR

TEST DATE	TEST NUMBER	SAMPLE DATE	QUANTITY	H2O PH	REF PH (10.0)	REF PH (4.0)	ASH PH #1	ASH PH #2	ASH PH #3	AVERAGE
9/20	1	9/21		7.0	9.9		10.5	10.6	10.6	
	2	9/22		7.0	9.9		10.4	10.5	10.5	
	3	9/23		7.0	9.9		11.0	11.1	11.1	
	4	9/24		7.3	9.9		10.8	10.8	10.8	
	5	9/25		7.1	9.9		10.5	10.5	10.5	
	6	9/26		7.1	9.9		10.1	10.1	10.1	
	7	9/27		7.2	9.9		10.3	10.4	10.4	
	8	9/28		7.3 ~~7.0~~	9.9		7.0 ~~10.7~~	7.1 ~~10.8~~	7.1 ~~10.8~~	
	9	9/29		7.0	9.9		10.7	10.8	10.8	
	10	10/3		7.2	9.8		11.1	11.2	11.2	

FACILITY: CCH
LOCATION: Sanford, NC
RUN NO.: 1
RUN DATE: 9/20/90

MWI
ASH & PIPE RECOVERY DATA SHEET

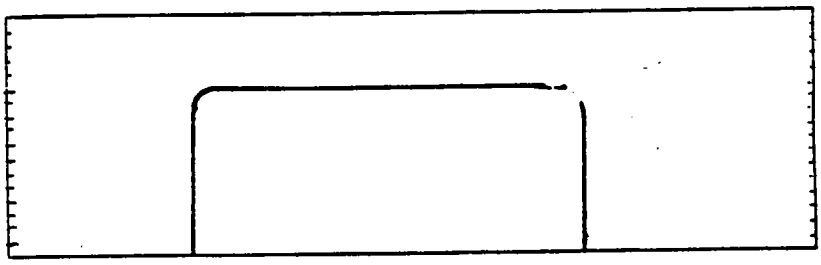
DATE: 9/21/90
BY: LJR



	DATE	TIME
BURN DOWN:	9/20	18:15
DOOR OPENED:	9/21	7:15
Start	9/21	8:08
COMPLETED:	9/21	9:05

PIPE#	ID	DEPTH	ΔT
1			
2			
3			

ASH WEIGHTS		
Course	1	5.9 - 48.1 3.8
Fines	2	6.0 - 43.6 12.4
	3	
	4	
	5	
	6	
	TOTAL	21.2



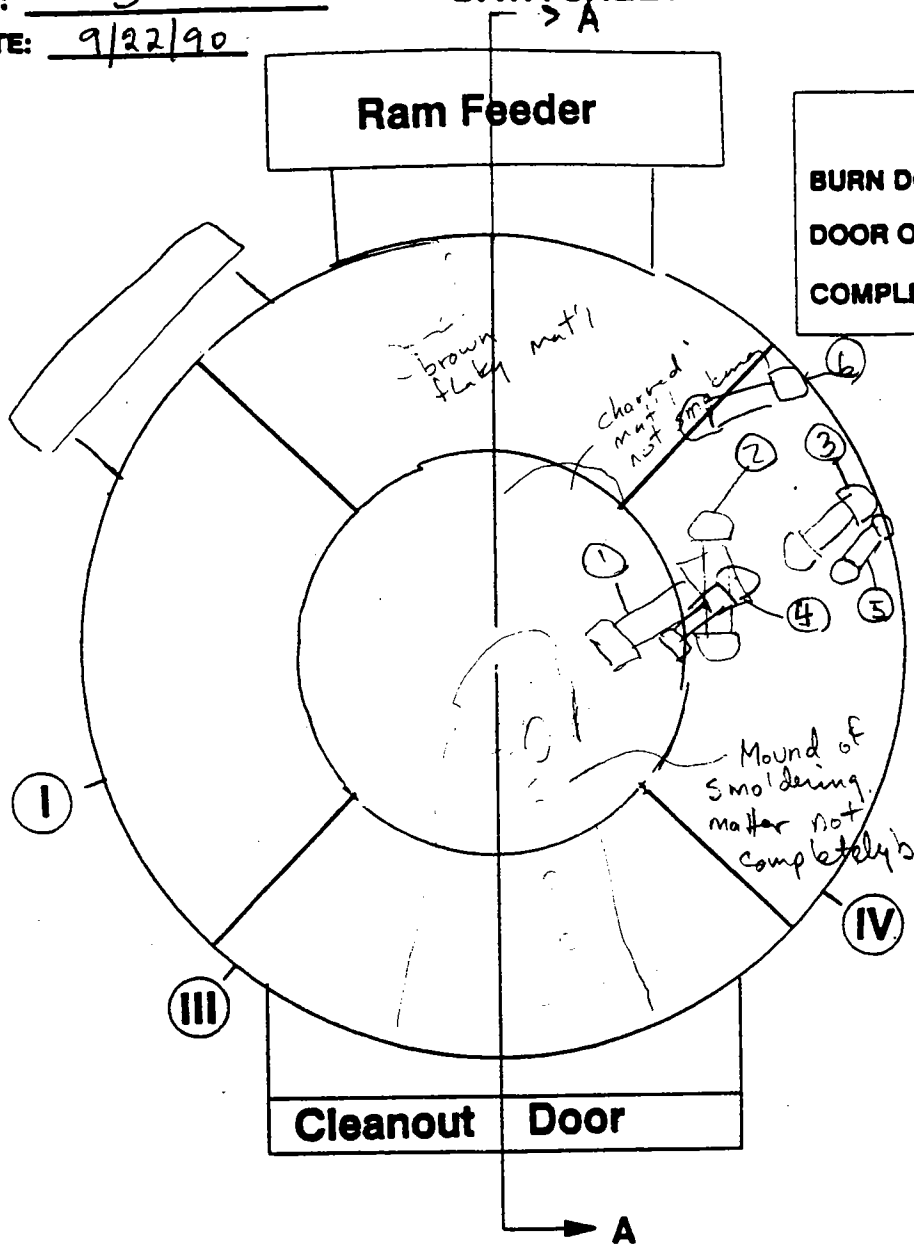
Section "A-A"

NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
RUN NO.: 3
RUN DATE: 9/22/90

MWI
ASH & PIPE RECOVERY DATA SHEET

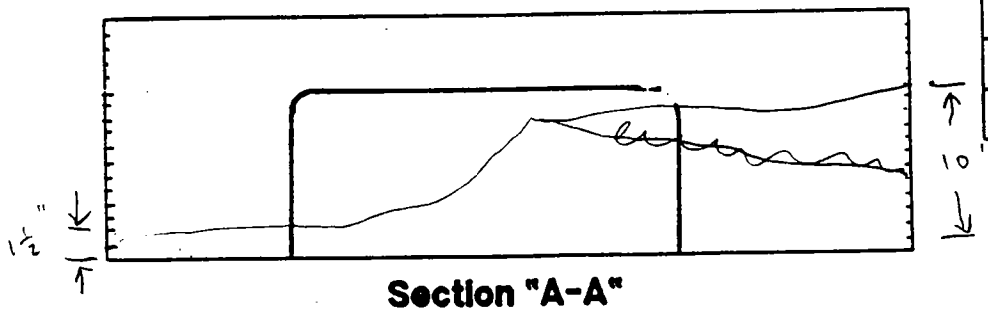
DATE: 9/23/90
BY: LJR



	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		

PIPE#	ID	DEPTH	ΔT
1 LG		4"	
2 SM		6"	
3 LG		4"	
4 SM		1-2"	
5 SM		4"	
6 LG		0	

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	



Section "A-A"

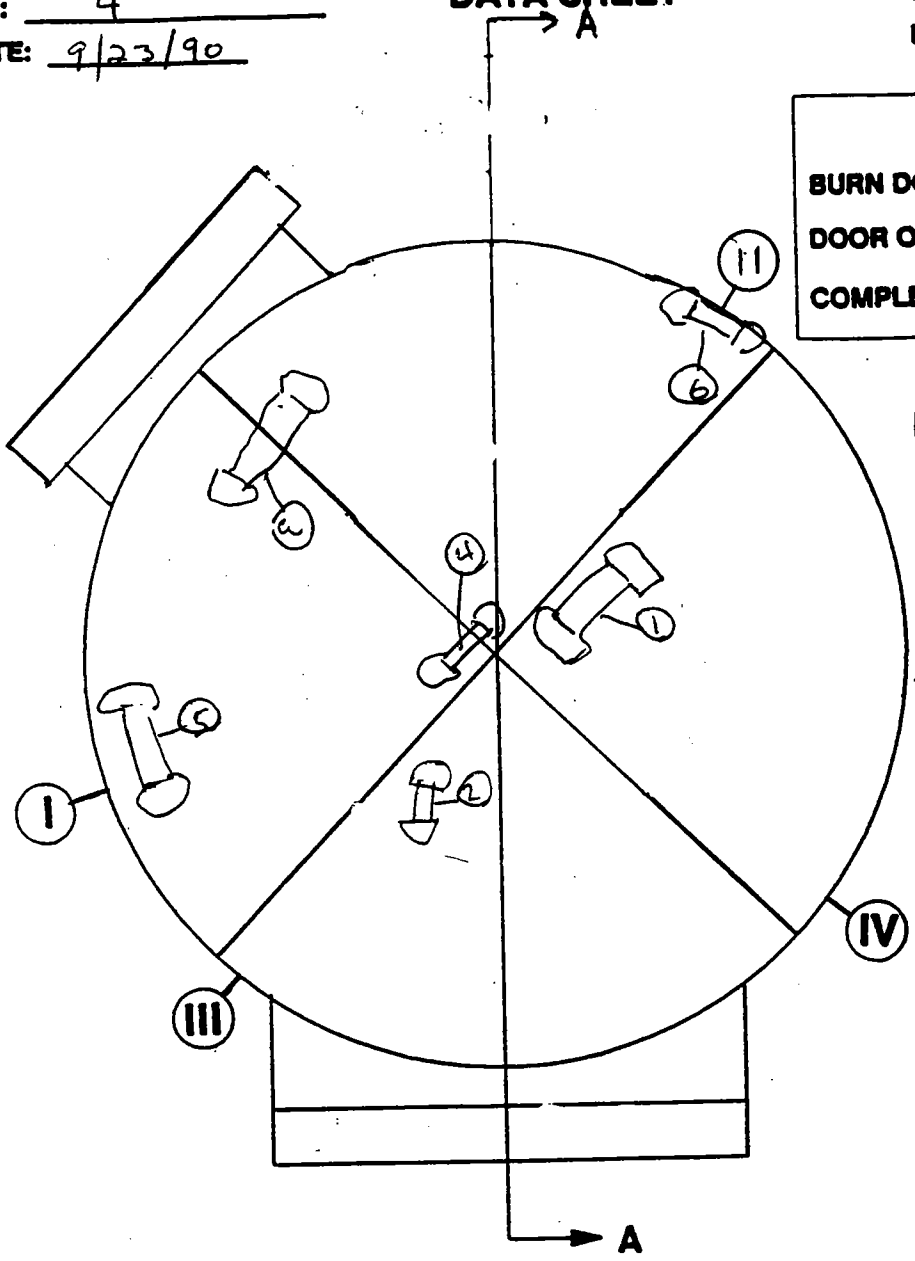
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
JN NO.: 4
RUN DATE: 9/23/90

MWI
ASH & PIPE RECOVERY DATA SHEET

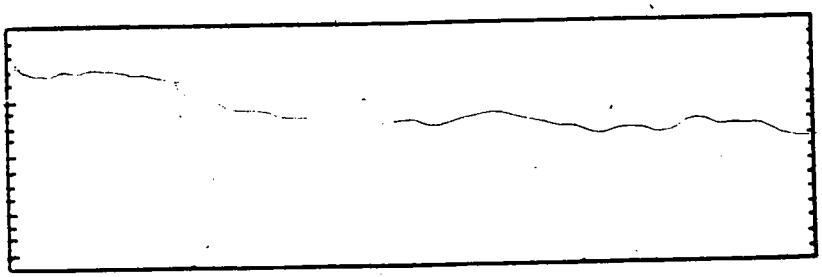
DATE: 9/24/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 LG		22"	
2 SM		18"	
3 LG		0"	
4 SM		12"	
5 LG		0"	
6 SM		0"	

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	



Section "A-A"

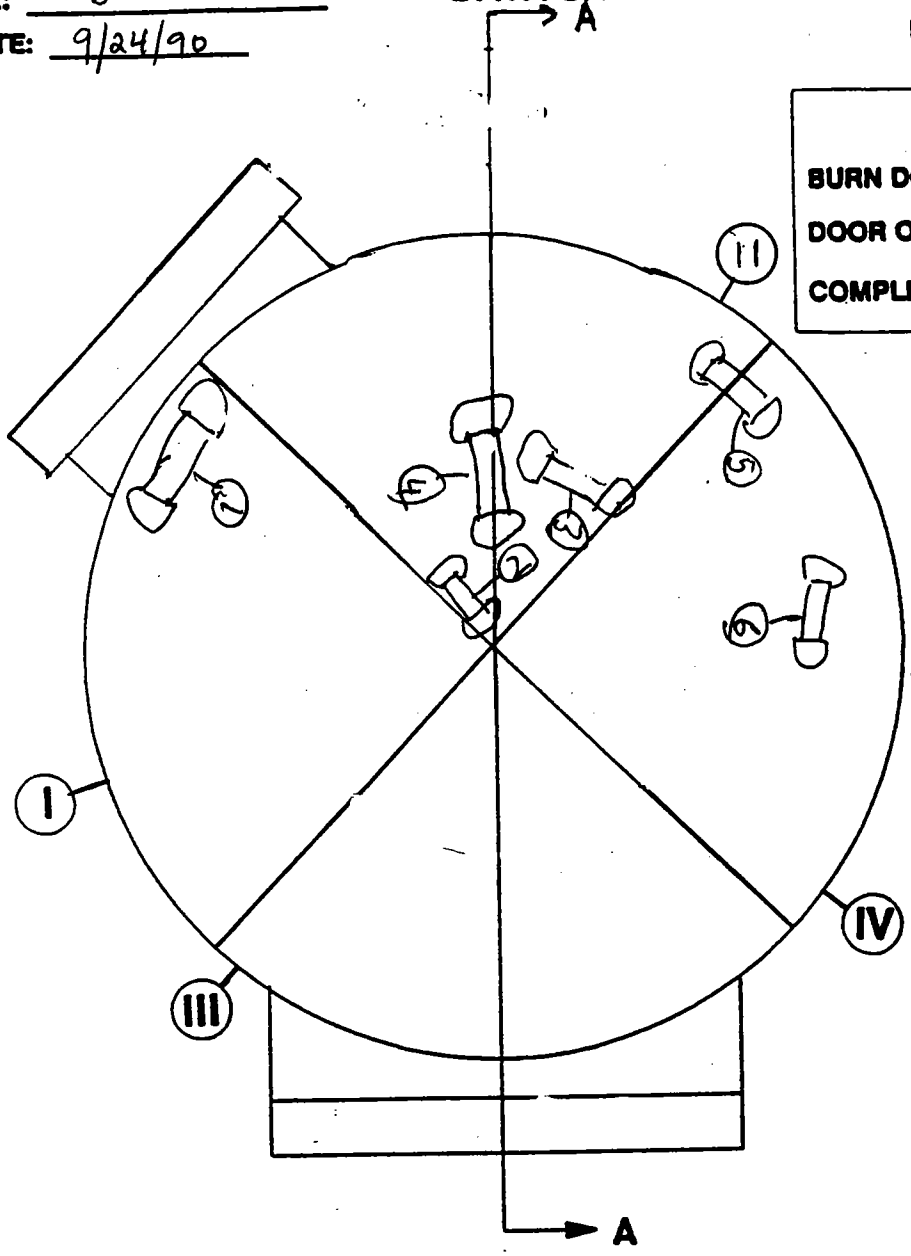
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
JN NO.: 5
RUN DATE: 9/24/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 9/25/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		

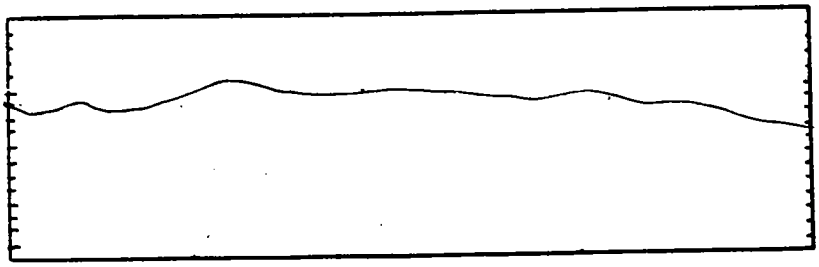


PIPE#	ID	DEPTH	ΔT
1 LG		0	> <
2 SM		12"	> <
* 3 LG		10"	> <
4 LG		2"	> <
5 SM		1"	> <
6 SM		½"	> <

* too smoky for photo

ASH WEIGHTS	
1	56.9-T
2	79.9-T
3	
4	
5	
6	
TOTAL	

C



Section "A-A"

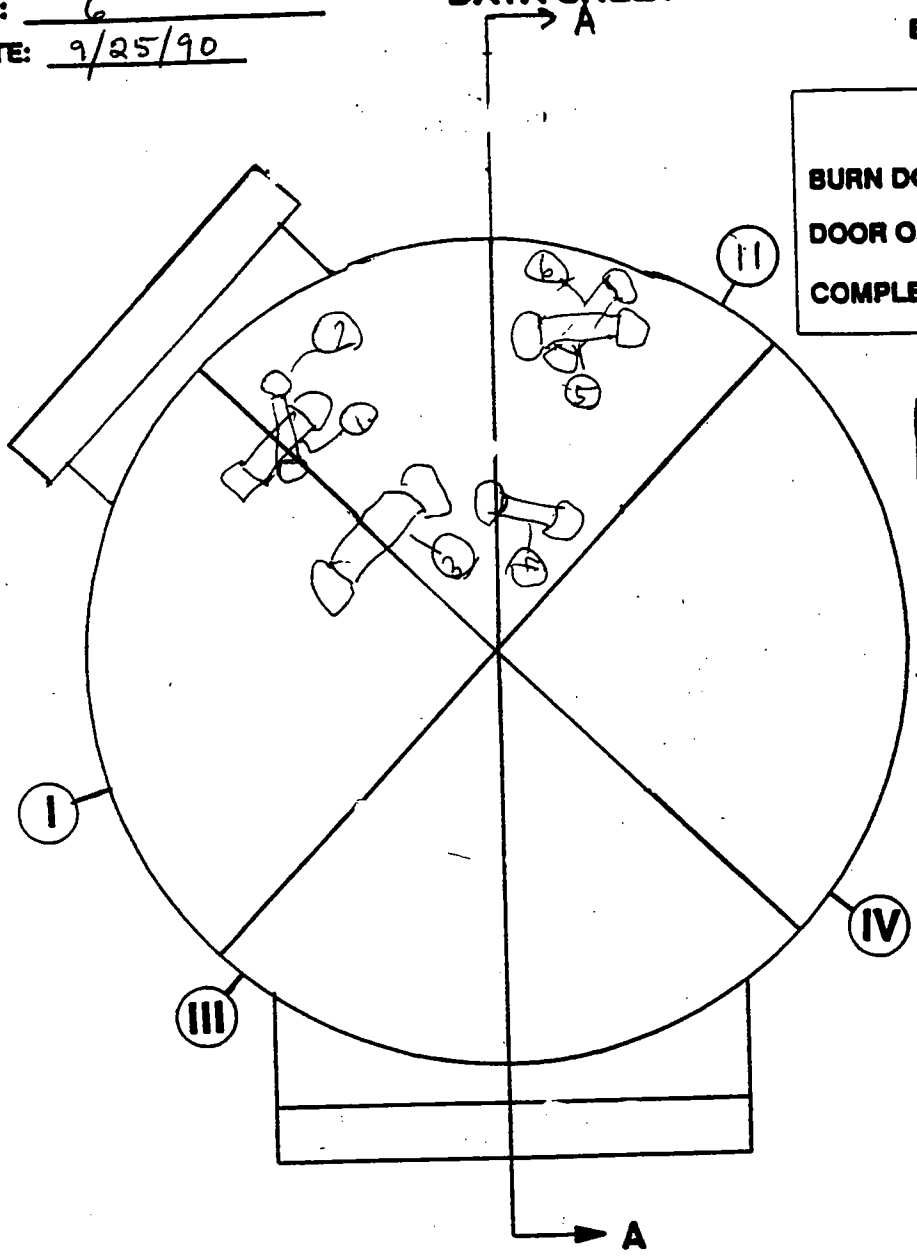
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
RUN NO.: 6
RUN DATE: 9/25/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 9/26/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 LG		2"	
2 SM		0"	
3 LG		0"	
4 SM		8"	
5 LG			
6 SM			

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	

Section "A-A"

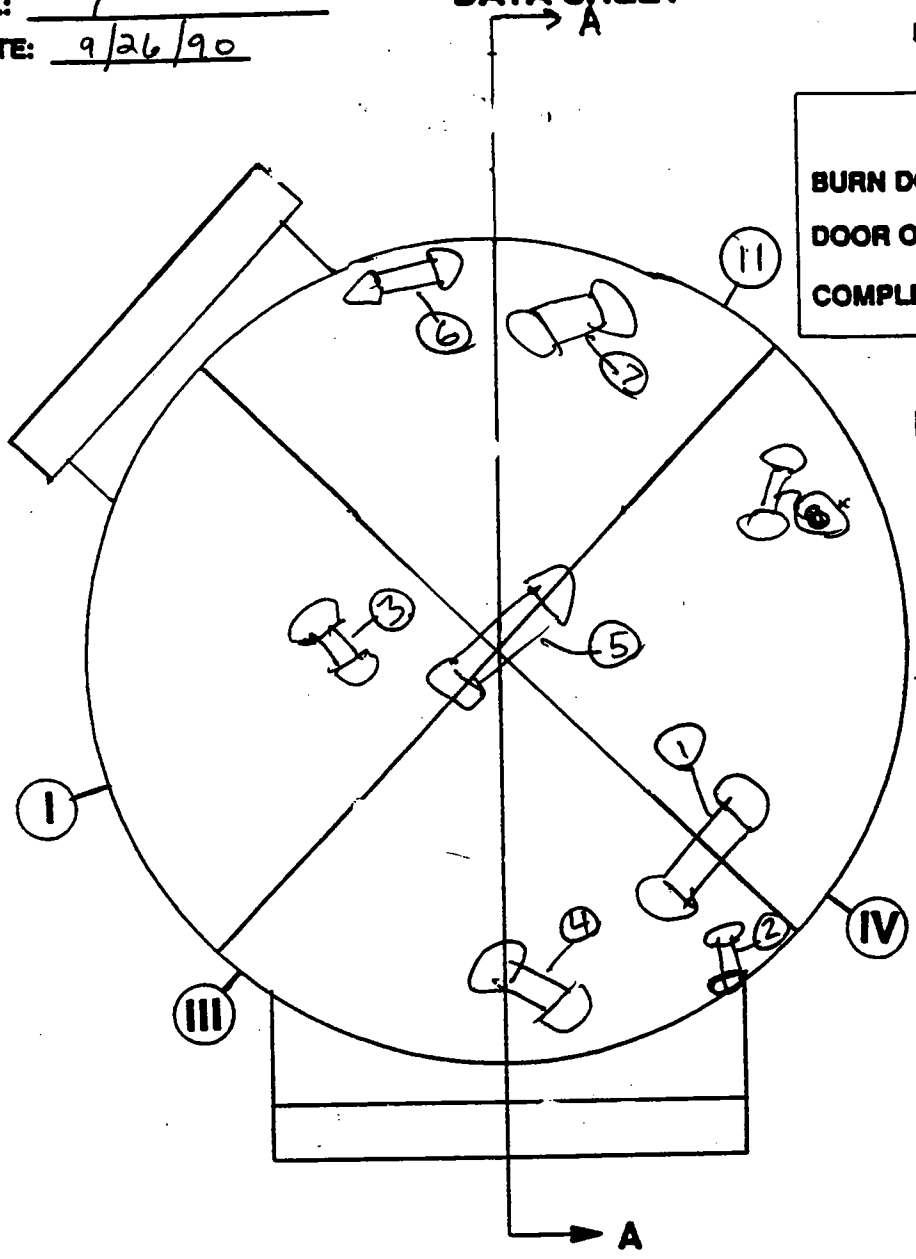
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
/N NO.: 7
RUN DATE: 9/26/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 9/27/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 LG		6"	
2 SM		4"	
3 SM		4"	
4 LG		10"	
5 LG		18"	
6 SM		6"	
7 LG		0"	
8 SM*		1"	

* ORIENTATION DOT KNOW ~~ARRAY LOCATION~~

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	

Section "A-A"

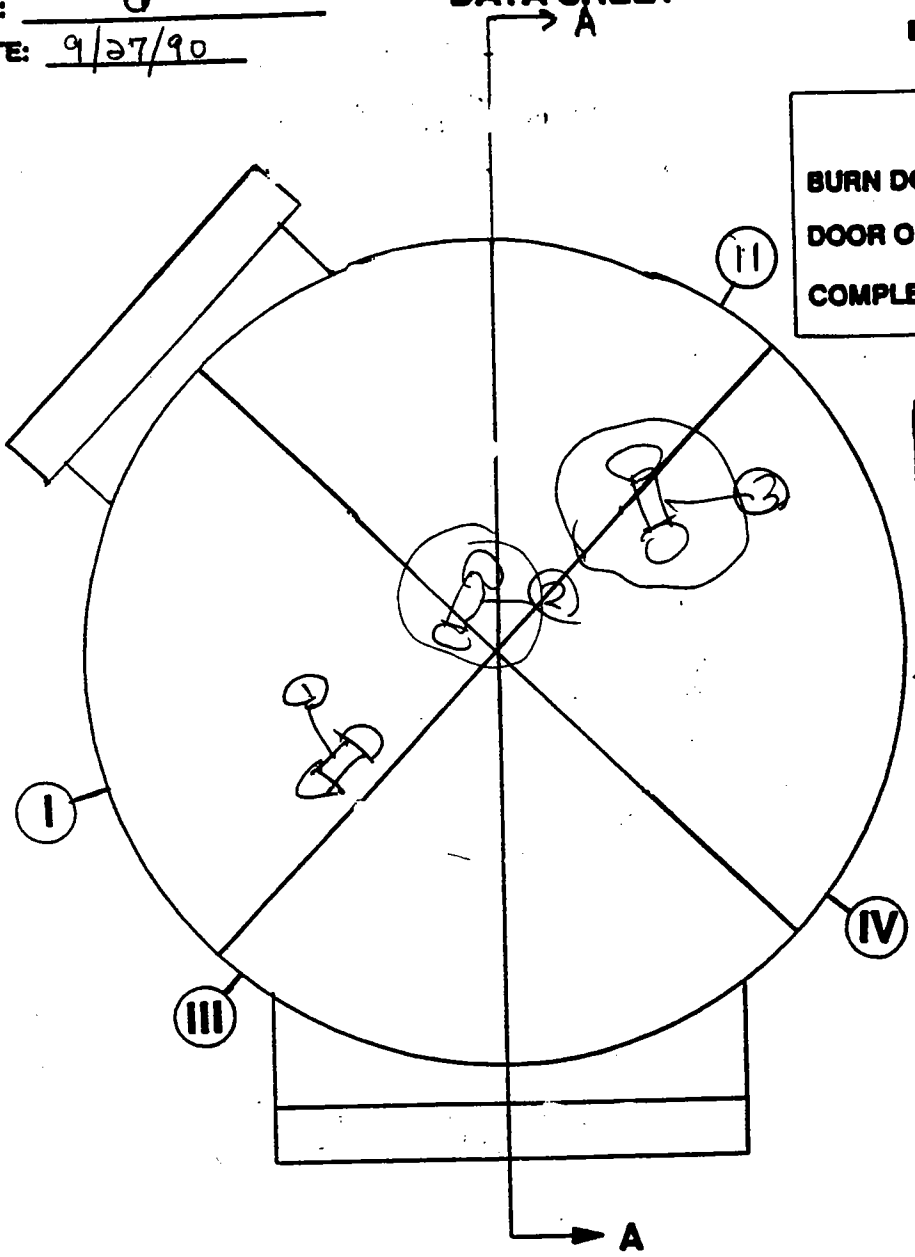
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
N NO.: 8
RUN DATE: 9/27/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 9/28/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 SM		4"	
2 LG		4-6"	
3 LG		4-6"	
4 LG			
5 SM			
6			

4 Unknown
5 Unknown

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	

Section "A-A"

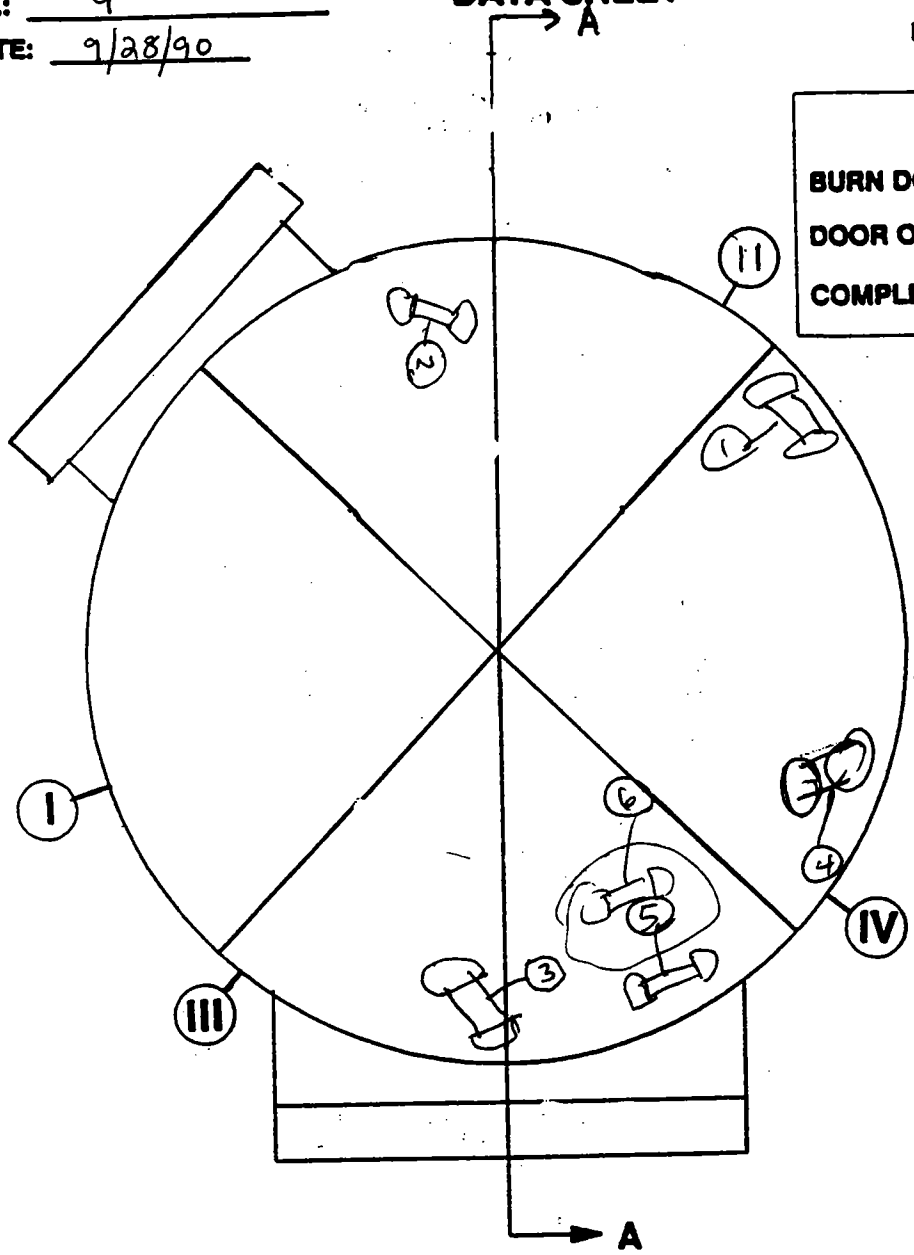
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
JN NO.: 9
RUN DATE: 9/28/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 9/29/90
BY: LJR

	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 LG		8"	
2 SM		4"	
3 LG		1½"	
4 LG		4"	
5 SM		1"	
6 SM		0"	

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	

Section "A-A"

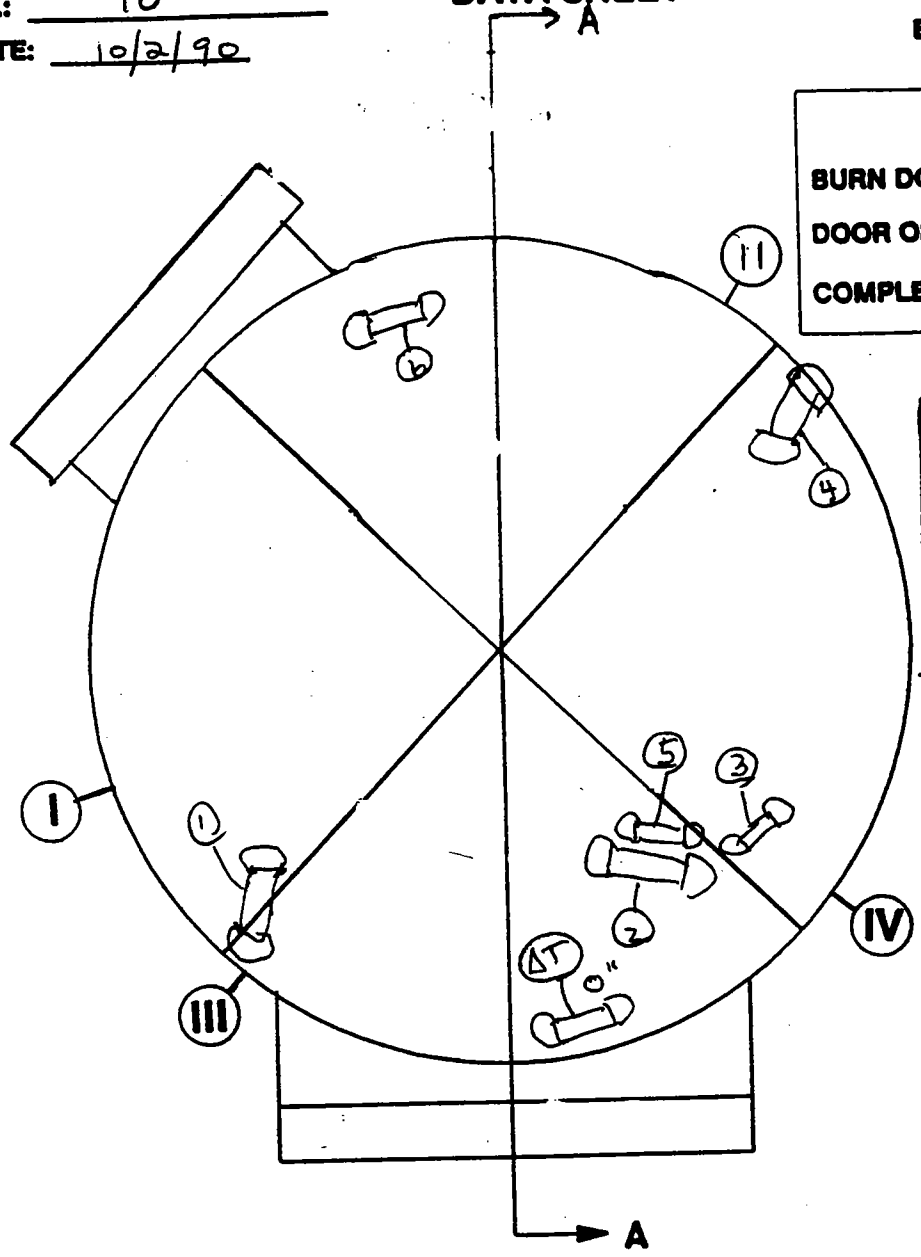
NOTES:

FACILITY: CCH
LOCATION: Sanford, NC
JN NO.: 10
RUN DATE: 10/2/90

MWI
ASH & PIPE RECOVERY DATA SHEET

DATE: 10/3
BY: LJR

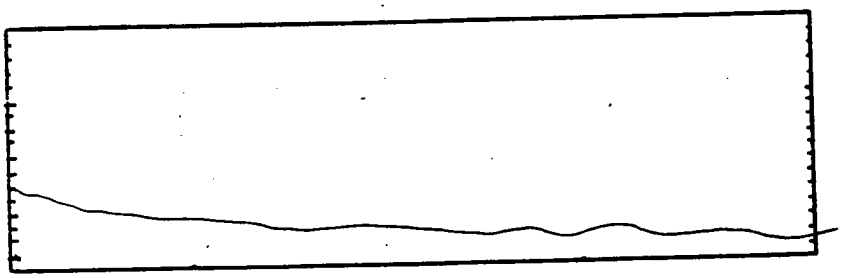
	DATE	TIME
BURN DOWN:		
DOOR OPENED:		
COMPLETED:		



PIPE#	ID	DEPTH	ΔT
1 LG		2"	
2 LG		1"	
3 SM		1"	
4 LG		4"	
5 SM		1"	
6 SM		0"	

ΔT was a blank pipe with thermocouple for temperature measurement.

ASH WEIGHTS	
1	
2	
3	
4	
5	
6	
TOTAL	



Section "A-A"

NOTES:

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	Ed Ball
Location:	Sanford, N.C.	**Date:**	9-20-90
		Run No.:	1-1

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	13:40
Time synchronized?	12:50
Charging begun at:	

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** Ed Ball
Location: Sanford, N.C. **Date:** 9-20-90
Run No.: 1-1

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1900				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-20-10 RUN 1-1

OPERATOR'S NAME: Ed Bell

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
[illegible]	195.8	184.4			START-UP
[illegible]	432.8	347.0			
[illegible]	616.0	555.8			
13:50	779.0	765.8			
13:55	851.4	824.4			
13:57	900.6	860.4			
14:00	899.4	860.0	27.7	Path	START TESTING - SPIKE TYPES AS+AL, SPIKE BAG #1 *
[illegible]	963.0	1043.4			
14:08	1033.2	973.2			
14:10	1061.2	960.6			
14:13	1102.2	955.6			
14:15	1105.2	997.2	25.0	Path	COLD RATS
14:16	1059.2	1278.4			DIOXINS STOPPED RUNNING (BAG ON PROBE)
14:20	1094.4	1231.4			
14:25	1104.4	1204.0			TEMPS. IN STACK ARE AROUND 500°F
14:27	1127.6	1196.0			DIOXINS RESUMED TESTING
14:30	1161.2	1192.8	27.7	Path	
14:33	1117.0	1426.2			
[illegible]	1148.0	1345.0			
[illegible]	1166.8	1292.8			
14:40	1207.2	1274.0			
14:45	1252.0	1286.8	53.9	Path	LARGE BOX OF RATS
14:46	1215.0	1497.6			
14:50	1210.4	1406.4			
14:57	1245.2	1382.8			
15:00	1268.8	1386.2			
15:05	1305.6	1396.6			
15:10	1333.4	1383.2			
15:15	1377.4	1376.4	26.9	Path	SPIKE BAG #2 *
15:17	1328.4	1610.0			
15:20	1345.4	1476.6			
15:25	1384.6	1417.6			
15:28	1399.6	1416.4			
15:30	1413.4	1455.8	57.8	Path	LARGE BOX
15:32	1359.0	1658.6			
15:35	1348.4	1574.4			
15:40	1350.4	1528.4			
15:45	1368.4	1512.0			
15:50	1398.4	1510.4			
15:55	1423.2	1512.6			
15:59	1445.6	1504.8			
16:00	1478.2	1538.0	28.9	Path	SPIKE BAG #3 *
16:02	1412.6	1844.6			
16:05	1408.4	1736.2			
16:10	1455.4	1605.6			

DRPT-CF

DATE: 9-20-90

OPERATOR'S NAME: Ed Bailey Run 1-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
15:12	1463.0	1575.4			
15:14	1475.4	1591.4			
15:15	1493.8	1637.0	50.7	Vinyl	Spare Bags #5 - #6 *
16:19	1441.2	1752.8			
16:28	1435.4	1735.0			
16:25	1443.2	1583.2			
16:31	1478.8	1643.6			
16:35	1500.0	1644.4			
16:40	1526.8	1623.4			
16:43	1530.0	1600.0			Primary Burner shut off
16:44	1484.2	1470.0			
16:45	1523.2	1603.0	24.5		
16:47	1487.0	1689.6			Primary Burner on
16:49	1479.8	1868.0			
16:50	1496.4	1823.6			
16:55	1526.6	1723.4			
16:58	1485.6	1509.2			
16:59	1508.2	1566.2			
17:00	1538.2	1618.6	25.5		Spare Bag #4 *
17:04	1485.4	1707.4			
17:07	1495.6	1754.4			
17:10	1522.4	1741.2			
17:13	1502.2	1521.6			
17:14	1495.6	1492.6			
17:15	1531.4	1572.4	24.2		
17:22	1519.4	1764.8			
17:25	1517.2	1585.2			
17:28	1516.8	1620.0			
17:29	1534.4	1664.2			
17:30	1500.2	1606.4	52.0		
17:33	1472.8	1898.2			
17:39	1496.6	1821.2			
17:40	1504.8	1800.4			
17:45	1530.6	1789.4			
17:50	1528.4	1727.6			
17:55	1537.8	1620.0			
17:57	1488.8	1454.8			Primary burner + blower energized
17:58	1520.8	1540.0			
17:59	1541.2	1554.0			
18:00	1512.0	1477.4	24.2		
18:02	1501.8	1499.0			
18:05	1492.8	1392.0			
18:06	1492.0	1386.8			Primary burner + blower energized
18:07	1518.2	1615.0			
18:08	1535.4	1682.0			Primary burner + blower de-energized

DRPT-CF

DATE: 9-20-90

OPERATOR'S NAME: Ed Call Run 1-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
15:09	1527.2	1548.2			
18:10	1504.4	1470.6			
18:12	1518.0	1523.4			
18:13	1490.6	1520.4			
18:14	1508.4	1454.6			
18:15	1521.2	1469.2	54.4		Last charge (Ammonium) Spare pipes CS + CL *
18:20	1495.0	1820			Testing complete
18:22	1512.2	1832.2			
18:30	1531.4	1821.8			
		TOTAL	503.4		

DRPT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: L. J R.
Date: 9/21/90
Run No.: 1 (1-1)

	DATE:	TIME:
Burndown initated at:	9/20	18:15
Incinerator opened at:	9/21	7:15
Ash removal start:	9/21	8:08
finish:	9/21	9:05

Qualitative assessment of ash:	
Primary chamber temp.	TLC - 293.8 TUC - 288.4
Ash bed depth	Depth varies from 3" - 10"
Percent of hearth covered	covering 100% of hearth
Recognizable combustable items present?	No recognizable combustibles on top
Color:	White ash shows good burnout on top. Several small smouldering spots 3"-6" in ϕ near charge door. 2 lg. and 2 small pipes visible near cleanout door. Lots of tiny bones visible. 1 lg and 1 small pipe found near charge door.
Weight of ash:	3.8 - course 17.4 fines
Net weight, lb/container	~~21.2 #~~
Total weight, lb:	21.2
Total waste charged, lb:	503.4
Percent of total charged:	4.2%

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	Ed Bair C
Location:	Sanford, N.C.	**Date:**	9-21-90
		Run No.:	2-1

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	09:25
Time synchronized?	09:35
Charging begun at:	09:45

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** Ed Kell
Location: Sanford, N.C. **Date:** 9-21-93
Run No.: 2-1

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 7-21-99

OPERATOR'S NAME: Ed Ball Run 2-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
07:25	225	218			Pre-heat
07:27:30	497.0	492.2			
07:31	691.4	694.0			
09:38	808.2	805.6			
09:41	705.0	904.2			
09:43	712.8	884.8	42.1	RB	Plastic containers, poly-vinyl, gloves Spare bags AS-A-Space Pac #1 *
09:47	579.6	1131.6			
09:50	893.6	1456.4			
09:52	917.4	1501.2			
09:55	956.8	1561.0			
09:59	991.8	1543.2			
10:02	1019.4	1463.0	37.5	RB	Light Gray smoke
10:04	974.0	1819.4			
10:05	979.2	1791.0			
10:08:35	1016.0	1574.6			
10:10	1035.6	1615.8			
10:14	1079.6	1637.8			
10:15	1107.8	1558.6	41.3	RB	Dense Black smoke
10:20	1091.8	1653.2			
10:25	1142.4	1636.0			
10:28	1169.6	1650.2			
10:29	1171.6	1651.2			
10:30	1200	1600	40.1	RB	Medium puff of dark smoke
10:31:30	1173.5	1715.8			
10:35	1140.4	2119.2			
10:36	1145.0	2127.0			
10:40	1174.6	1991.6			
10:44	1216.8	1808.4			
10:45			39.3	RB	Dense Black Smoke
10:46	1283.4	1915.2			
10:49	1254.8	2026.2			
10:50	1264.6	1919.2			
10:55	1312.0	1738.6			
10:59	1350.6	1673.4			
11:00	1406.6	1782.4	43.3	RB	Dense Black Smoke Spare Bag #2 *
11:02:25	1319.6	2083.2			
11:06:12	1265.0	2284.6			
11:08	1277.4	2192.0			
11:10	1305.0	2090.8			
11:14	1353.4	1870.0			
11:15	1414.4	1763.6	39.6	RB	Sharps Containers Dense Black Smoke
11:19:55	1351.4	2314.2			
11:23:35	1369.0	2095.4			
11:24:53	1384.2	2005.8			Change primary chamber set point to 1400°F to
11:25	1386.2	1998.2			try to limit temp rise in secondary

DRFT-CF

DATE: 7-21-9?

OPERATOR'S NAME: Ed Call Rev 2-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
11:29	1411.4	1910.8			
11:30	1442.0	1810.0	40.5		Sharps containers, gowns, paper
11:33	1391.4	1863.2			
11:35	1385.6	1700.4			
11:37:47	1387.2	1587.6			
11:40	1390.8	1565.0			
11:44	1397.0	1566.6			
11:45	1431.6	1546.6	39.9	RB	Large amt. of dense black smoke
11:50	1338.0	2280.1			
11:55	1361.4	2392.0			
11:56	1876.1	3323.0			Chamber Temp. Chamber set point = 1300 F ± 50
11:57	1372.0	2085.4			Temp. increase in secondary.
12:01	1372.2	1691.6			
12:03	1453.4	1652.8	44.9	RB	plastic, gloves, trash Spore Tubes B & Bot Spore Bag # 3 *
12:07	1377.0	1707.8			body fluids containers Dense Black smoke
12:08:42	1364.6	1572.6			
12:12:25	1393.2	1586.4			
12:15	1385.0	1482.4	39.7	RB	Sharps containers, gowns, paper, plastic Small amt. of Black smoke
12:18	1343.8	1738.6			
12:20	1321.2	1694.0			
12:25	1335.4	1565.8			
12:29	1359.2	1565.4			
12:30	1384.2	1738.2	41.0	RB	Small amt. of dense black smoke
12:33	1364.6	2089.6			
12:37:30	1425.8	1801.6			
12:46	1440.6	1635.4			
12:52	1443.8	1593.4			
12:44	1457.8	1631.6			
12:45	1516.6	1654.4	43.8	RB	Plastic containers of body fluids & Tissue — Spore Bag # 4 *
12:47:35	1424.6	1865.8			Large amt. of dense black smoke
12:50	1401.6	1640.0			
12:55	1414.8	1598.6			
12:58	1435.6	1546.4			
12:59	1444.4	1515.2			
13:00	1496.2	1567.6	40.8	RB	Plastic containers of body fluids & Tissue, gowns, paper
13:05	1432.0	1575.8			dense black smoke
13:12	1448.0	1474.2			
13:14	1456.2	1454.6			
13:15	1488.2	1634.6	39.7	RB	dense black smoke
13:18	1388.0	2115.6			

DATE: 9-21-90

OPERATOR'S NAME: E.A. GALL Run 2-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
13:22	1393.4	1949.2			
13:25	1435.6	1628.2			
13:27	1461.8	1593.0			
13:29	1484.2	1580.6			
13:30	1536.4	1764.4	43.2	RB	Large amt. of dense black smoke
13:33	1461.4	2170.4			
13:35	1473.6	2056.8			
13:38:35	1505.4	1791.4			
13:40	1521.4	1681.0			
13:44	1534.4	1588.6			
13:45	1564.8	1667.4	43.1	RB	medium amt. of black smoke
13:48	1471.2	1978.0			
13:50	1463.4	1885.2			
13:53	1476.6	1759.0			
13:55	1487.4	1641.8			
13:59	1522.8	1572.0			
14:00	1548	1735	43.8	RB	Large amt. of dense black smk
14:03	1444	2237			
14:05	1427.4	1946.0			
14:10	1482.2	1610.0			
14:13	1518.4	1607.0			
14:14	1522.8	1602.6			
14:15	1544.6	1705.0	37.7		
14:18	1443	2237.2			
14:20	1438.2	1947.6			
14:25	1484.4	1637.4			
14:28	1527.4	1617.6			
14:29	1529.0	1582.0			
14:30	1547	1830	37.6	RB	
14:31	1519.6	2020.8			
14:34	1416.8	2374.8			
14:35	1423.2	2209.6			
14:37	1433.0	2070			Testing completed
14:44	1501.2	1626.8			
14:45			42.6	RB	
14:49	1489.0	1847.4			
14:52	1520.0	1645.8			
14:55	1537.4	1635.2			
14:58	1580	1628			
14:59	1576.2	1625.0			
15:00	1573	1972	40.2	RB	
15:03	1489.6	2135.0			

DRPT-CF

DATE: 9-21-90

OPERATOR'S NAME: Run 2-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
3:15	1515.4	1753.8	40.5	RB	
3:19	1457.4	2130.4			
3:22	1474.4	1805.2			
3:27	1487.2	1655.2	37.5	RB	
3:35	1423.2	1981.4	[redacted]		
3:45	1551.3	2001.2	39.1	RB	Last charge. Spore pipes CS + CB
			1015.8	Total	

DRPT-CF

1015.8 25

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/22/90
Run No.: 2 (2-1)

	DATE:	TIME:
Burndown initated at:	9/21/90	16:00
Incinerator opened at:	9/22/90	06:45
Ash removal start:	9/22/90	07:33
finish:	9/22/90	09:12

Qualitative assessment of ash:

Primary chamber temp.	TLC - 431.0 F TCU - 352.0 F
Ash bed depth	Bed varies from 3 or 4 inches at cleanout door to 3 feet down center near back wall.
Percent of hearth covered	
Recognizable combustable items present?	Pieces of gauze, gown mat'l etc present.
Color:	Upon agitation mat'l burst into flames. No pipes visible. After allowing mat'l to burn a while and attempting to remove hot material, it was decided to quench the bed with water. Lg amounts of unburned mat'l were underneath. Due to agitation of the bed it was not possible to accurately locate any of the pipes.

Weight of ash:

187.1 - 48.1 = 139.0* Total weight

Net weight, lb/container	
Total weight, lb:	139.0*
Total waste charged, lb:	1015.8
Percent of total charged:	13.7%*

* Wet weight due to quenching

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	E I [illegible] C
Location:	Sanford, N.C.	**Date:**	9-22-93
		Run No.:	1-2

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	09:25
Time synchronized?	07:18
Charging begun at:	09:45

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** EJ Ball
Location: Sanford, N.C. **Date:** 7-22-99
Run No.: 1-2

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1900				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-22-90

OPERATOR'S NAME: El Ralc Run 1-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
09:25	[illegible]	217.8			Start-up
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	1023	35.9	P	First charge - Spare Bag: A5+#6 Spare Bag #1 *
09:50	1128.2	1310.4			
09:55	1123.6	1292.4			
[illegible]	1145.6	1279.4			
[illegible]	1206.8	1279.0			
[illegible]	1246.0	1271.6			
10:04	1229.0	1257.2			
10:05	1300.2	1223.4	53.4	P	No visible smoke during charging
10:07:45	1247.0	1506.6			
[illegible]	1291.2	1354.4			
[illegible]	1348.4	1284.0			
10:20	1378.0	1273.6			
10:30	1[illegible]5.6	1255.0			
[illegible]	1473.2	1255.8			
[illegible]	1480.0	1256.0			
[illegible]	1485.2	1251.1	48.1	P	
10:38	1370.8	1611.4			
10:40	1373.[illegible]	1565.2			
[illegible]	1397.2	1463.6			
10:56	1511.6	1392.4			
10:57	1518.6	1388.4			
10:59	1486.6	1321.6			
11:00	1500.2	1330.8	29.7	P	Spare Bag #2 *
11:02:26	1453.8	1641.6			
11:05	1481.0	1523.4			
11:07:39	1500.0	1469.4			
11:10	1497.6	1430.4			
11:12	1510.2	1407.8			
11:14	1469.8	1349.8			
11:15	1513.8	1369.0	25.0	P	
11:20	1491.0	1552.4			
11:25	1529.4	1514.8			
11:29	1530.2	1458.4			
11:30	1466	1361	56.9	P	No visible smoke during charging
11:41	1501.8	1720.0			
11:45	1490.4	1523.2			
11:50	1521.8	1626.6			
11:54	1528.8	1543.0			
11:55	1523.2	1503.4			
11:57	1499.4	1435.4			

DRPT-CF

DATE: 9-22-20

OPERATOR'S NAME: Ed Cole Run 1-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
11:50	[illegible]	1432.0			
12:00	1559	[illegible]37	27.1	P	Small amt. [illegible] Spare light # 2 *
12:05	1561.6	[illegible]			
12:10	1507.4	1538.2			
12:14	1517.2	1499.0			
12:15	1512.2	1530	21.2	P	Spare Pipes [illegible] *
12:20	1493.6	1528.8			
12:32	1537.8	1552			
12:34	1493	1480.4			
12:35	1516.6	1607.8			
12:40	1525.2	1553.8			
12:50	1495.8	1446.4			
12:54	1526.1	1527.6			
12:55	1527.2	1538.2	25.2	P	Small amt. of light gray smoke
12:49	1494.2	1431.4			
12:55	1512.2	1472.2			
12:57	1539.2	1555.0			
13:00	1493.6	1419.4			
13.00	1538.6	1474.8	66.0	P	Spare Bay = 4 *
13:04:32	1489.6	1866.6			
13:07	1510.2	1825.6			
13:10	1535.4	1805.8			
13:15	1539.8	1647.2			
13:20	1525.4	1507.2			
13:25	1514.2	1414.2			
13:29	1510.0	1381.0			
13:30	1532.9	1453.0	54.4	P	
13:35	1522.2	1522.4			
13:40	1510.9	1559.4			
13:45	1562.4	1457.2			
13:50	1501.7	1413.2			
13:55	1535.4	1420.2			
13:59	1500.4	1354.6			
14:00	1537.0	1438.4	53.0	P	
14:05	1501.8	1940.6			
14:07	1524.4	1857.8			
14:10	1546	1668			
14:15	1523.1	1558.2			
14:20	1532.6	1537.2			
14:26	1505.4	1388.2			
14:29	1551.4	1457.0			
14:30	1519.9	1402.8	50.4	P	Last charge Spare Cyan CS+CL *
14:35	1528.0	1911.4			
14:40	1545.2	1528.0			Testing Completed
14:42	1549.0	1430.1			

DRPT-CF

DATE: 9-22-21

OPERATOR'S NAME: Ed Gale Run 1-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
14:44	1545.4	1397.4			
14:45	1535	1368			
14:50	1510.8	1323.0			
14:55	1547.2	1449.6			
			588.3	Total	

DRPT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/23/90
Run No.: 3 (1-2)

	DATE:	TIME:
Burndown initated at:	9/22/90	14:30
Incinerator opened at:	9/23/90	09:20
Ash removal start:	9/23/90	10:01
finish:	9/23/90	11:07

Qualitative assessment of ash:

Primary chamber temp.	TcL - 173.0°F TcU - 178.4°F
Ash bed depth	Bed depth varies from less than an inch at cleanout door to about 10" at charge door. A small mound of unburned mat'l is found near charge door and is still smoking. 2 lg + 1 sm. pipe visible on top in quadrant IV. Small region of brown flaky mat'l near cleanout door. Rest of incinerator area covered with light flaky ash and small white bones.
Percent of hearth covered	
Recognizable combustable items present?	
Color:	

Weight of ash:

Course - 50.6 - 48.1 = 2.5 Fines - 63.5 - 43.6 = 19.9

Net weight, lb/container	
Total weight, lb:	22.4 #
Total waste charged, lb:	~~619.5~~ 588.3
Percent of total charged:	3.8 %

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	Ed Oak
Location:	Sanford, N.C.	**Date:**	9-23-90
		Run No.:	2-2

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	11:20
Time synchronized?	11:35
Charging begun at:	11:40

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** Ed Ball
Location: Sanford, N.C. **Date:** 9-23-90
Run No.: 2-2

Time					
Primary burner off, F	1300				
Primary air ~~modulate~~ off, F	1300				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-23-90

OPERATOR'S NAME: Ed Call Run 2-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
11:29	1672	155.8			5th Hr + up
11:29	674.2	775.2			
11:36:17	851.2	805.4			
11:37	854.0	803.4			
11:38	860.2	812.4			
11:39	863.2	824.8			
11:41	845.1	821.2	37.7	RB	First charge Spun Pipe, AS+AL Spun Cap #1 *
11:45	909.8	1608.6			Sharps containers (Testing started)
11:50	1039.6	1616.8			
11:52	1095.8	1611.0			
11:53	1115.0	1592.6			
11:54	1131.6	1513.0			
11:55	1169.0	1738.0	45.3	RB	Sharps containers, gowns, paper small amt. of medium dark smoke
12:00	1158.8	1592.0			
12:05	1309.4	1423.0			
12:10	1306.8	1300.1			
12:12	1279.4	1300.0			
12:14	1309.6	1303.8			
12:15	1233.3	1271.3	40.3	RB	Small amt. of gray smoke
12:20	1344.0	1497.0			
12:25	1378.0	1294.0			
12:27	1367.0	1234.0			
12:29	1342.4	1197.0			
12:30	1337.0	1192.0	40.1	RB	medium gray smoke
12:32	1309.0	1738.4			
12:35	1274.2	1243.8			
12:40	1369.0	1456.8			
12:42	1402.4	1368.6			
12:44	1391.2	1300.8			
12:45	1383	1267	43.4	RB	Small amt. of gray smoke Spun Cap #2 *
12:48	1420	1660			at beginning, dense black smoke at end.
12:50	1451.6	1558.8			
12:54	1519.6	1464.6			
12:55	1533.4	1437.4			
12:57	1336.8	1383.8			
12:59	1508.0	1350.6			
13:00	1487	1323	41.7	RB	Medium amt. of gray smoke
13:05	1399.0	1621.0			
13:10	1407.8	1568.2			
13:14	1447.4	1527			
13:15	1483	1479	40.3	RB	Large amt. of dense black smoke
13:18:45	1418.0	1993.8			
13:20	1437.0	1939.4			
13:23	1509.0	1723.0			
13:29	1665.8	1534.0			

DRPT-CF

DATE: 9-23-90

OPERATOR'S NAME: Ed Coll Run 2-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
13:29	1610.8	1523.2			
13:[illegible]	1632.0	1510.6	41.9	RB	
13:34	1454.0	2009.0			
13:35	1442.8	1936.0			
13:38	1453.2	1728			Large amt. of dense black smoke from stack
13:4[illegible]	1470.6	1566.0			" "
13:44	1557.[illegible]	1426.4			
13:45	[illegible].8	1465.6	39.8	RB	dense black smoke Spare Bag #3
13:[illegible]	15[illegible].2	1783.[illegible]			
13:50	1670	1571			
13:55	1655.2	1519.8			
13:57	1634.4	1469.6			
13:59	1587.8	1421.2			
14:00	1578.8	1496.4	42.2	RB	Small amt of gray smoke
14:03	1608.4	1718.8			Large amt. of dense black smoke from stack
14:04	1637.4	1579.0			" " "
14:05	1660.6	1606.8			" " "
14:10	1720.0	1626.0			
14:12	1740.8	1573.8			
14:14	1740.8	1547.2			
14:15	1713.0	1593.8	41.5	RB	Spare Plastic Bag # *
14:19	1581.0	1781.2			Small amt. of light smoke from stack
14:20	1567.0	1938.2			
14:22	1554.0	1836.8			Large amt. of dark black smoke from stack
14:23	1559	1747.0			" " "
14:25	1594.2	1571.6			
14:30	1699.2	1478.8	41.5	RB	Sharps containers, plastic capsules
14:33:56	1574.6	2246.4			medium gray smoke from stack
14:38	1627.0	1567.2			dense black smoke from stack
14:40	1673.0	1534.8			small amt of light gray smoke from stack
14:41	1696	1494			
14:42	1698.4	1483.0			
14:43	1700.2	1466.6			
14:44	1697.8	1445.2			
14:45	1689	1449	41.5	RB	plastic bed pans, glass bottles, paper — Spare Bag # 4 *
14:47	1625	1791			Large amt. of black smoke from stack
14:50	1700.2	1564.8			" " "
14:55	1698.2	1439.6			small amt. of gray smoke from stack
14:57	1668.6	1397.8			
14:59	1643.2	1378.4			
15:00	1655	1400	40.1	RB	
15:04	1624	2000			
15:05	1678.2	1861.2			
15:10	1788.2	1640.6			
15:12	1815.2	1629.0			

DRPT-CF

DATE: 9-23-90

OPERATOR'S NAME: Ed Call Run 2-2

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
15:14	1794.6	1575.6			
15:15	1762	1639	40.0	PB	Sharps containers, tubes, plastic jugs
15:17:30	1677.0	2183.6			Small amt. of gray smoke from stack
15:20	1763	1802			Large amt. of black smoke from stack
15:25	1838.6	1616.6			Large amt. of grayish brown smoke from stack
15:27	1848.4	1597.0			" " "
15:29	1837.2	1562.6			
15:30	1563	1742	43.6	RB	Large amt. of dense black smoke and *
15:33	1719	2385			flames from charging door
15:40	1936.4	1650.8			Large amt. of dense black smoke from stack
15:41:29	1940.8	1607.8			Large amt. of grayish brown smoke from stack
15:45	1844.2	1583.2	0		*
15:47		1397.0			Testing complete'd
15:54	1716.0				
1					
16:00	1619.2	1354.0	42.1	RB	
16:03	1642.4	1856.4			
16:09	1737.0	1793.4			
16:11	1778.4	1614.0			
16:15	1814.6	1550.4	42.2	RB	
16:18	1687.6	2308.0			
16:27	1541.6	1625.2	41.6	RB	
16:33	1767.2	2148.2			
16:45	1856.6	1982.0	38.0	RB	
16:50	1752.4	2347.3			
17:15	1641.6	1692.4	40.2	RB	
17:25	1759.2	2424.4			
17:45	1658.8	1623.4	40.3	RB	Last Charge Spare Pipes CS&CC
			905.3	Total	

DRPT-CF

* Large amount of smoke and flames coming from charging door as we were charging. Flames were also coming out around the ash door. The secondary chamber temperature climbed to almost 2400°F. I will skip the next charge and let the waste burn down some as it is getting too dangerous to charge.

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/24/90
Run No.: 4 (2-2)

	DATE:	TIME:
Burndown initated at:	9/23/90	17:45
Incinerator opened at:	9/24/90	08:58
Ash removal start:	9/24/90	09:31
finish:	9/24/90	11:13

Qualitative assessment of ash:

Primary chamber temp.	TLC - 203.8 F TUC - 208.4 F
Ash bed depth	Bed depth varies from 4" at cleanout
Percent of hearth covered	door to several feet at center toward
Recognizable combustable items present?	the back wall. Two pipes (1 lg + 1 sm)
Color:	visible on top. Small area (~ 6" square) burning on top of pile. Other smoldering patches visible. Ash bed burst into flame upon agitation. The flames were quenched with water per new protocol. Large amounts of unburned paper garments, gauze + fibrous material were found.

Weight of ash:

Net weight, lb/container		
Total weight, lb:	172.7 *	
Total waste charged, lb:	905.3	216.3 - 43.6 Wet
Percent of total charged:	19.1 % *	

* wet due to quenching

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	EL Earl
Location:	Sanford, N.C.	**Date:**	9-24-90
		Run No.:	3-1

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	11:25
Time synchronized?	11:20
Charging begun at:	11:45

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** E.L. Kalc
Location: Sanford, N.C. **Date:** 9-24-90
Run No.: 3-1

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-24-80

OPERATOR'S NAME: El Ball Run 3-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
11:25	153	149			Start up
11:30	729.4	671.2			
11:35	924	875			
11:44	991.4	937.7			
11:45	991.2	931.8	40.7	P	Start Testing - Fast Charge Space Aprs AS+AL Space Bag # 1 *
11:48	994.6	1296.4			
11:50	1044.8	1114.2			
11:56	1133	1083			
11:57	1141.4	1080.6			
11:59	1163.6	1077.2			
12:00	1167.6	1070.0	51.6	P	[illegible] smoke
12:05	1125.2	1274.8			
12:10	1159.4	1279.2			
12:13	1177.8	1273.2			
12:15	1194.4	1281.4			
12:17	1215.2	1280.6			
12:19	1231.3	1274.4			
12:20	1252.2	1253.2	50.1	P	No visible smoke
12:25	1222.2	1317.2			
12:30	1265.2	1324.4			
12:33	1288.6	1309.0			
12:35	1300.0	1307.0			
12:37	1309.6	1308.8			
12:39	1322.2	1315.0			
12:40	1350.4	1317.6	45.5	P	Small amt. of light gray smoke Space Bag # 2 *
12:43	1302.0	1585.0			
12:45	1314.2	1533.8			
12:50	1324.2	1467.4			
12:55	1319.8	1446.0			
12:57	1375.4	1443.8			
12:59	1387.2	1435.8			
13:00	1410.6	1436.4	39.0	P	Small amt. of light gray smoke
13:02	1372	1654			
13:06	1365.4	1561.6			
13:12	1404	1498			
13:13	1407.0	1497.6			
13:14	1412.8	1497.4			
13:15	1452.0	1490.0	37.9	P	Small amt of light gray smoke
13:17	1419.2	1725.4			
13:21	1400.2	1625.2			
13:25	1418.0	1601.8			
13:27	1425.4	1602.6			
13:29	1438.6	1585.8			
13:30	1470.8	1581.8	38.2	P	
13:36	1405.2	1716.6			

DRPT-CF

DATE: 9-24-90

OPERATOR'S NAME: Ed Call Run 3-1

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Comment
12:38	1420.0	1650.0			
13:40	1427.6	1654.2			
13:42	1453.8	1634.4			
13:44	1474.6	1634.2			
13:45	1512.6	1672.0	45.0		↑ Spare Pipes BS+BL - Spare Bag # 3 *
13:47	1447	1835			Large amt. of IRA, smoke and flames when opening
13:51	1437.8	1629.0			
13:55	1461.2	1636.2			
13:58	1481.0	1628.4			
13:59	1483.6	1629.8			
14:00	1521.6	1789.0	48.1		Large amt. gray smoke and flames
14:01:50	1453	1820			
14:10	1486.4	1624.0			
14:19	1531.0	1614.2			
14:20	1545	1611	48.1		
14:23:30	1555	1700			
14:25	1504.8	1632.6			
14:30	1519.6	1616.6			
14:37	1507.4	1459.8			
14:39	1536.4	1545.0			
14:40	1512.2	1483.4	68.4		gray smoke Spare Bag # 4 *
14:45	1478.6	1632.4			
15:00	1534.8	1569.2			
15:03	1478.6	1413.8			
15:05	1529.6	1545.4			
15:07	1489.2	1427.0			
15:09	1533.2	1549.0			
15:10	1492	1605	41.1		
15:11	1496.4	1687.4			
15:16	1514.4	1674.0			
15:22	1531.4	1630.0			
15:23	1516.0	1402.2			
15:24	1491	1351			
15:25	1503	1590	61.0		Small amt. of light gray smoke
15:30	1472.3	1724.6			
15:35	1514.2	1627.4			
15:40	1535.6	1593.0			Primary burner and blower just turned off
15:42	1508.8	1429.0			
15:42:40	1492.4	1394.3			Primary burner and blower just turned ON
> 15:45:15	1536.4	1651.0			Primary burner and blower just turned off
15:47:30	1493.8	1398.8			Primary burner and blower just turned ON
15:50			59.9		(Large amt. of smoke and flames) ↑ Spare pipes CS+CL * Last Charge
			674.6	Total	

DRPT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/25/90
Run No.: 5 (3-1)

	DATE:	TIME:
Burndown initated at:	9/24/90	15:50
Incinerator opened at:	9/25/90	08:38
Ash removal start:	9/25/90	08:52
finish:	9/25/90	09:41

Qualitative assessment of ash:

Primary chamber temp. TLC – 211.4°F TUC – 212.0°F

Ash bed depth Varies from < 1" at cleanout door to slightly greater than 1 foot at center. A mound is visible down the center of the incerator from the charge door to the back (~1' in height).

Percent of hearth covered Some smoldering unburned matl (paper or fur?) visible on top of mound.

Recognizable combustable items present? 1 Lg. pipe visible. Upon agitation some waste burst into flame. Rat parts and full rats were found unburned in the center of the heap.

Color: Large amounts of charred cardboard + carcasses.

Weight of ash: Total = 45.1 = 8.8

Net weight, lb/container Fines – 79.9 – 43.6 = 36.3 Course* – 56.9 – 48.1

Total weight, lb:	45.1
Total waste charged, lb:	674.6
Percent of total charged:	6.7%

* wet due to quenching.

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	EJ Falk
Location:	Sanford, N.C.	**Date:**	9-25-91
		Run No.:	3-2

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	09:50
Time synchronized?	09:50
Charging begun at:	10:10

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** E L Hall
Location: Sanford, N.C. **Date:** 9-25-90
Run No.: 3-2

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

POST-TEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	LJR
Location:	Sanford, N.C.	**Date:**	9/26/90
		Run No.:	(6) 3-2

	DATE:	TIME:
Burndown initated at:	9/25/90	14:15
Incinerator opened at:	9/26/90	08:20
Ash removal start:	9/26/90	08:54
finish:	9/26/90	09:27

Qualitative assessment of ash:

Primary chamber temp.	TCL – 200.0 TCU – 193.4
Ash bed depth	Ash bed varies from <1 at the cleanout door to ~ 14" at the charge door near the center. Unburnt matl near charge door and at center is smoldering. Lg. pipe visible near charge door. Matl burst into flames upon agitation. Rat parts and whole rats found unburned in center of heap. Worst area was near charge door wall. Cardboard and paper found also.
Percent of hearth covered	
Recognizable combustable items present?	
Color:	

Weight of ash:

Net weight, lb/container	85.0 – 43.6 = 41.4
Total weight, lb:	41.4
Total waste charged, lb:	697.2
Percent of total charged:	5.9%

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	FP BrLC
Location:	Sanford, N.C.	**Date:**	9-25-90
		Run No.:	2-3

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	09:40
Time synchronized?	
Charging begun at:	10:00

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** El Ball
Location: Sanford, N.C. **Date:** 9-26-90
Run No.: 2-3

Time					
Primary burner off, F	1300				
Primary air ~~modulate~~ off, F	1300				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
...gh SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-2[illegible]-9[illegible]

OPERATOR'S NAME: Ed Ball Run 2-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Type	Comment
09:40	178.0	162.6			119.6	start-up
[illegible]:47	701.7	702.2			3-+0	
09:52	784.6	763.0			572.0	
09:55	85-.2	842.0			787.0	
09:59	849.4	873.6			912.8	
10:00			40.2	RB		first charge - testing started Sp.Ac Pak. A3+A6 Spec. Bag # 1 *
10:01	877.4	867.6			743.8	
10:05	854.6	1675.6			865.4	
10:10	915.8	1634.8			817.0	
10:12	94[illegible].6	1599.2			813.2	
10:14	992.8	1565.4			817.0	
10:15	10[illegible].0	14[illegible].6	43.5	RB	820.8	small amt. of light gray smoke
10:20	975.0	1891.0			824.6	
10:25	1031.2	1617.2			871.2	
10:27	1072.8	1591.4			911	
10:28	1096.0	1558.4			929	
10:29	1116.8	1537.2			952	
10:30	1156.6	1470	39.4	RB	969	brownish gray smoke from charge door
10:34	1082.0	2071.4			944	brown smoke from stack
10:35	1080.4	2147.4			934	
10:40	1138.2	1779.6			917	
10:42	1168.0	1633.4			940	
10:44	1181.8	1617.6			958	
10:45	1218.4	1574.8	38.8	RB	892	small amt. of brownish gray smoke
10:49.40	1182.8	2113.8			858	
10:55	1223.4	1730.8			913	
10:57	1254.6	1683.0			938	
10:58	1265.4	1677.0			972	
10:59	1280	1656			1029	
11:00	1315	1596	43.0	RB	961	charge contains plastic, paper - Spare Bag # 2 *
11:06	1186.0	2239.0			1089	
11:08	1220.0	2277.8			1144	CEMS shut down
11:10	1247.2	2245.2			1179	
11:12	1269.4	2199.2			1214	
11:14	1289.8	2136.8			1245	
11:15	1369	1999	39.7	RB	936	CEMS back on line Large amt. of dense black
11:18	1278.4	1974.2			762	smoke and flames
11:20	1249.0	2234.2			712	
11:25	1282.6	2211.6			700	
11:27	1301.1	2103.8			721	
11:29	1301.8	1674.4			752	Large amt of dense black smoke from stack
11:30	1352	1574	40.8	RB	679	Large amt of dense black smoke from charge door
11:32	1307.6	1770			552	
11:36	1281.6	1602.4			512	
11:40	1296.8	1562.6			491	

DRPT-CF

DATE: 9-26-90

OPERATOR'S NAME: El Calc Run 2-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
11:42	1338.6	1507.8			488	
11:44	1330.8	1507.4			487	
11:45	1345	1431	38.0	RB	488	Small amt. of gray smoke - plastic spc. acc. device: plastic tubing, gasket, tape
11:50	1321.4	1599.2			489	
11:53:30	1352.6	1574.0			475	
11:55	1369.8	1524.2			481	
11:57	1358	1434			473	
11:59	1355.6	1403.2			475	
12:00	1368	1370	41.8	RB	468	(Strings, cuts over plastic tubing) Spare Pipes BS + BL - Spare Bag # 3 *
12:05	1277.2	1582.6			443	
12:10	1337.4	1547.2			445	
12:12	1372.0	1487.6			450	
12:13	1379.0	1471.2			442	
12:14	1381.0	1454.2			442	
12:15	1380	1447	41.8	RB	424	beginning gray smoke
12:18	1329.2	1705.0			422	
12:20	1297.8	1700.6			422	
12:25	1292.2	1597.4			419	
12:27	1294.4	1592.0			418	
12:29	1298.8	1627.4			418	
12:30	1349	1622	38.7	RB	418	Large amt. of dense black smoke Spare Pipes - Blank *
12:32	1318.6	1732.2			439	
12:35	1301.0	1673.8			425	
12:40	1326.2	1612.8			346	
12:42	1328.2	1631.8			314	
12:44	1330.8	1603.0			296	
12:45	1371	1615	42.5	RB	285	Large amt. of dense black smoke
12:48	1315.6	1955.2			265	
12:50	1326.2	1914.2			252	
12:55	1353.8	1706.4			235	
12:57	1371.2	1630.0			232	
12:59	1383.2	1645.4			230	
13:00	1429	1666	42.0	RB	228	Large amt. of dense black smoke Spare Bag # 4 *
13:02:45	1383.8	1902.6			227	
13:08	1364.6	1614.6			227	
13:13	1362.6	1613.4			228	
13:12	1372.2	1591.2			229	
13:14	1387.2	1559.6			230	
13:15	1446	1535	40.2	RB	229	Large amt. of dense black smoke
13:18	1374.4	1800.0			224	
13:20	1358.4	1753.6			221	
13:25	1363.8	1621.4			218	
13:27	1377.4	1632.0			218	
13:29	1398.4	1602.4			217	
13:30	1452	1700	41.1	RB	217	Large amt. of dense black smoke

DRPT-CF

DATE: 9-26-10

OPERATOR'S NAME: Ed Falc Run 2-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
13:30	1411.8	1798.6			216	
13:35	1376.4	1679.0			216	
13:38	1372.4	1653.6			215	
13:42	1396.2	1597.8			211	
13:44	1408.4	1568.7			212	
13:45	1457.2	1592.0	39.2	RB	213	
13:47	1415.2	1858.6			213	
13:50	1415.2	1820.4			215	
13:53	1441.2	1620.0			21?	
13:57	1457	1594			21?	
13:59	1476.2	1602.4			217	
14:00	1524	1629	40.1	RB	218	(small amt. of black smoke when charging) Plastic tubing, gowns, Large bag of charge containers
14:05	1473.8	2401.2			219	Large amt. of dense black smoke from stack 1)
14:07	1400.8	2458.2			219	" " " 1)
14:10	1411.4	2235.2			220	(Testing completed at 14:06)
14:12	1425.8	2067.2			220	
14:14	1452.8	1895.6			220	
14:15	1491	1775	40.1		220	Large amt. of dense black smoke
14:18	1410.8	2000			220	
14:20	1436.4	1851.2			220	
14:25	1471.6	1636.8			221	Large amt. of gray smoke from stack
14:27	1488.4	1641.6			220	
14:29	1503.8	1598.2			222	Large amt of gray smoke from stack
14:30	1510	1628	38.5		222	Last charge (Large amt. of dense black smoke from charge door) Final Pipes C5+C6 *
14:33	1454.2	1991.6			223	
14:37	1485.2	1826.6			226	
14:40	1511.8	1716.2			227	Stack smoking constantly now
14:51	1546.6	1586.4			237	Gray and black smoke from stack
			769.4	total		

DRPT-CF

1) heavy smoking from stack lasted for 7 minutes, from 14:00 to 14:07

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/27/90
Run No.: (7) 2-3

	DATE:	TIME:
Burndown initated at:	9/26/90	14:30
Incinerator opened at:	9/27/90	0925
Ash removal start:	9/27/90	~~0925~~ 0956
finish:	9/27/90	11:45

Pipe = 480.2

Qualitative assessment of ash:

Primary chamber temp. TCL - 270.4 TCU - 242.0

Ash bed depth, Percent of hearth covered, Recognizable combustable items present?, Color:

Ash bed varies from 6" on each side of the charge door to ~ 3' at back wall next to charge door. Waste at the high point was burning when door was opened. Unburned paper near charge door. Trash around cleanout door partially burned. 1 lg and 1 sm pipe found. Found lg amounts of unburned gauze and paper items. Human leg bone found that was not brittle. Many flareups occured which had to be quenched.

Weight of ash:

160.9 - 43.6 + 77.5 - 48.1 = 146.7

Net weight, lb/container	
Total weight, lb:	146.7 *
Total waste charged, lb:	769.4
Percent of total charged:	19.1 %

* wet due to quenching

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	E. Cain
Location:	Sanford, N.C.	**Date:**	9-27-90
		Run No.:	2-4

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	11:25
Time synchronized?	11:22
Charging begun at:	11:45

PCHK-CCH

INCINERATOR SETPOINTS

Facility:	Central Carolina Hospital	**Person:**	Ed Pace
Location:	Sanford, N.C.	**Date:**	9-27-90
		Run No.:	2-4

Time					
Primary burner off, F	1300				
Primary air ~~modulate~~ off, F	1300				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
..gh SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-27-9J

OPERATOR'S NAME: Ed Ecc Run 2-4

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
[illegible]	178.1	150.2			100	
11:25						Start-up
:27	397.4	311.2			995	
[illegible]	611.1	535.7			1245	Secondary burner keeps flame [illegible]
:33	843.7	671.5			1379	Re-starting
[illegible]	954.2	744.4			1481	
:42	1012.7	859.2			1353	Unit shut down due to flame [illegible]
						in secondary burner
11:54						Incinerator started - secondary burner [illegible]
						Not Remaining on
11:57						Incinerator shut down
12:[illegible]						Burner re-started secondary burner [illegible]
						Not running yet
12:[illegible]						Incinerator shut down
13:25	862.6	707.4			1136	Incinerator start-up Burner now working properly
13:30	925.8	783.8			1254	
13:40	1088.6	921.0			1479	
13:42	1112.8	938.4			1514	
13:44	1135.6	955.2			1525	
13:45	1121	953	41.5	RB	1489	START TEST Spare Pipes AS+AL - Spare Bag #1 *
13:47	1049.4	1654.8			1279	
13:50	1051.6	1715.2			1242	
13:55	1125.0	1643.0			1141	
13:57	1156.0	1646.4			1133	
[illegible]:59	1174.8	1566.4			1133	
14:00	1221.6	1565.2	38.6	RB	1138	
[illegible]:05	1159.8	2075			1016	
14:10	1239.4	1753.6			957	
14:12	1260.2	1690.0			937	
14:14	1280.6	1601.6			919	
14:15	1335	1647	38.9	RB	899	Large amt. of dense black smoke and flames
14:20	1250.0	2098.2			835	
14:22	1262.6	1985.4			819	
14:25	1307.6	1777.6			792	
14:27	1323.0	1486.0			776	
14:29	1330.4	1396.8			765	
14:30	1323	1436	40.8	AB	752	Sharps containers - medium amt of black smoke
14:35	1263.0	2180.0			726	
14:36	1266.8	2181.8			724	
14:40	1319.0	1875.4			709	
14:42	1324.6	1502.4			703	
14:44	1337.4	1442.8			698	

DRPT-CF

DATE: 9-27-90

OPERATOR'S NAME: Ed Ball Run 2-4

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
14:15	1366	1467	39.6	RB	692	medium amt. of gray to black smoke Sharps container Spare Bag # 2 *
14:50	1270.4	1502.4			680	
14:53	1312.0	1561.0			673	
14:55	1321.6	1537.2			667	
14:57	1330.8	1552.6			663	
14:59	1352.0	1451.6			671	
15:00	1396	1441	40.0	RB	658	Sharps Container Large Amt. of black smoke & flames
15:02	1731.4	2007.4			652	
15:05	1312.2	1805.0			647	
15:10	1422.2	1627.2			637	
15:12	1435.0	1560.8			634	
15:14	1443.0	1562.2			630	
15:15	1469	1558	40.5	RB	625	Sharps Container (2) plastic tubing, gowns
15:20	1385.4	1631.8			618	Large amt. of dense black smoke from orange door
15:22	1401.0	1605.4			616	
15:25	1429.4	1571.2			611	
15:27	1447.6	1547.0			609	
15:29	1457.6	1513.0			607	
15:30	1493.0	1576.8	39.5	RB	615	Sharps containers
15:37	1387.8	1770.2			596	
15:39	1399.6	1681.4			595	
15:40	1418.0	1595.8			592	
15:42	1431.6	1573.4			589	
15:44	1446.2	1589.4			586	
15:46	1483.2	1744.8	44.8	RB	580	Sharps container Spare Bag # 3 *
15:50	1374.6	1832.0			579	
15:52	1376.4	1620.4			577	
15:55	1396.6	1630.0			574	
15:57	1417.2	1587.6			572	
15:59	1429.8	1604.2			570	
16:00	1475	1605	37.9	RB	561	Medium amt. of black smoke
16:02:30	1403.6	1849.8			559	
16:05	1389.8	1802.2			557	
16:10	1440.6	1643.6			547	
16:12	1465.8	1595.2			543	
16:14	1480.6	1610.4			540	
16:15	1539	1610	40.0	RB	531	Large amt. of dense black smoke - Spare Pipes B5+B6 *
16:18	1458.4	1867.2			531	
16:20	1439.8	1741.0			527	
16:25	1451.8	1624.0			518	
16:27	1462.8	1634.8			515	
16:29	1472.0	1608.0			514	
16:30	1502	1584	39.0	RB	509	small amt of greyish black smoke
16:33	1448	1997			508	
16:35	1440.6	1918.8			508	

DRPT-CF

DATE: 9-27-90

OPERATOR'S NAME: F. Cecil Run 2-4

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
16:40	1456.8	1585.8			503	
16:42	1463.6	1637.6			502	
16:44	1455.8	1582.8			500	
16:45	1539	1646	45.6	RB	497	(Large amt. of dense black smoke and flames) - Spare Bag #4 *
16:47:45	1447.0	1737.0			495	
16:50	1523.4	1712.8			492	
16:55	1436.4	1574.4			483	
16:57	1442.2	1614.3			482	
16:59	1442.2	1622.6			480	
17:00	1505	1600	39.4	RB	478	Sharps containers (2), gowns, paper, plastic trays (burned with dense black smoke and flames)
17:05	1401.8	1771.2			475	
17:10	1410.2	1649.0			471	
17:12	1415.0	1604.0			470	
17:14	1423.2	1621.4			468	
17:15	1479	1649	39.6	RB	466	Large amt. of dense black smoke
17:18	1448.8	2090.2			465	
17:20	1444.8	1975.4			464	
17:25	1469.4	1760.0			461	
17:27	1483.4	1665.6			460	
17:29	1483.6	1597.2			459	
17:30	1519	1679	38.8	RB	457	Large amt. of dense black smoke
17:33	1432	2223			457	
17:35	1432.0	2150.2			456	
17:40	1447.8	1898.6			454	
17:42	1459.2	1791.6			453	
17:44	1482.6	1721.6			452	
17:45	1525	1681	39.8	RB	451	Large amt. of dense black smoke + flames
17:49:30	1460.8	2052			449	
17:52	1449.8	1973.4			448	
17:55	1441.0	1831.2			447	
17:57	1441.2	1763.2			446	Test completed at 17:56
17:59	1446.8	1690.8			446	
18:00	1522	1636	43.0	RB	444	(Large amt. of dense black smoke + flames.) Last charge - Spare Pipes CS+CL *
18:04	1400.2	2182			443	
			727.3	Total		

DRPT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 9/28/90
Run No.: (6R) 2-4

	DATE:	TIME:
Burndown initated at:	9/27/90	18:00
Incinerator opened at:	9/28/90	9:03
Ash removal start:	9/28/90	9:30
finish:	9/28/90	10:30

Qualitative assessment of ash:

Primary chamber temp. TCL - 373.0 TC4 - 277.8 Pipe - 287.0
Ash bed depth Bed depth varies from 6" at charge door to 3½ feet at back of incinerator at wall.
Percent of hearth covered Trash is burning at high point. Large
Recognizable combustable items present? amounts of glass and cans. No pipes
Color: visible.

Weight of ash:

Net weight, lb/container	80.9 124.5 - 43.6	56.4 + 104.5 - 48.1	
Total weight, lb:	137.3 *		
Total waste charged, lb:	727.3		
Percent of total charged:	18.9%		

* wet due to quenching

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	Ed Ball
Location:	Sanford, N.C.	**Date:**	9-28-90
		Run No.:	3-3

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	10:40
Time synchronized?	
Charging begun at:	11:00

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** E.L Gallo
Location: Sanford, N.C. **Date:** 9-25-90
Run No.: 3-3

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1600				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
...gh SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 9-28-90

OPERATOR'S NAME: EL Ball Run 3-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	P/2	Comment
10:40	30;	22;				start-up
11:07	1463.8	937.5	46.6	P	1180	first charge Spec Bgs ASTAL - Spec Bg #1 *
11:02	1046	1057			1208	
11:04	1023	1387			1270	
11:06	1059	1337			1322	
11:10	1057	1260			1366	
11:12	1137	1135			1401	
11:15	1177	1148	39.3	P	1277	
11:17						
11:19	1154	1366			1306	
11:21	1179	1295			1283	
11:23	1187	1261			1275	
11:25	1214	1238			1227	
11:27	1241	1221			1185	
11:30	1279	1215	41.4	P	1010	
11:32	1212	1599			1032	
11:34	1208	1582			1067	
11:36	1218	1534			1129	
11:38	1234	1491			1184	
11:40	1257	1459			1258	
11:42	1276	1436			1335	
11:44	1296	1419			1392	
11:45			45.1	P		
11:48	1265	1615			1189	
11:51	1280	1586			1320	
11:54	1299	1660			1435	
11:57	1313	1570			1454	
12:00	1343	1525	47.4	P	1126	Space Bg #2 *
12:03	1292	1598			1054	
12:06	1316	1591			1095	
12:09	1351	1544			1141	
12:12	1377	1520			1169	
12:15	1412	1543	39.5	P	1073	
12:17	1354	1598			939	
12:22	1376.2	1614.8			937	
12:25	1395.8	1595.0			964	
12:27	1408.4	1592.0			946	
12:29	1421.2	1577.2			954	
12:30	1447	1571	39.9	P	880	
12:35	1401.6	1602.1			745	
12:45	1479	1547	39.6	P	792	
12:56	1428.8	1629.4			860	
12:53	1432.0	1624.0			821	
12:55	1441.6	1642.4			843	
12:57	1451.4	1601.0			860	

DRFT-CF

DATE: 9-25-90

OPERATOR'S NAME: Ed Ball Run 3-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
12:59	1461.2	1635.0			895	
13:00	1497	1580	43.5	P	883	Small amt. of Light gray smoke - Space Bay # 3 *
13:02	1437.8	1833.6			864	
13:05	1427.8	1644.0			762	
13:10	1460.2	1637.4			785	
13:12	1468.4	1635.2			800	
13:14	1485.8	1645			818	
13:15	1508	1581	40.0	P	824	Small amt. of Lgt gray smoke - Space Pipes BS+BL *
13:20	1456.6	1641.4			761	
13:25	1464.6	1620.0			762	
13:27	1478.0	1645.0			767	
13:29	1473.2	1640.0			776	
13:30	1513	1651	47.0	P		Small amt. of gray smoke
13:31:40	1475.6	1804.0			786	
13:35	1499.4	1608.2			800	
13:40	1519.8	1507.8			802	
13:42	1503.8	1379.2			792	
13:44	1476.6	1331.6			790	
13:45	1501	1401	47.4	P	792	
13:46:25	1482.0	1629.2			806	
13:50	1488.2	1644.2			833	
13:57	1522.4	1563.0			865	
13:59	1478.4	1436.8			861	
14:00	1513	1535	41.6	P	856	Small amt. of light gray smoke Space Bay # 4 *
14:05	1464.6	1786.6			825	
14:10	1482.2	1757.2			848	
14:12	1499.0	1686.6			856	
14:14	1510	1666			869	
14:15	1529	1648	39.4	P	847	Small amt. of light gray smoke
14:18	1490.6	1453.0			809	
14:20	1493.4	1461.8			811	
14:25	1521.2	1631.8			836	
14:27	1532.7	1562.4			848	
14:29	1488.0	1428.2			849	
14:30	1519	1534	35.3	P	842	Small amt. of gray + black smoke
14:32:20	1472.2	1918.0			795	
14:35	1493.8	1725.4			821	
14:40	1521.8	1589.0			868	
14:42	1488.8	1433.8			839	
14:44	1504.8	1597.8			843	
14:45	1533	1652	49.2	P		
14:46	1513.6	1673.4			863	
14:48:30	1479.4	1419.8			846	
14:50	1477.2	1698.2			838	
14:55	1510.2	1642.2			852	

DATE: 9-28-90

OPERATOR'S NAME: Ed Ball Run 3-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type		Comment
14:57	1572.8	1581.8			881	
15:00	1535	1480	30.5	P	888	Small amt. of black smoke
15:02	1494.0	1597.0			869	
15:03	1488.8	1524.6			863	
15:04	1488.8	1498.8			846	
15:05	1492.4	1461.6			831	Testing complete
15:06	1501.6	1697.2			809	
15:10	1512.6	1676.0			782	
15:12	1531.0	1644.0			774	
15:14	1508.6	1498.8			778	
15:15	1515	1418	44.5	P	775	medium amt. of black smoke + flames
15:17	1487	1740.2			762	
15:20	1498.4	1627.4			755	
15:25	1521.2	1633.0			752	
15:27	1528.8	1535.8			760	
15:29	1489.0	1450.8			763	
15:30	1530	1637	50.1	P	736	dense black smoke + flames
15:34:40	1469.2	2104.4			684	
15:35	1469.4	2091.8			682	
15:40	1490.2	1926.2			671	
15:45	1519.2	1826.8			680	
15:49	1535	1513.0			710	
15:50	1520	1530	59.6	P	708	Last charge
15:52	1499.0	1563.8			696	
15:53	1500.6	1516.0			683	Spare tires CS+CC
15:55	1501.4	1513.2			685	
			867.0	total		

DRPT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: L JR
Date: 9/29/90
Run No.: (9) 3-3

	DATE:	TIME:
Burndown initated at:	9/28/90	15:50
Incinerator opened at:	9/29/90	9:20
Ash removal start:	9/29/90	9:45
finish:	9/29/90	10:56

Qualitative assessment of ash:

Primary chamber temp. TCL - 193.6 TCU - 172.4 Pipe - 363.4

Ash bed depth Bed depth varies from < 1" at cleanout door to slightly over 1' at center of hearth.

Percent of hearth covered There are many black smoldering areas mostly at the high points. 1 large pipe visible on top.

Recognizable combustable items present? Found large amounts of unburned rat parts and whole rats, carboard that was moist and even unburned rubber gloves. Wish you guys could have seen it! Also found Burger Icing wrappers and gauze from spore bag.

Color:

Weight of ash:

Net weight, lb/container Course = 54.1 Fines = 22.9

102.2 - 48.1 + 66.5 - 43.6

Total weight, lb: 77.0 #

Total waste charged, lb: 867.0

Percent of total charged: 8.9%

PSTCHK-CCH

PRETEST CHECKLIST

Facility:	Central Carolina Hospital	**Person:**	E.L. Ba CC
Location:	Sanford, N.C.	**Date:**	10-2-90
		Run No.:	1-3

Hearth clean?	yes
Under fire air ports clear?	yes
Preheat begun at:	09:55
Time synchronized?	09:07
Charging begun at:	10:15

PCHK-CCH

INCINERATOR SETPOINTS

Facility: Central Carolina Hospital **Person:** Ed Pace
Location: Sanford, N.C. **Date:** 10-2-90
Run No.: 1-3

Time					
Primary burner off, F	1500				
Primary air ~~modulate~~ off, F	1500				
Secondary burner off, F	1900				
Secondary burner modulate, F	NA				
Secondary chamber air modulate, F	NA				
High PC temperature feeder lockout, F	NA				
High SC temperature feeder lockout, F	NA				

STPT-CCH

DATE: 10-2-90

OPERATOR'S NAME: El Paso RUN 1-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Type	Comment
[illegible]	327.0	189.4			70	Start up
10:01	7[illegible]				[illegible]	Start Temp - pipe temp. indicator pipe in furnace
10:03	670.8	653.6			185.6	Re-start
10:10	572.6	854.2			803	
10:14	940.2	899.0			946	
10:15	952	906	32.1	P	847	First charge - Space Pacs #5+#6 - Space Bag #1 *
10:18:30	957	1293			1082	
10:22	1034.0	1139.2			1372	
10:25	1106.6	1172.6			1331	
10:28	1117.6	1056.8			1263	
10:29	1114.8	1055.0			1258	
10:30	1132	1048	25.4	P	1219	Small amt. of light gray smoke
10:32	1115.4	1288.8			1232	
10:35	1143.0	1223.2			1157	
10:40	1199.6	1178.0			1184	
10:42	1214.2	1179.6			1268	
10:44	1231.2	1180.6			1275	
10:45	1247	1196	25.4	P	1301	No visable smoke
10:49	1244.6	1295.0			1223	
10:50	1245.6	1291.8			1563	
10:55	1271.4	1273.8			1446	
10:57	1282.4	1277.8			1476	
10:59	1296.2	1280.6			1360	
11:00	1313.8	1280.4	24.6	P	1298	No visable smoke
11:06	1304.6	1408.0			1453	
11:10	1331.2	1385.6			1477	
11:12	1349.4	1373.4			1490	
11:14	1366.6	1364.6			1499	
11:15	1370	1449	25.6	P	1431	Small amt. of light gray smoke - Space Bag #2 *
11:18	1316.6	1675.6			1330	
11:20	1324.4	1584.0			1289	
11:23	1383.6	1451.8			1218	
11:27	1402.6	1421.2			1201	
11:29	1420.0	1406.2			1207	
11:30	1446.8	1397.4	25.8	P	1017	No visable Smoke
11:32	1434.4	1459.0			1072	
11:35	1439.2	1437.2			1107	
11:41	1463.0	1411.2			1169	
11:42	1478.6	1403.8			1188	
11:44	1491.4	1403.0			1201	
11:45	1499	1399	25.2	P	1195	Small amt. of light gray smoke
11:48:25	1415.6	1729.0			985	
11:50	1417.0	1694.2			1030	
11:55	1452.8	1602.2			1100	
11:57	1467.6	1577.0			1091	

DRPT-CF

DATE: 10-2-90

OPERATOR'S NAME: El CALC Run 1-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
:57	1477.6	1599.6			1094	
12 02	1494.8	1593.6	25.2	P	1055	Small amt. of light gray smoke
12:05	1456.2	1815.2			1163	
12:08	1472.6	1735.2			1241	
12:10	1496.4	1686.8			1305	
12:12	1518.0	1646.8			1310	
12:14	1473.4	1465.2			1126	
12:15	1516	1493	24.0	P	1018	Small amt. of light gray smoke Spare Pipe BS+CL - Spare Bay = 3 *
12:18	1486.2	1740.8			1043	
12:20	1492.2	1664.2			1068	
12:25	1485.6	1454.6			892	
12:27	1500.0	1442.8			898	
12:29	1525.4	1458.8			885	
12:30	1484.8	1357.6	25.4		924	
12:32:40	1468.6	1810.8			926	
12:35	1489.4	1730.4			951	
12:40	1526.2	1497.4			1062	
12:42	1488.0	1399.2			977	
12:44	1533.4	1493.8			1351	
12:45	1517.6	1420.6	50.5	P	991	Small amt. of light gray smoke
12:50	1494.0	1763.4			1025	
12:55	1527.8	1698.8			1093	
13:00	1520.8	1579.6			891	
13:05	1532.2	1567.4			839	
13:10	1540.2	1514.8			846	
13:12	1527.0	1453.4			835	
13:15	1533	1412	25.4	P	742	Large amt. of dense black smoke Spare Bay #4 *
13:23	1545.6	1758.6			836	
13:25	1502.0	1528.8			877	
13:27	1546.8	1632.4			861	
13:29	1502.8	1458.8			890	
13:30	1548	1531	25.0	P	711	
13:31:30	1505.0	1770.4			649	
13:35	1548.2	1741.0			721	
13:40	1494.4	1439.2			753	
13:42	1522.6	1486.4			695	
13:44	1498.8	1432.2			720	
13:45	1522.6	1476.2	25.1	P	697	
13:47	1505.2	1589.7			751	
13:49	1495.8	1455.0			730	
13:53	1486.8	1435.8			838	
13:56	1491.0	1414.2			780	
13:59	1509.8	1429.8			774	
14:00	1491.0	1431.0	44.4	P	743	

DRFT-CF

DATE: 10-2-90

OPERATOR'S NAME: Ed EnCC Run 1-3

Time	Main chamber temp.	Secondary chamber temp.	Weight	Waste type	Pipe	Comment
14:03	1500.4	1881.4			805	
14:06	1528.4	1785.2			825	
14:10	1515.0	1593.0			774	
14:15	1526.2	1522.2			797	
14:16	1497.2	1453.0			790	
14:17	1493.2	1441.4			766	
14:18	1531.2	1530.4			779	
14:19	1501.6	1479.0			788	
14:20	1488.2	1420.4			781	
14:21	1504.8	1439.2			774	Testing completed
14:22	1534.0	1493.4			805	
14:23	1495.6	1410.4			800	
14:24	1492.8	1388.8			787	
14:25	1526.6	1456.8			828	
14:27	1496.2	1390.8			815	
14:29	1532.0	1438.0			839	
14:30	1506.2	1384.0	29.4	P	831	Last charge (small amt. of L/NT gray smoke) Spare Pipes CS+CL *
			453.5	Total		

DRFT-CF

POST-TEST CHECKLIST

Facility: Central Carolina Hospital
Location: Sanford, N.C.
Person: LJR
Date: 10/3/90
Run No.: 10

	DATE:	TIME:
Burndown initated at:	10/2/90	14:30
Incinerator opened at:	10/3/90	09:25
Ash removal start:	10/3/90	09:35
finish:	10/3/90	09:55

Qualitative assessment of ash:

Primary chamber temp. TCL - 180.0F TCU - 188.6 Pipe - Shorted
Ash bed depth Ash depth varies from ~ 1" at the cleanout door to ~ 6" at the rear wall (~ air hole level).
Percent of hearth covered One small smoldering black patch near back wall.
Recognizable combustable items present? Light white ash and skeletons visible on top. 4 pipes visible.
Color: Very good burnout. Very little unburned mat'l found. (Several small gauze-like pads were charred but not burned.)

Weight of ash:	Fines	Course
	56.9 - 43.6 = 13.3	52.0 - 48.1 = 3.9
Net weight, lb/container	17.2	
Total weight, lb:	17.2	
Total waste charged, lb:	453.5	
Percent of total charged:	3.8	

PSTCHK-CCH