AP32 Section:	12.5.1
Background Chapter	3
Reference:	12
Title:	Source Sampling - Acid Regeneration Unit, Pickle Line, and EAF Baghouse. Nucor Steel, Crawfordsville, IN. February 21 through 24, 1995.

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: May 8, 1995

To: Phil Perry

Thru: Ed Surla 5/12

From: Stephen L. Friend SLF

Subject: Nucor Steel
Rural Route #2 ,Box 311
Crawfordsville, IN.
Source ID No. 107 00038

The subject company has submitted a report concerning particulate sampling of the Pickle Line and Acid Regeneration Line. Sampling of the Electric Arc Furnace Baghouse for particulate and CO was also conducted. The tests were conducted on February 21-24, 1995 by Ramcon Environmental Corporation. The purpose of the testing was to determine the compliance status of the facility with regards to an operating permit and to fulfill the obligation of Cause No. A-1635. I have reviewed this report and found the sampling procedures used and results to be acceptable to this office. A copy of this report is filed in the Compliance Data Section. The following is a summary of the test results:

Pickle Line-Particulate	
Maximum Permitted Rate:	150 tons/hr
Average Rate During Test:	159 tons/hr
Average Measured Emissions:	.0762 lb/hr
Allowable Emissions:	0.8 lb/hr
Highest 6-Minute Opacity:	0%
Average Opacity:	0%

Status: IN COMPLIANCE

Acid Regeneration-Particulate	
Maximum Permitted Rate:	8.5 gpm
Average Rate During Test:	9.0 gpm
Average Measured Emissions:	1.32 lb/hr
Allowable Emissions:	2 lb/hr
Highest 6-Minute Opacity:	7.3%
Average Opacity:	3%

Status: IN COMPLIANCE

Electric Arc Furnace Baghouse

Maximum Permitted Rate:	260 tons/hr
Average Rate During Test:	242 tons/hr
Average Measured Emissions CO:	205 lbs/hr
Allowable Emissions CO:	520 lbs/hr

Status: IN COMPLIANCE

Particulate

Average Rate During Test:	235 tons/hr
Average Measured Emissions PM:	.0016 gr/dscf
Allowable Emissions PM:	.0018 gr/dscf
Highest 6-Minute Opacity:	0%
Average Opacity:	0%

Status IN COMPLIANCE

cc:S. Friend
W. Stanfield
D. Valinetz
General Files-Montgomery County

RAMCON

ENVIRONMENTAL CORPORATION

2-21-95
2-24-95

March 31, 1995

Mr. Dave Sulc
Nucor Steel
RR 2, Box 311
Crawfordsville, Indiana 47933

RE: Source Sampling — Acid Regeneration Unit, Pickle Line and EAF Baghouse

Dear Mr. Sulc:

Enclosed you will find four (4) copies of our report on the particulate, hydrogen chloride and carbon monoxide emissions testing conducted at your facility located in Crawfordsville, Indiana.

You will want to sign the report covers and send two copies to:

Mr. Ed Surla
Indiana Air Pollution Control
Department of Environmental Management
105 South Merdian Street
P. O. Box 6015
Indianapolis, Indiana 46206

You will need to keep one copy of the report at the plant.

We certainly have enjoyed working with you. Please let us know if we can be of further assistance.

Sincerely,

William Joseph Sewell, II
Vice President

WJSii:wpc
Enclosures

RAMCON BUILDING, 6707 FLETCHER CREEK COVE, MEMPHIS, TENNESSEE 38133
TELEPHONE 800/458-4567 IN TENNESSEE 901/387-0500 FAX 901/387-0400

I. INTRODUCTION

On February 21 through 24, 1995 personnel from RAMCON Environmental Corporation conducted air emissions testing at Nucor Steel located in Crawfordsville, Indiana. The scope of work involved testing the acid regeneration unit and pickle line exhaust for filterable particulate matter and hydrogen chloride. The EAF baghouse was subject to sampling for particulate matter, carbon monoxide, carbon dioxide and oxygen.

The carbon monoxide, oxygen and carbon dioxide were collected and analyzed by test methods that utilize "real-time" continuous emission monitor (CEM) instrumentation. This technology provides data with a high degree of reliability on-site. Reference Methods 3A and 10 were employed for the analysis of oxygen and carbon dioxide, and carbon monoxide, respectively.

These instrumental analyzer testing procedures set forth a sampling strategy to continuously extract sample gas from the source. This sample stream is routed to individual CEMs for analysis of the various targeted pollutants and diluent gases. The test results are based on the average value of one-minute averages generated by the CEM instrument data acquisition during the test periods. Three (3) sampling periods were performed in which the gaseous concentrations were continuously monitored for the listed target compounds.

The particulate matter emissions from the EAF baghouse were sampled according to Reference Method 5D. This procedure sets forth a strategy whereby the velocities at the sampling location are calculated from volumetric flow values determined at the inlet duct to the baghouse process.

The particulate matter and hydrogen chloride emissions from the acid regeneration unit and pickle line exhaust were sampled according to US EPA Reference Method 26A requirements. The stack gas moisture, velocity, and volumetric flow rates were also determined during this isokinetic sampling procedure. This data enabled conversion of flue gas pollutant concentrations to emission data values in pounds per hour (lb/hr).

The purpose of the testing project was to determine if the targeted pollutant emissions are equal to or below the allowable limitation set forth by the State of Indiana EPA in the facility's operating permit. Dave Kline and Steve Friend representing the State of Indiana was present during the testing procedure(s) conducted by RAMCON Environmental Corporation. The test results and supporting calculations are provided in the following sections.

Table C — EAF Baghouse
Particulate Matter Test Summary
February 22 and 24, 1995

Run	Time	gr/dscf	lb/hr	Isokinetics
1	13:12 - 17:31	0.0020	14.47	132.60
2	19:29 - 23:08	0.0016	10.93	98.73
3	11:03 - 15:31	0.0015	12.18	100.90
	Average:	0.0017	12.53	

Table D — EAF Baghouse
CO Test Summary
February 22, 1995

Run	Time	O_2, %	CO_2, %	CO, ppm	CO, lb/hr
1	13:01 - 14:01	19.95	1.41	78.72	289.3
2	15:13 - 16:13	20.03	1.30	57.35	198.9
3	16:48 - 17:48	19.99	1.45	29.71	122.5
	Average:	19.99	1.39	55.26	203.6