



D. E. R.

JUN 20 1991

SOUTHWEST DISTRICT
TAMPA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Note: This is a reference cited in AP 42, *Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

June 18, 1991

Mr. W.C. Thomas, P.E.
Florida Department of Environmental
Regulation
4520 Oak Fair Blvd.
Tampa Fl. 33610-7347

Dear Mr. Thomas:

Enclosed please find the results of the compliance test on the
New Wales #2 DAP EAST, Operating permit A053-134734.

If you have any questions, please notify me.

Very truly yours,


J. M. Baretincic

JMB:jrb

Enclosure:

cc: J.A. Brafford - New Wales
A.L. Girardin - New Wales

I HAVE REVIEWED THIS REPORT AND IT (DOES
DOES NOT) INDICATE COMPLIANCE WITH THE
PERMIT FOR THIS SOURCE.
DATE 7-30-91 BY [Signature]



To the best of my knowledge, all applicable field and analytical procedures comply with FDER requirements and all test data and plant operating data are true and correct.

J. M. Baretincic

SIGNATURE, OWNER or AUTHORIZED REPRESENTATIVE
J. M. Baretincic - Director Environmental Services

NAME and TITLE
P.O. Box 1035

ADDRESS
Mulberry, FL 33860

CITY STATE ZIP
06-13-91 (813) 428-2531

DATE TELEPHONE NO.

SUMMARY OF EMISSION MEASUREMENTS
#2 DAP EAST
IMC FERTILIZER INC.
NEW WALES OPERATIONS
POLK COUNTY, FLORIDA

June 13, 1991

INTRODUCTION

The New Wales Operations of IMC Fertilizer, Inc. is a phosphate fertilizer facility located in western Polk County, FL. At this facility phosphoric acid is produced as an intermediate product in the production of phosphate fertilizer products. Granular DAP is produced by reacting 54% phosphoric acid and ammonia in a reaction and granulation circuit. A wet granular product is produced which is then dried, screened, cooled and sent to storage. This report details the gaseous and water soluble fluoride and particulates emission measurements conducted on the #2 DAP East Plant on May 20 & 22, 1991. This report also details the emission measurements for nitrogen oxides, SO₂ and visible emissions conducted on November 21, 23 & 24, 1991. The purpose of this testing was to demonstrate compliance with the emission limiting requirements set forth in Operating Permit #A053-134734.

During the period of testing, the plant was operating at a production rate of 130 TPH. This production rate was determined from acid slurry gpm and from lab analyses. The dryer was being fired with #6 fuel oil at an average rate of 2.54 gpm which is equivalent to a heat input of 22.86 million BTU per hour.

The allowable emission rate of gaseous and water soluble fluoride is 2.1 lbs/hr. The allowable emission rate of particulate is 14.1 lbs/hr. During the period of testing, the emission rate of gaseous and water soluble fluoride was 1.08 lbs/hr, and the emission rate of particulate was 4.90 lbs/hr.

The nitrogen oxides concentration in the stack gas ranged from 6.50 ppm to 10.5 ppm and averaged 9.83 ppm during test period. The stack gas flow rate was 95,628 dscfm. The nitrogen oxides emission rate corresponding to these measurements was 6.74 pounds of NO₂ per hour. This is equivalent to 0.29 pounds of NO_x per million BTU heat input. Permit #A053-134734 limits NO_x emissions to 0.6 pounds per million BTU but not to exceed 11.2 pounds per hour.

A visible emission test was conducted on the #2 DAP East Plant Scrubber on May 22, 1991. It was determined that the #2 DAP East Plant had an opacity of 5%.

It can be concluded from the emission measurements made on May 20 thru 24, 1991 that the #2 DAP East Plant Scrubber meets the emission limiting requirements set forth on Operating Permit #A053-134734.

LOCATION OF SAMPLING PORTS

Two sampling ports for emission measurements are located in the 72 inch diameter stack 65 feet 8 inches below the top of the stack and 70 feet 7 inches above the point where the tail gases enter the stack. The ports are located in the stack wall 90° to one another.

Using criteria established by EPA Test Method 1 (40 CFR 60, Appendix A) it was determined that a total of 12 sampling points would be required; six sampling points on each of the two perpendicular diameters. A diagram of the stack and table listing the distance from the stack wall to each sampling point is included in this report.

FIELD AND ANALYTICAL PROCEDURES

Emission measurements for particulate and fluoride were performed using EPA Reference Method 5. All other test procedures were performed in accordance with the Florida Administrative Code, Chapter 17-2.

The test was modified to determine fluoride emissions as has been done in the past. The front half catch consisting of the probe rinse and filtered particulate were combined with the impinger water and analyzed for fluoride content. The recoverable fluoride in the particulate was then used to calculate fluoride emissions by relating it back to the standard volume of gas sampled.

NO_x measurements were made in accordance with EPA Method 7e, as described in 40CFR60, Appendix A. The measurements were made with a Thermo-Electron Model 10 Chemiluminescent NO/NO_x analyzer. The analyzer was operating on the NO_x mode during the test period.

Prior to performing the actual emission measurements, preliminary stack and stack gas measurements were made. These measurements included the average velocity head, wet and dry bulb stack gas temperatures, and the dimensions of the stack at the point where the tests were to be made. The moisture content of the stack gas was, using lbs of dry air from the psychrometric chart, assumed to be 7.2%.

Each of the replicate runs for fluoride and particulate consisted of sampling for a specific time at each traverse point. An "S" type pitot tube, connected to the sampling probe, was used so that the velocity head could be measured at each traverse point and the sampling rate adjusted to assure isokinetic sampling.

The field and laboratory data sheets for all test runs are included in this report.

COMPLIANCE REPORT

PLANT: #2 DAP EAST

PERMIT NO.: A053-134734

TEST DATE: MAY 20 THRU 24, 1990

PLANT RATE: 130 TPH (62.5 TPH P2O5 FEED)

TEST AVERAGE, LBS.\HR (WHERE APPLICABLE) ACTUAL - ALLOWABLE

FLUORIDE: 1.08 - 2.1

PARTICULATE: 4.90 - 14.1

SO2 5.01 - 22.0

NO2 6.74 - 11.2

V.E. 5% - 20%

REPORT DATE: 06-13-91

NO_x EMISSION CALCULATIONS

TIME- 05-21-91 / 1200-1300

RANGE- 6.5 PPM - 10.5 PPM

AVERAGE- 9.83 PPM

AIR FLOW- 95,628 DSCFM

FUEL USE-

2.54 gpm #6 Fuel oil x 60 min/hr x 150,000 Btu/gal.

22.86 million btu/hr

NO_x EMISSIONS-

95,628 cu.ft./min x 60 min/hr x 1/1,000,000 x 9.83 ppm x
1/385 lb mole/cu.ft. x 46 lb/lb mol =

6.74 lb NO_x/hr as NO₂

6.74 lb/hr

----- = 0.29 lb/million btu
22.86 million btu/hr