



xc: Stack Team – UR Bldg.
A. A. Linero

Certified Mail 7099 3400 0005 0929 3712
Return Receipt Requested

August 28, 2000

RECEIVED

AUG 30 2000

BUREAU OF AIR REGULATION

Mr. W. C. Thomas, P. E.
Florida Department of
Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

RE: Multifos C-Kiln
Permit ID No. 1050059-014-AV
Unit ID No. 074
New Wales Plant

Dear Mr. Thomas:

Enclosed are the results of the compliance test for the above-referenced permit.

If you have any questions, please contact me at 863-428-7106.

Sincerely,

P. A. Steadham, Manager
Environmental Services
Concentrates - Florida

PAS:oan

Enclosures

a:\t_1108

Ext.
Turley 7153

Report of Compliance Sampling

IMC-Phosphates Company

Project: Multifos C-Kiln
Facility: New Wales Operations
Point ID: 74
AIRS: 1050059
Permit Number: 1050059-014-AV
Test Date: July 11,12,13 , 2000

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



Signature, Owner or Authorized Representative
Michael A. Daigle, General Manger, New Wales

IMC-Phosphates Company

P.O. Box 2000
Mulberry, FL 33860

(863) 428-2500

Introduction:

This report details the compliance sampling results for the following source:

Project: Multifos C-Kiln
Facility: New Wales Operations
Point ID: 74
AIRS: 1050059
Permit Number: 1050059-014-AV (1050059-024-AC)
Test Date: July 11,12,13 , 2000

Summary of Results

The source was found to be in compliance with the permits and regulations of the Florida Department of Environmental Protection. The process data and emissions testing results are summarized below:

Process Data:

Kiln P2O5 Feed Rate 2.05 TPH

Fuel Firing Information

Fuel: Natural Gas

C Kiln Fuel Rate 32.1 MMBtu/hr

Emissions:

Allowables by Permit Condition Number P.5, P.6 , P.8, P.9 & P.10

	Actual	Allowable
Fluorides: lb/hr	0.45	0.08
lb/ton P2O5	0.220	0.038
Particulates: lb/hr	4.50	14.30
Sulfur Dioxide: lb/hr	2.27	8.70
Nitrogen Oxides: lb/hr	6.25	N/A
Visible Emissions: %	12.9	15

Emissions Testing Methods:

Methods in accordance with Specific Condition Number P.15

Fluorides: Method 5 & 13B Combined with modifications as allowed by Department for analysis.

Particulate: Method 5 & 13B Combined.

Nitrogen Oxides: Method 7E

Sulfur Dioxide: Method 8

Visible Emissions: Method 9

IMC-Phosphates Company

Process Information

Project: Multifos C-Kiln
 Facility: New Wales Operations
 Point ID: 74
 AIRS: 1050059
 Permit Number: 1050059-014-AV
 Test Date: July 11,12,13 , 2000
 Test Time: 0844-0948, 0853-1009, 1020-1125

Process Rate Data & Calculations

Kiln Feed Rate			Kiln Feed Rate	Kiln Feed Moisture	% P	0.43646 %P2O5/%P	= P2O5 TPH
Date	Time	Kiln					
7/11/00	0844-0948	C Kiln	6	6.5	16.1	0.43646	2.07
7/12/00	0853-1009	C Kiln	5.5	3.6	16.1	0.43646	1.96
7/13/00	1020-1125	C Kiln	6	5.5	16.3	0.43646	2.12
Average P2O5 TPH							2.05

Date	Time	Caustic Scrubber			Cross flow Scrubber		
		Sulfite Sump ph	50 % Caustic Flow gpm	Recirc Flow	Total Liquid gpm	Delta p "inches H2O	Fan Amps
7/11/00	8:00	7.2	25	196	1882	1.07	127
	9:00	7.4	26	197	1883	1.12	128
	10:00	7.6	24	197	1882	1.13	126
7/12/00	8:00	7.2	17	198	2053	0.80	93
	9:00	7.4	6	198	2050	0.80	93
	10:00	7.6	9	197	2048	0.78	91
7/13/00	10:00	6.5	17	196	2017	0.96	104
	11:00	6.6	21	196	2015	0.91	104
	12:00	6.5	15	196	2011	0.95	104
AVG		7.1	17.8	197	1982	0.95	108

Fuel Usage Information		C Kiln Fuel Rate	
Date	Time	Fuel Type	(1000Btu/cu ft)
7/11/00	0844-0948	Natural Gas	32.4
7/12/00	0853-1009	Natural Gas	34.0
7/13/00	1020-1125	Natural Gas	30.0
Average Fuel Firing Rates			32.1

Process Statement:

I certify that the above statements are true and correct to the best of my knowledge.

Signature: John R. Clark
 Title: Production Superintendent
 Date: 8-18-00

IMC-Phosphates Company

Process Information

Project: Multifos C-Kiln
 Facility: New Wales Operations
 Point ID: 74
 AIRS: 1050059
 Permit Number: 1050059-014-AV
 Test Date: July 11,12,13 , 2000
 Test Time:1145-1250 , 1402-1509 , 0847-0951

Process Rate Data & Calculations

Kiln Feed Rate							
Date	Time	Kiln	Kiln Feed Rate	Kiln Feed Moisture	% P	$\frac{1.43646}{\%P2O5/\%P}$	= P2O5 TPH
7/11/00	1145-1250	C Kiln	6	6.5	16.1	0.43646	2.07
7/12/00	1402-1509	C Kiln	5.5	3.6	16.1	0.43646	1.96
7/13/00	0847-0951	C Kiln	6	5.5	16.3	0.43646	2.12
Average P2O5 TPH							2.05

Date	Time	Caustic Scrubber			Cross flow Scrubber		
		Sulfite Sump ph	50 % Caustic Flow gpm	Recirc Flow	Total Liquid gpm	Delta p "inches H2O	Fan Amps
7/11/00	11:00	6.5	26	196	1881	1.07	125
	12:00	6.5	26	196	1884	1.10	125
	13:00	6.6	24	195	1883	1.01	124
7/12/00	13:00	9.7	18	199	2046	0.79	92
	14:00	8.2	7	197	2047	0.80	91
	15:00	6.6	16	196	2049	0.80	90
7/13/00	8:00	6.5	9	196	2016	0.89	98
	9:00	6.6	11	196	2019	0.98	104
	10:00	6.5	17	196	2017	0.96	104
AVG		7.1	17.1	196	1982	0.93	106

Fuel Usage Information			
Date	Time	Fuel Type	C Kiln Fuel Rate mmBTU/hr (1000Btu/cu ft)
7/11/00	1145-1250	Natural Gas	32.4
7/12/00	1402-1509	Natural Gas	34.0
7/13/00	0847-0951	Natural Gas	30.0
Average Fuel Firing Rates			32.1

Process Statement:

I certify that the above statements are true and correct to the best of my knowledge.

Signature: John R. Clark
 Title: Production Superintendent
 Date: 8-18-00

Source Sampling Summary Sheet							
		Facility:	NEW WALES				
		Plant:	MULTIFOS C - KILN				
		Company ID:	1108				
		FDEP AIRS & Pt. ID:	1050059-074				
		Test Team:	RS/DA				
		Parameter	Unit	Run 1	Run 2	Run 3	Average
		Date:		7/11/00	7/12/00	7/13/00	
		Time Start:		844	853	1020	
		Time End:		948	1009	1125	
		Barometric Pressure:	Inch Hg	30.10	30.10	30.10	
		Static Pressure:	Inch H2O	0.32	0.32	0.32	
		Stack Pressure:	Inch Hg	30.124	30.124	30.124	
		Average Sqrt Delta P:	Inch HOH 1/2	0.747	0.650	0.635	
		Average Delta H:	Inch HOH	1.821	1.413	1.358	1.530
		Maximum Run Vacuum:	Inch Hg	10.0	11.0	10.0	
		Meter Box Number:	Unity	3187	3187	3187	
		Average Meter Temp:	Degrees F	84.8	81.2	91.7	
		Average Stack Temp:	Degrees F	113.8	111.5	110.7	112.0
		Metered Sample Volume:	Cubic Feet	46.51	41.03	40.99	
		Standard Meter Volume:	Cubic Feet	45.39	40.27	39.46	
		Moisture Measured:	%	0.0894	0.0897	0.0787	
		Moisture Saturation:	%	0.0962	0.0900	0.0880	
		Moisture Used for Calculations:	%	0.0894	0.0897	0.0787	0.0860
		Pitot Coefficient:	Unity	0.84	0.84	0.84	
		Nozzle Diameter:	Inch	0.25	0.25	0.25	
		Stack Area:	Square Feet	7.07	7.07	7.07	
		Traverse Points:	Unity	24	24	24	
		Sampling Time:	Minutes	60	60	60	
		Stack Gas Molecular Weight:	lb/lb-mol	27.988	27.985	28.106	
		Actual Stack Velocity:	Feet/sec	44.285	38.404	37.416	40.035
		Actual Stack Gas Flow:	ACFM	18772	16279	15861	16971
		Dry Standard Stack Gas Flow:	DSCFM	15835	13784	13610	14409
		Isokinetic Rate:	%	99.10	101.00	100.23	
		Fluoride Emission:	lb/day	7.74	14.05	10.56	10.78
		Fluoride Emission:	lb/hr	0.32	0.59	0.44	0.45
		Particulate Emission:	lb/day	13.28	41.58	105.46	53.44
		Particulate Emission:	lb/hr	0.55	1.73	4.39	2.23

Source Sampling Summary Sheet							
		Facility:	New Wales				
		Plant:	MULTIFOS C-KILN				
		Company ID:	1108				
		FDEP AIRS & Pt. ID:	1050059 & 074				
		Test Team:	FB,DC,RS				
		Parameter	Unit	Run 1	Run 2	Run 3	Average
		Date:		7/11/00	7/12/00	7/13/00	
		Time Start:		1145	1402	847	
		Time End:		1250	1509	951	
		Barometric Pressure:	Inch Hg	30.10	30.10	30.12	
		Static Pressure:	Inch H2O	0.32	0.32	0.32	
		Stack Pressure:	Inch Hg	30.124	30.124	30.144	
		Average Sqrt Delta P:	Inch HOH 1/2	0.692	0.664	0.688	
		Average Delta H:	Inch HOH	1.817	1.504	1.592	1.638
		Maximum Run Vacuum:	Inch Hg	10.0	13.0	9.0	
		Meter Box Number:	Unity	3187	3187	3187	
		Average Meter Temp:	Degrees F	84.5	92.9	88.1	
		Average Stack Temp:	Degrees F	114.0	112.7	110.8	112.5
		Metered Sample Volume:	Cubic Feet	47.06	42.95	43.63	
		Standard Meter Volume:	Cubic Feet	45.95	41.27	42.33	
		Moisture Measured:	%	0.0911	0.0728	0.0757	
		Moisture Saturation:	%	0.0966	0.0932	0.0880	
		Moisture Used for Calculations:	%	0.0911	0.0728	0.0757	0.0798
		Pitot Coefficient:	Unity	0.84	0.84	0.84	
		Nozzle Diameter:	Inch	0.250	0.250	0.250	
		Stack Area:	Square Feet	7.07	7.07	7.07	
		Traverse Points:	Unity	24	24	24	
		Sampling Time:	Minutes	60	60	60	
		Stack Gas Molecular Weight:	lb/lb-mol	27.970	28.171	28.139	
		Actual Stack Velocity:	Feet/sec	41.011	39.179	40.554	40.248
		Actual Stack Gas Flow:	ACFM	17385	16608	17191	17061
		Dry Standard Stack Gas Flow:	DSCFM	14634	14293	14809	14579
		Isokinetic Rate:	%	108.55	99.83	98.83	
		SO2 Emission:	lb/day	28.51	58.68	76.05	54.41
		SO2	lb/hr	1.19	2.44	3.17	2.27
		Nitrogen Oxides:	lb/day	121.20	197.52	155.04	157.92
		Nitrogen Oxides:	lb/hr	5.05	8.23	6.46	6.25

VISIBLE EMISSION OBSERVATION FORM

SOURCE NAME
IMC PHOSPHATES

ADDRESS
NEW WALES FACILITY

P.O. BOX 2000 3095 C.R. 640

CITY **MULBERRY** STATE **FL** ZIP **33860**

PHONE **428-7383** SOURCE ID NUMBER **074**

PROCESS EQUIPMENT **MULTI-PHOS C-KILN** OPERATING MODE **6 T.P.H**

CONTROL EQUIPMENT **WET SCRUBBER** OPERATING MODE **NORMAL**

DESCRIBE EMISSION POINT
START **CIRCULAR STACK STOP SAME**

HEIGHT ABOVE GROUND LEVEL
START **~125 STOP SAME** HEIGHT RELATIVE TO OBSERVER
START **~125 STOP SAME**

DISTANCE FROM OBSERVER
START **~360' STOP SAME** DIRECTION FROM OBSERVER
START **WSW STOP WSW**

DESCRIBE EMISSIONS
START **LOFTING PLUME STOP SAME**

EMISSION COLOR
START **WHITE STOP WHITE** PLUME TYPE CONTINUOUS FUGITIVE INTERMITTENT

WATER DROPLETS PRESENT
NO YES IS WATER DROPLET PLUME ATTACHED N/A DETACHED

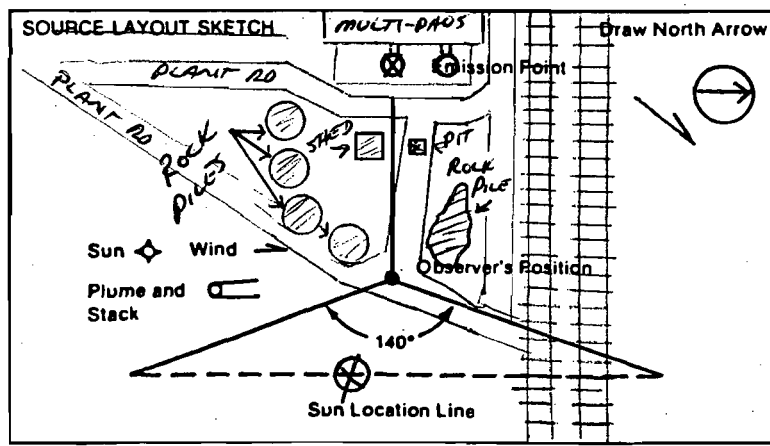
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED
START **~20' ABOVE STACK EXIT STOP SAME**

DESCRIBE BACKGROUND
START **SKY STOP SKY**

BACKGROUND COLOR
START **BLUE-STOP SAME** SKY CONDITIONS
START **SCATT. STOP SCATT.**

WIND SPEED MPH
START **2-4 STOP 2-4** WIND DIRECTION
START **STOP**

AMBIENT TEMP.
START **88 STOP 88°** WET BULB TEMP **82°** RH, percent **78%**



COMMENTS

I HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

OBSERVATION DATE 07-13-00					START TIME 10:20					STOP TIME 11:20				
SEC	0	15	30	45	SEC	0	15	30	45	SEC	0	15	30	45
1	10	10	10	10	31	15	15	10	10					
2	10	10	10	10	32	10	10	10	10					
3	10	15	15	10	33	10	10	10	15					
4	10	10	10	10	34	10	10	10	10					
5	10	15	15	15	35	15	15	15	10					
6	15	10	10	10	36	10	10	15	15					
7	10	10	10	10	37	15	10	15	15					
8	10	10	10	10	38	10	10	10	10					
9	10	15	10	10	39	10	10	10	10					
10	10	10	10	10	40	10	15	15	10					
11	15	15	10	10	41	10	10	10	10					
12	10	10	10	10	42	5	5	10	10					
13	10	10	10	10	43	10	10	10	10					
14	15	10	10	15	44	10	10	10	15					
15	15	10	10	10	45	15	10	10	15					
16	10	10	10	10	46	10	10	10	10					
17	10	10	10	10	47	10	10	10	10					
18	10	10	15	10	48	10	10	15	15					
19	10	10	10	10	49	15	15	15	10					
20	10	10	10	10	50	10	10	10	10					
21	10	10	10	15	51	10	10	10	10					
22	15	15	10	10	52	10	10	10	10					
23	10	10	10	10	53	15	15	10	10					
24	5	10	10	10	54	15	15	15	10					
25	10	10	15	10	55	10	10	10	10					
26	10	10	15	15	56	10	15	10	10					
27	15	15	15	10	57	10	10	10	10					
28	10	10	15	15	58	15	15	15	15					
29	15	10	10	15	59	15	10	10	10					
30	15	15	10	10	60	10	10	10	10					

AVERAGE OPACITY FOR HIGHEST PERIOD **12.9%** NUMBER OF READINGS ABOVE HIGHEST PERIOD **15** % WERE **0**

RANGE OF OPACITY READINGS
MINIMUM **5%** MAXIMUM **15%**

OBSERVER'S NAME (PRINT)
JEFFREY J. KENT

OBSERVER'S SIGNATURE
Jeffrey J. Kent DATE **7/13/00**

ORGANIZATION
IMC PHOSPHATES

CERTIFIED BY
ETA TAMPA FDEP DATE **2/22/2000**

VERIFIED BY

DATE

Test Participants

Conducted the Field Testing

- 1 F. Barnes
- 2 R. Sellers
- 3 M. Gierke

Performed the Laboratory Analysis

- 1 F. Barnes
- 2 R. Sellers
- 3 M. Gierke

Provided the Process Data

- 1 J. Clements

Prepared the Test Report

- 1 R. Sellers
- 2 F. Barnes

Field Data

&

Run Calculations

Run 1 Calculations and Results

Facility: NEW WALES
Plant: MULTIFOS C - KILN
Company ID: 1108
FDEP AIRS & Pt. ID: 1050059-074
Test Team: RS/DA

Date: 7/11/00 mm/dd/yy
Start Time: 844 End Time: 948

Standard Meter Volume Vms: 45.39 dscf

Average Stack Velocity: 44.28 fps

Stack Gas Volume: 18772 ACFM

Stack Gas Dry Volume: 15835 DSCFM

Isokinetic Variation: 99.10 %

Isokinetics Adjusted For Bws>Saturation: NA %

Vlc calculated for Saturated Conditions: NA ml H₂O

Emission Calculations

Particulate Total mg: 12.0 mg
0.55 lb/hr
13.28 lb/day

Fluoride Total mg: 7.00 mg
0.32 lb/hr
7.74 lb/day

Run 1 Data

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074
 Test Team: RS/DA

Date: 7/11/00 mm/dd/yy
 Start Time: 844 End Time: 948

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 84 ml
 Weight of Water Collected in Silica Gel: 10.7 gram
 Moisture Volume Fraction Bwo: 0.0894
 Moisture Volume Saturated Bwo: 0.0962
 Moisture Percent Saturation: 93
 Moisture Used for Calculations: 0.0894
 Stack Molecular Weight Ms: 27.988

Barometric Pressure Pb: 30.10 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.124 in Hg
 Average Meter Delta H: 1.821 in H2O
 Meter Pressure Pm: 30.234 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 84.8 deg. F
 Average Stack Temperature: 113.8 deg. F 45.5 deg C

Average Square Root Delta P: 0.747
 Meter Volume Vm: 46.51 cu. ft.
 Probe Length/Liner: 3' SS
 Cp: 0.84
 Nozzle Ident.: 0.25
 Nozzle Diameter Dn: 0.25 in.
 Impinger Set Number: P-1
 Average Computer K: 3.3157

Run 1 Data Sheet

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Team (CB/PR): RS/DA

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074

Date	7/11/00
Dwell Time	2.5 min.
Traverse Points	24
Stack Diameter	36 inches
Est % Saturation	90 %
Stack Static Pressure	0.32 in H2O
Barometric Pressure	30.10 in Hg
Dry Molecular Weight	28.969

Meter Box Number	3187
Meter Delta Ha (in. H2O)	1.742
Meter Correction Factor	0.9969
Nozzle Ident.:	0.25
Nozzle Diameter Dn:	0.250
Impinger Set Number:	P-1
Probe length/Liner:	3' SS
Filter Set Number	1

Pitot Check	
pos	4.2 in H2O
neg	4.6 in H2O
Leak Check	
cfm	0.005 cfm
vac	15 in Hg

Time Start 844

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	886.814	0.69	2.273	2.2	112	244	246	75	75	66	9
2	2.5	888.93	0.68	2.240	2.2	113	239	244	75	75	61	9
3	5.0	891.05	0.68	2.227	2.2	113	241	249	76	75	58	9
4	7.5	893.16	0.72	2.360	2.3	113	242	247	78	75	57	10
5	10.0	895.29	0.72	2.365	2.3	113	241	244	80	75	57	10
6	12.5	897.41	0.73	2.402	2.4	113	242	244	82	75	59	10
7	15.0	899.56	0.62	2.044	2	113	242	243	84	76	62	9
8	17.5	901.64	0.5	1.653	1.6	114	243	243	86	77	62	7
9	20.0	903.48	0.44	1.450	1.4	114	245	242	89	77	61	6
10	22.5	905.2	0.4	1.321	1.3	114	245	243	91	77	61	5
11	25.0	906.87	0.39	1.291	1.2	114	245	244	93	78	61	5
12	27.5	908.48	0.38	1.261	1.2	114	247	245	94	78	61	5
13	30.0	910.085	0.47	1.561	1.5	113	237	240	89	79	66	6
14	32.5	911.83	0.47	1.565	1.5	113	235	242	93	79	62	6
15	35.0	913.59	0.47	1.571	1.5	114	236	245	95	80	62	6
16	37.5	915.35	0.48	1.599	1.5	114	236	250	96	80	63	6
17	40.0	917.1	0.57	1.900	1.9	115	239	247	98	81	64	9
18	42.5	919.1	0.64	2.126	2.1	114	237	243	99	82	64	9
19	45.0	921.17	0.65	2.177	2.1	114	243	245	100	82	65	9
20	47.5	923.25	0.62	2.078	2	115	244	246	100	83	66	9
21	50.0	925.31	0.58	1.934	1.9	115	245	244	100	83	66	9
22	52.5	927.35	0.58	1.934	1.9	115	245	245	101	84	67	9
23	55.0	929.4	0.54	1.804	1.8	115	245	245	101	84	67	9
24	57.5	931.4	0.52	1.737	1.7	115	246	245	101	85	67	8
End	60.0	933.325										

Average	113.8	84.8	62.7
0.73 Max	247	250	67
Min	235	240	57
Range	223-273	223-273	32-68

Time End 948

Pitot Check		Min Value
pos	5.0	0.73 in H2O
neg	4.7	0.73 in H2O
Leak Check		
cfm	0.005	<0.020 cfm
vac	11	10 in Hg

Field Data Sheet

Run Number: 1

Facility: New Wales
 Plant: Multifos P-Kiln
 Test Team: RS/DA

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074

Date: 7-11-00
 Traverse Points: 24
 Stack Diameter: 36 inches
 Dwell Time: 2.5 min.
 Est % Saturation: 90 %
 Stack Static Pressure: .32 in H2O
 Barometric Pressure: 30.10 in Hg
 Dry Molecular Weight: 28.969

Meter Box Number: 3187
 Meter Delta Ha (in. H2O): 1.742
 Meter Correction Factor: .9969
 Nozzle Identification:
 Nozzle Diameter Dn: .250
 Impinger Set Number: P-1
 Probe length/Liner: 3'55
 Filter Set Number: 1

Pitot Check
 pos: 4.2 in H2O
 neg: 4.6 in H2O
 Leak Check
 cfm: .005
 vac: 15 in Hg

Time Start: 08 44

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	886.814	.69	2.2	112	244	246	75	75	66	9
2	2.5	888.93	.68	2.2	113	239	244	75	75	61	9
3	5	891.05	.68	2.2	113	241	249	76	75	58	9
4	7.5	893.16	.72	2.3	113	242	247	78	75	57	10
5	10	895.29	.72	2.3	113	241	244	80	75	57	10
6	12.5	897.41	.73	2.4	113	242	244	82	75	59	10
7	15	899.56	.62	2.0	113	242	243	84	76	62	9
8	17.5	901.64	.50	1.6	114	243	243	86	77	62	7
9	20	903.48	.44	1.4	114	245	242	89	77	61	6
10	22.5	905.20	.40	1.3	114	245	243	91	77	61	5
11	25	906.97	.39	1.2	114	245	244	93	78	61	5
12	27.5	908.48	.38	1.2	114	247	245	94	78	61	5
13	30	910.085	.47	1.5	113	237	240	89	79	66	6
14	32.5	911.83	.47	1.5	113	235	242	93	79	62	6
15	35	913.59	.47	1.5	114	236	245	95	80	62	6
16	37.5	915.35	.48	1.5	114	236	250	96	80	63	6
17	40	917.10	.57	1.9	115	239	247	98	81	64	9
18	42.5	919.10	.64	2.1	114	237	243	99	82	64	9
19	45	921.17	.65	2.1	114	243	245	100	82	65	9
20	47.5	923.25	.62	2.0	115	244	246	100	83	66	9
21	50	925.31	.58	1.9	115	245	244	100	83	66	9
22	52.5	927.35	.58	1.9	115	245	245	101	84	67	9
23	55	929.40	.54	1.8	115	245	245	101	84	67	9
24	57.5	931.40	.52	1.7	115	246	245	101	85	67	9
25	60	933.325									
End											

Time End: 09 48

Pitot Check
 pos: 5.0 in H2O
 neg: 4.7 in H2O

Leak Check
 cfm: .005
 vac: 11 in Hg

Run 2 Calculations and Results

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074
 Test Team: Da,Fb

Date: 7/12/00 mm/dd/yy
 Start Time: 853 End Time: 1009

Standard Meter Volume Vms: 40.27 dscf

Average Stack Velocity: 38.40 fps
 Stack Gas Volume: 16279 ACFM
 Stack Gas Dry Volume: 13784 DSCFM

Isokinetic Variation: 101.00 %

Isokinetics Adjusted For Bws>Saturation: NA %
 Vlc calculated for Saturated Conditions: NA ml H2O

Emission Calculations

Particulate	Total mg:	38.3 mg
		1.73 lb/hr
		41.58 lb/day

Fluoride	Total mg:	12.94 mg
		0.59 lb/hr
		14.05 lb/day

Run 2 Data

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074
 Test Team: Da,Fb

Date: 7/12/00 mm/dd/yy
 Start Time: 853 End Time: 1009

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 75 ml
 Weight of Water Collected in Silica Gel: 9.3 gram
 Moisture Volume Fraction Bwo: 0.0897
 Moisture Volume Saturated Bwo: 0.0900
 Moisture Percent Saturation: 100
 Moisture Used for Calculations: 0.0897
 Stack Molecular Weight Ms: 27.985

Barometric Pressure Pb: 30.10 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.124 in Hg
 Average Meter Delta H: 1.413 in H2O
 Meter Pressure Pm: 30.204 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 81.2 deg. F
 Average Stack Temperature: 111.5 deg. F 44.2 deg C

Average Square Root Delta P: 0.650
 Meter Volume Vm: 41.03 cu. ft.
 Probe Length/Liner: 3' SS
 Cp: 0.84
 Nozzle Ident.: 0.25
 Nozzle Diameter Dn: 0.250 in.
 Impinger Set Number: P-2
 Average Computer K: 3.3432

Run 2 Data Sheet

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Team (CB/PR): Da,Fb

Company ID: 1108
 DEP AIRS & Pt. ID: 1050059-074

Date 7/12/00
 Dwell Time 2.5 min.
 Traverse Points 24
 Stack Diameter 36 inches
 Est % Saturation 90 %
 Stack Static Pressure 0.32 in H2O
 Barometric Pressure 30.10 in Hg
 Dry Molecular Weight 28.969

Meter Box Number 3187
 Meter Delta Ha (in. H2O) 1.742
 Meter Correction Factor 0.9969
 Nozzle Ident.: 0.25
 Nozzle Diameter Dn: 0.250
 Impinger Set Number: P-2
 Probe length/Liner: 3' SS
 Filter Set Number 2

Pitot Check
 pos 4.2 in H2O
 neg 4.5 in H2O
 Leak Check
 cfm 0.000 cfm
 vac 15 in Hg

Time Start 853

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	981.317	0.45	1.511	1.5	110	234	240	79	79	64	9
2	2.5	983.07	0.47	1.578	1.6	110	253	241	78	78	63	9
3	5.0	984.85	0.48	1.609	1.6	111	243	244	79	79	61	10
4	7.5	986.65	0.5	1.669	1.7	111	243	240	80	78	61	10
5	10.0	988.47	0.5	1.669	1.7	111	243	243	81	79	60	10
6	12.5	990.3	0.48	1.606	1.6	111	244	248	83	79	63	10
7	15.0	992.11	0.48	1.609	1.6	111	245	247	84	79	64	10
8	17.5	993.93	0.45	1.510	1.5	111	245	245	85	79	61	10
9	20.0	995.72	0.4	1.343	1.3	112	245	244	86	79	57	9
10	22.5	997.44	0.4	1.336	1.3	112	246	245	87	79	55	9
11	25.0	999.13	0.38	1.271	1.3	111	246	244	88	79	57	9
12	27.5	1000.83	0.36	1.212	1.2	111	246	244	90	79	58	8
13	30.0	1002.43	0.32	1.079	1.1	112	244	243	81	79	66	7
14	32.5	1003.93	0.35	1.164	1.2	112	242	245	81	79	63	8
15	35.0	1005.48	0.38	1.264	1.3	112	243	245	81	79	62	9
16	37.5	1007.1	0.4	1.330	1.3	112	244	246	83	79	63	9
17	40.0	1008.73	0.4	1.333	1.3	112	245	245	83	79	61	10
18	42.5	1010.36	0.44	1.466	1.5	112	245	244	83	79	56	11
19	45.0	1012.1	0.46	1.533	1.5	112	245	244	83	79	56	11
20	47.5	1013.85	0.46	1.533	1.5	112	247	245	84	79	58	11
21	50.0	1015.6	0.44	1.467	1.5	112	245	246	84	79	59	11
22	52.5	1017.4	0.4	1.334	1.3	112	245	244	85	80	61	9
23	55.0	1019.07	0.39	1.303	1.3	112	246	243	86	80	61	9
24	57.5	1020.72	0.37	1.237	1.2	112	244	243	88	80	61	9
End	60.0	1022.35										

Average 111.5 81.2 60.5
 0.5 Max 253 248 66 11
 Min 234 240 55
 Range 223-273 223-273 32-68

Time End 1009

Pitot Check Min Value
 pos 4.3 0.5 in H2O
 neg 4.6 0.5 in H2O
 Leak Check
 cfm 0.000 <0.020 cfm
 vac 13 11 in Hg

Field Data Sheet

Run Number: 2

Facility: New Lakes
 Plant: Multifor C-Kila
 Test Team: DC, FB

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074

Date: 7/12/2000
 Traverse Points: 24
 Stack Diameter: 36 inches
 Dwell Time: 2.5 min.
 Est % Saturation: 90 %
 Stack Static Pressure: .32 in H2O
 Barometric Pressure: 30.10 in Hg
 Dry Molecular Weight: 28.969

Meter Box Number: 3187
 Meter Delta Ha (in. H2O): 1.742
 Meter Correction Factor: .9969
 Nozzle Identification: .250
 Nozzle Diameter Dn: .250
 Impinger Set Number: 1-2
 Probe length/Liner: 3'55
 Filter Set Number: 2

Pitot Check
 pos: 4.2 in H2O
 neg: 4.5 in H2O
 Leak Check
 cfm: .000
 vac: 15 in Hg

Time Start: 8:53

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	981.317	.45	1.5	110	234	240	79	79	64	9
2	2.5	983.07	.47	1.6	110	253	241	78	78	63	9
3	5.0	984.85	.48	1.6	111	243	244	79	79	61	10
4	7.5	986.65	.50	1.7	111	243	240	80	78	61	10
5	10	988.47	.50	1.7	111	243	243	81	79	60	10
6	12.5	990.30	.48	1.6	111	244	248	83	79	63	10
7	15	992.11	.48	1.6	111	245	247	84	79	64	10
8	17.5	993.93	.45	1.5	111	245	245	85	79	61	10
9	20	995.72	.40	1.3	112	245	244	86	79	57	9
10	22.5	997.44	.40	1.3	112	246	245	87	79	55	9
11	25	999.13	.38	1.3	111	246	244	88	79	57	9
12	27.5	1000.83	.36	1.2	111	246	244	90	79	58	8
13	30	1002.426	.32	1.1	112	244	243	81	79	66	7
14	32.5	1003.93	.35	1.2	112	242	245	81	79	63	8
15	35	1005.48	.38	1.3	112	243	245	81	79	62	9
16	37.5	1007.10	.40	1.3	112	244	246	83	79	63	9
17	40	1008.73	.40	1.3	112	245	245	83	79	61	10
18	42.5	1010.36	.44	1.5	112	245	244	83	79	56	11
19	45	1012.10	.46	1.5	112	245	244	83	79	56	11
20	47.5	1013.85	.46	1.5	112	247	245	84	79	58	11
21	50	1015.60	.44	1.5	112	245	246	84	79	59	11
22	52.5	1017.40	.40	1.3	112	245	244	85	80	61	9
23	55	1019.07	.39	1.3	112	246	243	86	80	61	9
24	57.5	1020.72	.37	1.2	112	244	243	88	80	61	9
25	60	1022.348									
End											

Time End: 10:09

Pitot Check
 pos: 4.3 in H2O
 neg: 4.6 in H2O

Leak Check
 cfm: .000
 vac: 13 in Hg

Run 3 **Calculations and Results**

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074
 Test Team: Da,Fb

Date: 7/13/00 mm/dd/yy
 Start Time: 1020 End Time: 1125

Standard Meter Volume Vms: 39.46 dscf
 Average Stack Velocity: 37.42 fps
 Stack Gas Volume: 15861 ACFM
 Stack Gas Dry Volume: 13610 DSCFM

Isokinetic Variation: 100.23 %

Isokinetics Adjusted For Bws>Saturation: NA %
 Vlc calculated for Saturated Conditions: NA ml H2O

Emission Calculations

Particulate	Total mg:	96.4 mg
		4.39 lb/hr
		105.46 lb/day

Fluoride	Total mg:	9.65 mg
		0.44 lb/hr
		10.56 lb/day

Run 3 Data

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074
 Test Team: Da,Fb

Date: 7/13/00 mm/dd/yy
 Start Time: 1020 End Time: 1125

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 62 ml
 Weight of Water Collected in Silica Gel: 9.6 gram
 Moisture Volume Fraction Bwo: 0.0787
 Moisture Volume Saturated Bwo: 0.0880
 Moisture Percent Saturation: 89
 Moisture Used for Calculations: 0.0787
 Stack Molecular Weight Ms: 28.106

Barometric Pressure Pb: 30.10 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.124 in Hg
 Average Meter Delta H: 1.358 in H2O
 Meter Pressure Pm: 30.200 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 91.7 deg. F
 Average Stack Temperature: 110.7 deg. F 43.7 deg C

Average Square Root Delta P: 0.635
 Meter Volume Vm: 40.99 cu. ft.
 Probe Length/Liner: 3' SS
 Cp: 0.84
 Nozzle Ident.: 0.25
 Nozzle Diameter Dn: 0.250 in.
 Impinger Set Number: P-3
 Average Computer K: 3.4230

Run 3 Data Sheet

Facility: NEW WALES
 Plant: MULTIFOS C - KILN
 Team (CB/PR): Da,Fb

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074

Date 7/13/00
 Dwell Time 2.5 min.
 Traverse Points 24
 Stack Diameter 36 inches
 Est % Saturation 90 %
 Stack Static Pressure 0.32 in H2O
 Barometric Pressure 30.10 in Hg
 Dry Molecular Weight 28.969

Meter Box Number 3187
 Meter Delta Ha (in. H2O) 1.742
 Meter Correction Factor 0.9969
 Nozzle Ident.: 0.25
 Nozzle Diameter Dn: 0.250
 Impinger Set Number: P-3
 Probe length/Liner: 3' SS
 Filter Set Number 3

Pitot Check
 pos 4.5 in H2O
 neg 4.1 in H2O

Leak Check
 cfm 0.000 cfm
 vac 15 in Hg

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	110.12	0.5	1.712	1.4	109	237	237	87	86	63	5
2	2.5	111.88	0.57	1.952	1.9	111	236	231	89	86	60	7
3	5.0	113.93	0.57	1.933	1.9	111	236	231	91	86	60	7
4	7.5	115.98	0.55	1.869	1.8	111	236	230	92	86	55	7
5	10.0	117.92	0.55	1.871	1.8	111	239	231	94	87	55	7
6	12.5	119.82	0.55	1.876	1.8	111	236	236	95	87	55	7
7	15.0	121.78	0.4	1.365	1.3	111	237	236	96	88	56	7
8	17.5	123.51	0.35	1.197	1.1	111	237	236	96	88	56	7
9	20.0	125.09	0.33	1.128	1.1	111	237	239	97	88	57	7
10	22.5	126.7	0.3	1.027	1	111	236	239	98	88	58	6
11	25.0	128.3	0.27	0.925	0.92	110	239	240	97	88	58	5
12	27.5	129.65	0.3	1.033	1	110	240	240	97	88	59	5
13	30.0	131.22	0.41	1.411	1.4	110	240	242	93	87	62	7
14	32.5	132.9	0.45	1.542	1.5	110	239	242	94	88	60	8
15	35.0	134.69	0.45	1.545	1.5	111	238	242	96	88	60	8
16	37.5	136.44	0.5	1.710	1.7	111	239	244	97	88	58	10
17	40.0	138.25	0.52	1.780	1.7	111	238	244	98	88	58	10
18	42.5	140.09	0.5	1.713	1.7	111	237	245	98	88	59	10
19	45.0	141.9	0.4	1.370	1.3	110	238	242	98	88	59	10
20	47.5	143.75	0.35	1.206	1.2	111	238	237	99	88	59	10
21	50.0	145.3	0.35	1.200	1.2	111	237	235	99	89	59	8
22	52.5	147	0.3	1.030	1	111	238	236	99	88	59	7
23	55.0	148.6	0.2	0.686	0.68	111	238	236	99	88	59	7
24	57.5	149.79	0.2	0.686	0.68	111	238	236	99	88	60	5
End	60.0	151.11										
Average						110.7			91.7		58.5	
0.57 Max							240	245			63	10
Min							236	230			55	
Range							223-273	223-273			32-68	

Time Start 1020
 Time End 1125

Pitot Check
 pos 4.1 0.57 in H2O
 neg 4.5 0.57 in H2O

Leak Check
 cfm 0.000 <0.020 cfm
 vac 13 10 in Hg

Field Data Sheet

Run Number: 3

Facility: New Wales
 Plant: C-Kiln
 Test Team: RS/DA/FB

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-074

Date: 7-13-00
 Traverse Points: 24
 Stack Diameter: 36 inches
 Dwell Time: 2.5 min.
 Est % Saturation: 90 %
 Stack Static Pressure: 132 in H2O
 Barometric Pressure: 30.12 in Hg
 Dry Molecular Weight: 28.969

Meter Box Number: 3187
 Meter Delta Ha (in. H2O): 1.742
 Meter Correction Factor: .9969
 Nozzle Identification: .250
 Nozzle Diameter Dn: .250
 Impinger Set Number: P-3
 Probe length/Liner: 3'55
 Filter Set Number: 3

Pitot Check
 pos: 4.5 in H2O
 neg: 4.1 in H2O
 Leak Check
 cfm: 1000
 vac: 15 in Hg

Time Start: 1020

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	110.12	.50	1.4	109	237	237	87	86	63	5
2	2.5	111.88	.57	1.9	111	236	231	89	86	60	7
3	5	113.93	.57	1.9	111	236	231	91	86	60	7
4	7.5	115.98	.55	1.8	111	236	230	92	86	55	7
5	10	117.92	.55	1.8	111	239	231	94	87	55	7
6	12.5	119.82	.55	1.8	111	236	236	95	87	55	7
7	15	121.78	.40	1.3	111	237	236	96	88	56	7
8	17.5	123.51	.35	1.1	111	237	236	96	88	56	7
9	20	125.09	.33	1.1	111	237	239	97	88	57	7
10	22.5	126.70	.30	1.0	111	236	239	98	88	58	6
11	25	128.30	.27	.92	110	239	240	97	88	58	5
12	27.5	129.65	.30	1.0	110	240	240	97	88	59	5
13	30	131.22	.41	1.4	110	240	242	93	87	62	7
14	32.5	132.90	.45	1.5	110	239	242	94	88	60	8
15	35	134.69	.45	1.5	111	238	242	96	88	60	8
16	37.5	136.44	.50	1.7	111	239	244	97	88	58	10
17	40	138.25	.52	1.7	111	238	244	98	88	58	10
18	42.5	140.09	.50	1.7	111	237	245	98	88	59	10
19	45	141.70	.40	1.3	110	238	242	98	88	59	10
20	47.5	143.75	.35	1.2	111	238	237	99	88	59	10
21	50	145.30	.35	1.2	111	237	235	99	89	59	8
22	52.5	147	.30	1.0	111	238	236	99	88	59	7
23	55	148.6	.20	.68	111	238	236	99	88	59	7
24	57.5	149.79	.20	.68	111	238	236	99	88	66	5
25	60	151.11									
End											

Time End: 1125

Pitot Check
 pos: 4.1 in H2O
 neg: 4.5 in H2O

Leak Check
 cfm: 1000
 vac: 13 in Hg

Run 1

Run 1 **Calculations and Results**

Facility: New Wales
Plant: MULTIFOS C-KILN
Company ID: 1108
FDEP AIRS & Pt. ID: 1050059 & 074
Test Team: FB,DC,RS

Date: 07/11/00
Start Time: 1145 End Time: 1250

Standard Meter Volume Vms: 45.95 dscf

Average Stack Velocity: 41.01 fps
Stack Gas Volume: 17385 ACFM
Stack Gas Dry Volume: 14634 DSCFM

Isokinetic Variation: 108.55 %

Isokinetics Adjusted For Bws>Saturation: NA %
Vlc calculated for Saturated Conditions: NA ml H2O

Emission Calculations

SO2 Total mg: 28.22 mg
 1.19 lb/hr
 28.51 lb/day

Run 1

Run 1 Data

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074
 Test Team: FB,DC,RS

Date: 07/11/00

Start Time: 1145

End Time: 1250

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 83 ml
 Weight of Water Collected in Silica Gel: 14.8 gram
 Moisture Volume Fraction Bwo: 0.0911
 Moisture Volume Saturated Bwo: 0.0966
 Moisture Percent Saturation: 94
 Moisture Used for Calculations: 0.0911
 Stack Molecular Weight Ms: 27.970

Barometric Pressure Pb: 30.10 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.124 in Hg
 Average Meter Delta H: 1.817 in H2O
 Meter Pressure Pm: 30.234 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 84.5 deg. F
 Average Stack Temperature: 114.0 deg. F 45.5 deg C

Average Square Root Delta P: 0.692
 Meter Volume Vm: 47.06 cu. ft.
 Probe Length/Liner: 3' Glass
 Cp: 0.84
 Nozzle Ident.: 0.250
 Nozzle Diameter Dn: 0.250 in.
 Impinger Set Number: S3
 Average Computer K: 3.8424

Run 1 Data Sheet

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Team (CB/PR): FB,DC,RS

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074

Date	07/11/00
Dwell Time	2.5 min.
Traverse Points	24
Stack Diameter	36 inches
Est % Saturation	0 %
Stack Static Pressure	0.32 in H2O
Barometric Pressure	30.10 in Hg
Dry Molecular Weight	28.969

Meter Box Number	3187
Meter Delta Ha (in. H2O)	1.742
Meter Correction Factor	0.9969
Nozzle Ident.:	0.250
Nozzle Diameter Dn:	0.250
Impinger Set Number:	S3
Probe length/Liner:	3' Glass
Filter Set Number	1

Pitot Check	
pos	4.2 in H2O
neg	4.5 in H2O
Leak Check	
cfm	0.000 cfm
vac	15 in Hg

Time Start 1145

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	933.99	0.37	1.410	1.4	114			80	80	62	6
2	2.5	935.67	0.4	1.525	1.5	113			81	80	60	5
3	5.0	937.46	0.4	1.529	1.5	114			83	80	55	6
4	7.5	939.24	0.39	1.491	1.4	114			85	80	55	6
5	10.0	940.95	0.45	1.723	1.7	114			87	80	55	7
6	12.5	942.85	0.5	1.918	1.9	114			88	80	55	8
7	15.0	944.82	0.52	1.997	1.9	114			90	80	55	9
8	17.5	946.85	0.58	2.231	2.2	114			92	80	55	9
9	20.0	948.98	0.52	2.004	2	114			93	80	55	9
10	22.5	951.05	0.52	2.006	2	114			93	81	55	9
11	25.0	953.04	0.46	1.776	1.7	114			93	81	55	10
12	27.5	954.95	0.52	2.008	2	114			93	82	55	10
13	30.0	956.91	0.6	2.319	2.3	114			90	82	63	10
14	32.5	959.04	0.61	2.351	2.3	114			89	82	60	10
15	35.0	961.15	0.6	2.310	2.3	114			88	82	58	10
16	37.5	963.22	0.59	2.270	2.2	114			88	82	56	10
17	40.0	965.49	0.55	2.116	2.1	114			88	82	56	10
18	42.5	967.69	0.55	2.116	2.1	114			88	82	56	10
19	45.0	969.84	0.45	1.731	1.7	114			88	82	56	10
20	47.5	971.89	0.4	1.539	1.5	114			88	82	59	9
21	50.0	973.75	0.4	1.539	1.5	114			86	82	59	9
22	52.5	975.59	0.4	1.536	1.5	114			86	82	59	9
23	55.0	977.4	0.39	1.497	1.4	114			86	82	60	9
24	57.5	979.2	0.4	1.536	1.5	114			86	82	60	9
End	60.0	981.05										
Average						114.0			84.5		57.3	
0.61 Max											63	10
Min											55	

Time End 1250

Pitot Check		Min Value
pos	4.5	0.61 in H2O
neg	4.1	0.61 in H2O
Leak Check		
cfm	0.000	<0.020 cfm
vac	12	10 in Hg

Field Data Sheet

Run Number: 12

Facility: New Wales

Plant: Mullins C-KiN

Company ID: 1108

Test Team: DA/RS/FB 502

FDEP AIRS & Pt. ID: 1050059 E074

JL 711

Date: 7-11-00
 Traverse Points: 24
 Stack Diameter: 36 inches
 Dwell Time: 2.5 min.
 Est % Saturation: 90 %
 Stack Static Pressure: .32 in H2O
 Barometric Pressure: 30.10 in Hg
 Dry Molecular Weight: 28.969

Meter Box Number: 3187
 Meter Delta Ha (in. H2O): 1.742
 Meter Correction Factor: .9969
 Nozzle Identification: .250
 Nozzle Diameter Dn: .250
 Impinger Set Number: P-2
 Probe length/Liner: 3' 55
 Filter Set Number: 2

Pitot Check
 pos: 4.2 in H2O
 neg: 4.5 in H2O
 Leak Check
 cfm: .000
 vac: 15 in Hg

Time Start: 1145

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	233.99	.37	1.4	114	N/A	N/A	80	80	62	6
2	2.5	235.67	.40	1.5	113	N/A	N/A	81	80	60	5
3	5	237.46	.40	1.5	114			83	80	55	6
4	7.5	239.24	.39	1.4	114			85	80	55	6
5	10	240.95	.45	1.7	114			87	80	55	7
6	12.5	242.85	.50	1.9	114			88	80	55	8
7	15	244.82	.52	1.9	114			90	80	55	9
8	17.5	246.85	.58	2.2	114			92	80	55	9
9	20	248.98	.52	2.0	114			93	80	55	9
10	22.5	251.05	.52	2.0	114			93	81	55	9
11	25	253.04	.46	1.7	114			93	81	55	10
12	27.5	254.95	.52	2.0	114			93	82	55	10
13	30	256.91	.60	2.3	114			90	82	63	10
14	32.5	259.04	.61	2.3	114			89	82	60	10
15	35	261.15	.60	2.3	114			88	82	58	10
16	37.5	263.22	.59	2.2	114			88	82	56	10
17	40	265.49	.55	2.1	114			88	82	56	10
18	42.5	267.69	.55	2.1	114			88	82	56	10
19	45	269.84	.45	1.7	114			88	82	59	10
20	47.5	271.89	.40	1.5	114			88	82	59	9
21	50	273.75	.40	1.5	114			86	82	59	9
22	52.5	275.59	.40	1.5	114			86	82	59	9
23	55	277.40	.39	1.4	114			86	82	60	9
24	57.5	279.20	.40	1.5	114	↓	↓	86	82	60	9
25	60	281.05									
End											

Time End: 1250

Pitot Check
 pos: 4.5 in H2O
 neg: 4.1 in H2O

Leak Check
 cfm: .000
 vac: 12 in Hg

Run 2 Calculations and Results

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074
 Test Team: FB,DC,RS

Date: 07/12/00
 Start Time: 1402 End Time: 1509

Standard Meter Volume Vms: 41.27 dscf

Average Stack Velocity: 39.18 fps
 Stack Gas Volume: 16608 ACFM
 Stack Gas Dry Volume: 14293 DSCFM

Isokinetic Variation: 99.83 %

Isokinetics Adjusted For Bws>Saturation: NA %
 Vlc calculated for Saturated Conditions: NA ml H2O

Emission Calculations

SO2	Total mg:	53.42 mg
		2.44 lb/hr
		58.68 lb/day

Run 2 Data

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074
 Test Team: FB,DC,RS

Date: 07/12/00
 Start Time: 1402 End Time: 1509

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 58 ml
 Weight of Water Collected in Silica Gel: 10.8 gram
 Moisture Volume Fraction Bwo: 0.0728
 Moisture Volume Saturated Bwo: 0.0932
 Moisture Percent Saturation: 78
 Moisture Used for Calculations: 0.0728
 Stack Molecular Weight Ms: 28.171

Barometric Pressure Pb: 30.10 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.124 in Hg
 Average Meter Delta H: 1.504 in H2O
 Meter Pressure Pm: 30.211 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 92.9 deg. F
 Average Stack Temperature: 112.7 deg. F 44.8 deg C

Average Square Root Delta P: 0.664
 Meter Volume Vm: 42.95 cu. ft.
 Probe Length/Liner: 3' Glass
 Cp: 0.84
 Nozzle Ident.: 0.250
 Nozzle Diameter Dn: 0.250 in.
 Impinger Set Number: S-2
 Average Computer K: 3.3912

Run 2 Data Sheet

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Team (CB/PR): FB,DC,RS

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074

Date 07/12/00
 Dwell Time 2.5 min.
 Traverse Points 24
 Stack Diameter 36 inches
 Est % Saturation 90 %
 Stack Static Pressure 0.32 in H2O
 Barometric Pressure 30.10 in Hg
 Dry Molecular Weight 28.969

Meter Box Number 3187
 Meter Delta Ha (in. H2O) 1.742
 Meter Correction Factor 0.9969
 Nozzle Ident.: 0.250
 Nozzle Diameter Dn: 0.250
 Impinger Set Number: S-2
 Probe length/Liner: 3' Glass
 Filter Set Number 1

Pitot Check
 pos 3.8 in H2O
 neg 4.5 in H2O
 Leak Check
 cfm 0.000 cfm
 vac 15 in Hg

Time Start 1402

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	22.8	0.45	1.537	1.5	113			98	98	66	5
2	2.5	24.58	0.49	1.674	1.7	113			94	96	64	6
3	5.0	26.45	0.5	1.699	1.7	113			94	97	64	8
4	7.5	28.32	0.5	1.700	1.7	113			93	96	60	9
5	10.0	30.11	0.49	1.663	1.7	113			93	95	59	12
6	12.5	32	0.47	1.594	1.6	113			93	95	58	12
7	15.0	33.82	0.4	1.356	1.4	113			93	94	59	12
8	17.5	35.48	0.4	1.355	1.4	113			93	94	60	12
9	20.0	37.31	0.36	1.220	1.2	113			93	93	60	13
10	22.5	38.95	0.35	1.185	1.2	111			94	93	60	12
11	25.0	40.54	0.36	1.234	1.2	111			95	93	60	12
12	27.5	42.12	0.35	1.201	1.2	111			95	93	61	12
13	30.0	43.725	0.44	1.510	1.5	113			93	92	65	13
14	32.5	45.498	0.44	1.488	1.5	113			93	92	61	13
15	35.0	47.286	0.46	1.556	1.6	113			93	92	62	8
16	37.5	49.11	0.5	1.691	1.7	113			92	92	61	9
17	40.0	50.99	0.51	1.723	1.7	113			92	91	60	9
18	42.5	52.91	0.49	1.654	1.7	113			91	90	61	9
19	45.0	54.82	0.47	1.584	1.6	113			91	90	62	8
20	47.5	56.68	0.45	1.516	1.5	113			92	90	61	8
21	50.0	58.52	0.44	1.484	1.5	113			92	90	61	8
22	52.5	60.33	0.45	1.518	1.5	113			92	90	62	8
23	55.0	62.14	0.45	1.518	1.5	113			92	89	63	8
24	57.5	64	0.4	1.348	1.3	112			92	89	63	7
End	60.0	65.75										

Average 112.7
 0.51 Max 92.9 61.4
 Min 66 13
 Range 58
 32-68

Time End 1509

Pitot Check Min Value
 pos 4.5 0.51 in H2O
 neg 4.2 0.51 in H2O
 Leak Check
 cfm 0.000 <0.020 cfm
 vac 15 13 in Hg

Field Data Sheet

Run Number: 2

Facility: New Wales
 Plant: Multifos C-kiln Sor
 Test Team: DC, RS, FB 502

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074

Date: 7/12/2000
 Traverse Points: 24
 Stack Diameter: 36 inches
 Dwell Time: 2.5 min.
 Est % Saturation: 90 %
 Stack Static Pressure: .32 in H2O
 Barometric Pressure: 30.10 in Hg
 Dry Molecular Weight: 28.969

Meter Box Number: 3187
 Meter Delta Ha (in. H2O): 1.742
 Meter Correction Factor: .9969
 Nozzle Identification: .250
 Nozzle Diameter Dn: .250
 Impinger Set Number: P-3
 Probe length/Liner: 2.55
 Filter Set Number: 3

Pitot Check
 pos: 3.8 in H2O
 neg: 4.5 in H2O
 Leak Check
 cfm: 000
 vac: 15 in Hg

Time Start: 2:02

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	22.80	.45	1.5	113	N/A	N/A	98	98	66	5
2	2.5	24.58	.49	1.7	113			94	96	64	6
3	5	26.45	.50	1.7	113			94	97	64	8
4	7.5	28.32	.50	1.7	113			93	96	60	9
5	10	30.11	.49	1.7	113			93	95	59	12
6	12.5	32.0	.47	1.6	113			93	95	58	12
7	15	33.82	.40	1.4	113			93	94	59	12
8	17.5	35.48	.40	1.4	113			93	94	60	12
9	20	37.31	.36	1.2	113			93	93	60	13
10	22.5	38.95	.35	1.2	111			94	93	60	12
11	25	40.54	.36	1.2	111			95	93	60	12
12	27.5	42.12	.35	1.2	111			95	93	61	12
13	30	43.725	.44	1.5	113			93	92	65	13
14	32.5	45.49	.44	1.5	113			93	92	61	13
15	35	47.28	.46	1.6	113			93	92	62	8
16	37.5	49.11	.50	1.7	113			92	92	61	9
17	40	50.99	.51	1.7	113			92	91	60	9
18	42.5	52.91	.49	1.7	113			91	90	61	9
19	45	54.82	.47	1.6	113			91	90	62	8
20	47.5	56.68	.45	1.5	113			92	90	61	8
21	50	58.52	.44	1.5	113			92	90	61	8
22	52.5	60.37	.45	1.5	113			92	90	62	8
23	55	62.14	.45	1.5	113			92	89	63	8
24	57.5	64	.40	1.3	112			92	89	63	7
25	60	65.750									
End											

Time End: 1509

Pitot Check
 pos: 4.5 in H2O
 neg: 4.2 in H2O

Leak Check
 cfm: 000
 vac: 15 in Hg

Run 3 **Calculations and Results**

Facility: New Wales
Plant: MULTIFOS C-KILN
Company ID: 1108
FDEP AIRS & Pt. ID: 1050059 & 074
Test Team: FB,DC,RS

Date: 07/13/00
Start Time: 847 End Time: 951

Standard Meter Volume Vms: 42.33 dscf
Average Stack Velocity: 40.55 fps
Stack Gas Volume: 17191 ACFM
Stack Gas Dry Volume: 14809 DSCFM
Isokinetic Variation: 98.83 %
Isokinetics Adjusted For Bws>Saturation: NA %
Vic calculated for Saturated Conditions: NA ml H2O

Emission Calculations

SO2 Total mg: 68.54 mg
 3.17 lb/hr
 76.05 lb/day

Run 3 Data Sheet

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Team (CB/PR): FB,DC,RS

Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074

Date 07/13/00
 Dwell Time 2.5 min.
 Traverse Points 24
 Stack Diameter 36 inches
 Est % Saturation 90 %
 Stack Static Pressure 0.32 in H2O
 Barometric Pressure 30.12 in Hg
 Dry Molecular Weight 28.969

Meter Box Number 3187
 Meter Delta Ha (in. H2O) 1.742
 Meter Correction Factor 0.9969
 Nozzle Ident.: 0.250
 Nozzle Diameter Dn: 0.250
 Impinger Set Number: S-1
 Probe length/Liner: 3' Glass
 Filter Set Number 2

Pitot Check
 pos 4.3 in H2O
 neg 4.5 in H2O

Leak Check
 cfm 0.000 cfm
 vac 15 in Hg

Time Start 847

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	66.213	0.53	1.777	1.7	110			78	78	65	7
2	2.5	68.07	0.56	1.877	1.8	110			78	78	62	7
3	5.0	70	0.57	1.911	1.9	109			80	79	57	8
4	7.5	72.01	0.6	2.029	2	110			82	78	55	8
5	10.0	74.04	0.6	2.019	2	110			84	78	54	8
6	12.5	76.07	0.58	1.955	1.9	110			86	78	54	8
7	15.0	78.09	0.56	1.891	1.8	110			89	79	55	8
8	17.5	80.06	0.4	1.356	1.3	110			90	79	57	6
9	20.0	81.77	0.35	1.188	1.2	110			92	80	62	5
10	22.5	83.35	0.31	1.055	1	110			94	80	62	5
11	25.0	84.83	0.3	1.023	1	111			96	80	62	5
12	27.5	86.27	0.3	1.019	1	110			98	81	61	5
13	30.0	87.724	0.33	1.130	1.1	110			91	84	65	5
14	32.5	89.24	0.33	1.126	1.1	111			97	82	60	5
15	35.0	90.76	0.36	1.226	1.2	111			98	82	59	5
16	37.5	92.35	0.38	1.295	1.2	111			100	83	59	5
17	40.0	93.95	0.4	1.367	1.3	111			102	89	60	5
18	42.5	95.55	0.5	1.721	1.7	112			103	84	62	7
19	45.0	97.42	0.52	1.773	1.7	112			104	84	62	7
20	47.5	99.34	0.58	1.979	1.9	112			105	85	63	8
21	50.0	101.35	0.64	2.188	2.1	112			104	85	63	9
22	52.5	103.44	0.65	2.220	2.2	112			104	86	64	9
23	55.0	105.6	0.6	2.051	2	112			104	86	65	9
24	57.5	107.72	0.62	2.119	2.1	112			104	86	66	9
End	60.0	109.847										

Average 110.8
 0.65 Max 88.1
 Min 60.6
 Range 32-68

Time End 951

Pitot Check Min Value
 pos 5.3 0.65 in H2O
 neg 5.0 0.65 in H2O

Leak Check
 cfm 0.000 <0.020 cfm
 vac 10 9 in Hg

Run 3 Data

Facility: New Wales
 Plant: MULTIFOS C-KILN
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059 & 074
 Test Team: FB,DC,RS

Date: 07/13/00
 Start Time: 847 End Time: 951

Number of Traverse Points: 24
 Dwell Time/Point: 2.5 min.
 Total Test Time: 60 min.

Stack Diameter: 36 inches
 Stack Area: 7.07 sq. ft.

Molecular Weight Dry Md: 28.969
 Volume of Water Vapor Condensed: 62 ml
 Weight of Water Collected in Silica Gel: 11.6 gram
 Moisture Volume Fraction Bwo: 0.0757
 Moisture Volume Saturated Bwo: 0.0880
 Moisture Percent Saturation: 86
 Moisture Used for Calculations: 0.0757
 Stack Molecular Weight Ms: 28.139

Barometric Pressure Pb: 30.12 in Hg
 Stack Static Pressure Pv: 0.32 in H2O
 Stack Pressure Ps: 30.144 in Hg
 Average Meter Delta H: 1.592 in H2O
 Meter Pressure Pm: 30.237 in Hg
 Console Number: 3187
 Meter Delta Ha: 1.742
 Meter Correction Factor: 0.9969

Average Meter Temperature: 88.1 deg. F
 Average Stack Temperature: 110.8 deg. F 43.8 deg C

Average Square Root Delta P: 0.688
 Meter Volume Vm: 43.63 cu. ft.
 Probe Length/Liner: 3' Glass
 Cp: 0.84
 Nozzle Ident.: 0.250
 Nozzle Diameter Dn: 0.250 in.
 Impinger Set Number: S-1
 Average Computer K: 3.3974

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler St. Plant City, Florida 33566 (813) 752-5014

NOX EMISSIONS TEST CALCULATIONS

COMPANY: IMC-AGRICO CO. NEW WALES FACILITY
SOURCE: MULTIFOS KILN "C"
TEST DATE: 07/13/00
DATA ANALYST: M. Gierke

RUN NO.	AVERAGE CONC. (PPM)	STACK FLOWRATE (dscfm)	EMISSIONS		
			(mg/m ³)	(lbs/ft ³)	(lbs/hr)
1	47.6	14,809	91.0	5.68E-06	5.05
2	77.6	14,809	148.4	9.27E-06	8.23
3	51.5	14,809	98.5	6.15E-06	5.46
AVERAGE	58.90	14,809	112.6	7.03E-06	6.25

FORMULAS: $\text{mg/m}^3 = \text{ppm} \times .041573 \times \text{molecular wt.}$

$$\text{lb/ft}^3 = \frac{\text{mg/m}^3}{35.31 \text{ ft}^3/\text{m}^3 \times 1000 \text{ mg/g} \times 453.59 \text{ g/lb}}$$

$$\text{lb/hr} = \text{lb/ft}^3 \times \text{flowrate} \times 60 \text{ min/hr}$$

where: $P_{\text{std}} = 29.92 \text{ "Hg}$
 $T_{\text{std}} = 528 \text{ deg R}$
Molecular Wt. of NO₂ = 46

Analytical Data

IMC-Agrico Company**Particulate and Moisture Data Sheet
Method 5 & 13B Combined**Facility NEW WALES

Date : 7/11/00

Plant MULTIFOS C - KILN

Run 1

Impinger Set Number: P-1

Impinger Number:	1	2	3	4
Final (grams/mls):	174	110	0	370.6
Initial (grams/mls):	100	100	0	359.9
Difference (grams/mls):	74	10	0	10.7
Total Moisture Collected:			84 mls	10.7 gram

Filter Set Number: 1

Filter Analysis		Probe Wash Analysis	
Filter Number:	63	Beaker Number:	C
Final Weight	0.6757	Final Weight:	159.5257
Initial Weight:	0.6756	Initial Weight:	159.5138
Difference:	0.0001	Difference:	0.0119

Fluoride and Particulate Calculations**Fluoride**

Probe Wash Fluoride mg	1.48
Impinger Fluoride mg:	5.52
Total Fluoride mg:	7.00

Particulate

Probe Wash Particulate mg	11.9
Filter Particulate mg:	0.1
Total Particulate mg:	12.0

IMC-Agrico Company

Particulate and Moisture Data Sheet Method 5 & 13B Combined

Facility NEW WALES

Date : 7/12/00

Plant MULTIFOS C - KILN

Run 2

Impinger Set Number: P-2

Impinger Number:	1	2	3	4
Final (grams/mls):	163	112	0	326.7
Initial (grams/mls):	100	100	0	317.4
Difference (grams/mls):	63	12	0	9.3
Total Moisture Collected:			75 mls	9.3 gram

Filter Set Number: 2

Filter Analysis		Probe Wash Analysis	
Filter Number:	64	Beaker Number:	42
Final Weight	0.7272	Final Weight:	150.4336
Initial Weight:	0.7031	Initial Weight:	150.4194
Difference:	0.0241	Difference:	0.0142

Fluoride and Particulate Calculations

Fluoride

Probe Wash Fluoride mg	1.33
Impinger Fluoride mg:	11.16
Filter Fluoride mg:	0.45
Total Fluoride mg:	12.94

Particulate

Probe Wash Particulate mg	14.2
Filter Particulate mg:	24.1
Total Particulate mg:	38.3

IMC-Agrico Company**Particulate and Moisture Data Sheet
Method 5 & 13B Combined**Facility NEW WALES

Date : 7/13/00

Plant MULTIFOS C - KILN

Run 3

Impinger Set Number: P-3

Impinger Number:	1	2	3	4
Final (grams/mls):	152	110	0	391.1
Initial (grams/mls):	100	100	0	381.5
Difference (grams/mls):	52	10	0	9.6
Total Moisture Collected:			62 mls	9.6 gram

Filter Set Number: 3

Filter Analysis		Probe Wash Analysis	
Filter Number:	65	Beaker Number:	B
Final Weight	0.7427	Final Weight:	106.7722
Initial Weight:	0.6637	Initial Weight:	106.7548
Difference:	0.0790	Difference:	0.0174

Fluoride and Particulate Calculations**Fluoride**

Probe Wash Fluoride mg	4.20
Impinger Fluoride mg:	0.95
Filter Fluoride mg:	4.50
Total Fluoride mg:	9.65

Particulate

Probe Wash Particulate mg	17.4
Filter Particulate mg:	79.0
Total Particulate mg:	96.4

Run 1

IMC Phosphates Company

Moisture Data Sheet Method 8

Facility New Wales

Date : 07/11/00

Plant MULTIFOS C-KILN

Run 1

Impinger Set Number:	S3			
Impinger Number:	1	2	3	4
Final (grams/mls):	155	122	106	335.0
Initial (grams/mls):	100	100	100	320.2
Difference (grams/mls):	55	22	6	14.8
Total Moisture Collected:				83 mls 14.8 gram

Sulfur Dioxide

Laboratory mg 82.22

IMC Phosphates Company

Moisture Data Sheet Method 8

Facility New Wales

Date: 07/12/00

Plant MULTIFOS C-KILN

Run 2

Impinger Set Number:	S-2			
Impinger Number:	1	2	3	4
Final (grams/mls):	154	102	102	301.4
Initial (grams/mls):	100	100	100	290.6
Difference (grams/mls):	54	2	2	10.8
Total Moisture Collected:				58 mls 10.8 gram

Sulfur Dioxide

Laboratory mg 53.42

IMC Phosphates Company

Moisture Data Sheet Method 8

Facility New Wales

Date : 07/13/00

Plant MULTIFOS C-KILN

Run 3

Impinger Set Number:		S-1			
Impinger Number:	1	2	3	4	
Final (grams/mls):	157	104	101	336.4	
Initial (grams/mls):	100	100	100	324.8	
Difference (grams/mls):	57	4	1	11.6	
Total Moisture Collected:			62 mls	11.6 gram	

Sulfur Dioxide

Laboratory mg 68.54

IMC-AGRICO COMPANY
New Wales Facility
Multifos Kiln "C"
7/13/00
Nitrogen Oxides
0-1000 PPM Range
6 cm/hr

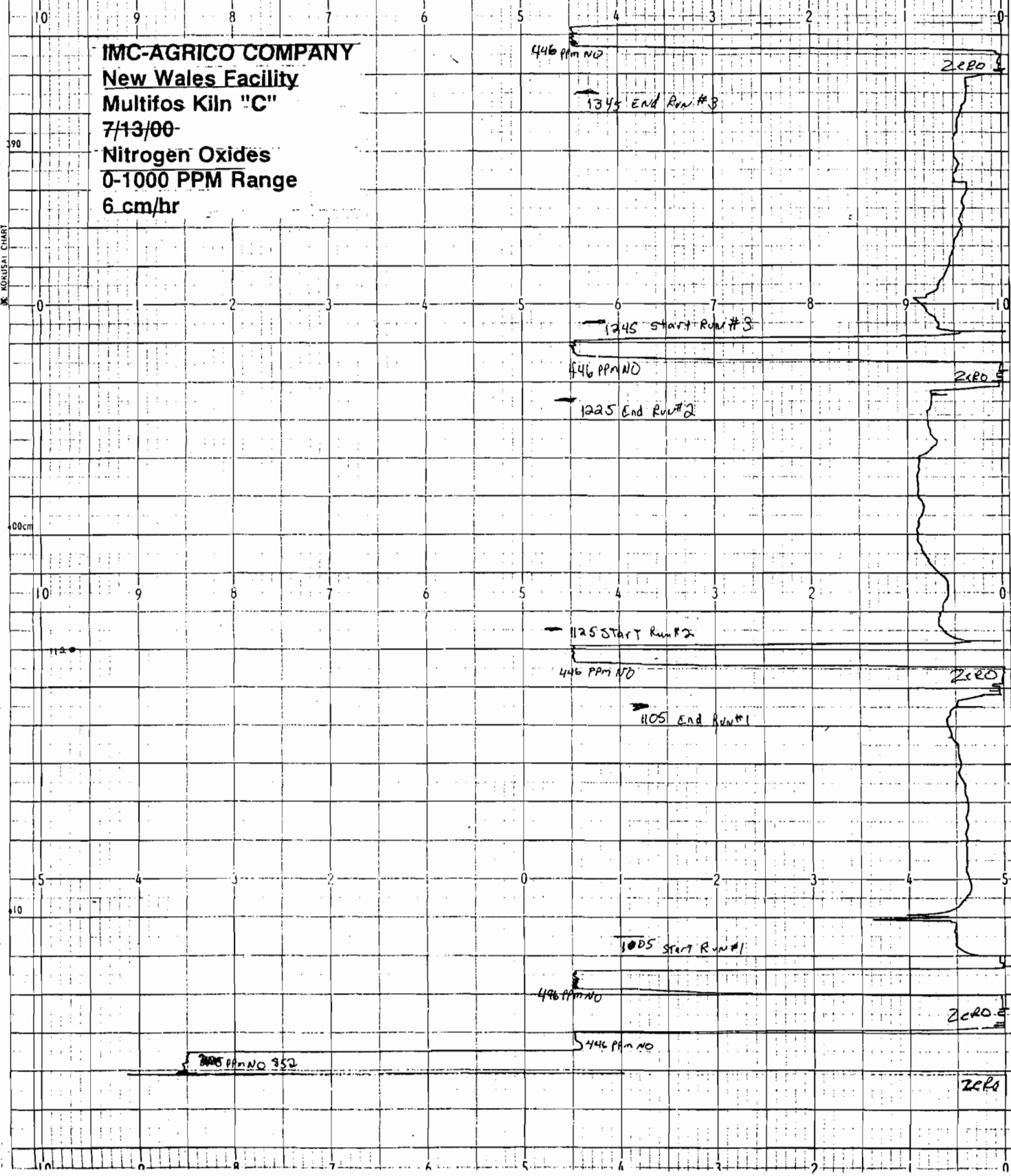
446 ppm NO
1345 END Run #3
ZERO

1245 START Run #3
446 ppm NO
1225 END Run #2
ZERO

1125 START Run #2
446 ppm NO
1105 END Run #1
ZERO

1005 START Run #1
446 ppm NO
446 ppm NO
ZERO

2005 ppm NO 352



YOKOGAWA 893117 (3045-15)

Calibrations

IMC Phosphates Company

Post Test Dry Gas Meter Calibration Form

Facility: NEW WALES

Plant: MULTIFOS C- KILN

Meter Box Number: 3187

Date: 8/2/00

Barometric Pressure, Pb: 30.10

Standard Test Meter Number: 693497

Delta H	Gas Volume				Temperature, F				Time min.	Yi	Delta H@
	Standard Meter Initial	Standard Meter Final	Dry Gas Meter Initial	Dry Gas Meter Final	Standard Meter Inlet	Standard Meter Outlet	Dry Gas Meter Inlet	Dry Gas Meter Outlet			
1.6	639.125	649.762	426.358	437.538	68	76	89	90	15	0.9789	1.7259
1.6	649.762	660.343	437.538	448.636	68	72	88	86	15	0.9802	1.7390
1.6	660.343	670.877	448.636	459.676	66	70	88	83	15	0.9820	1.7462
Delta H to be at intermediate setting from test.									Tolerance	+/- 0.02	+/- 0.15
Test Performed at Vacuum: <u>13</u> in Hg									Deviation	0.0016	0.0111
									Average	0.9803	1.737

Percentage Difference in Yi Pretest vs Post Test. 1.66 %

Pretest Yi Value 0.9969

Percentage Difference cannot exceed 5%

Person Performing Calibration:



Ross Sellers

IMC Phosphates Company

Post Test Dry Gas Meter Calibration Form

Facility: New Wales

Plant: Multifos C-Kiln

Meter Box Number: 3187

Date: 8/3/00

Barometric Pressure, Pb: 30.1

Standard Test Meter Number: 693497

Delta H	Gas Volume				Temperature, F				Time min.	Yi	Delta H@
	Standard Meter		Dry Gas Meter		Standard Meter		Dry Gas Meter				
	Initial	Final	Initial	Final	Inlet	Outlet	Inlet	Outlet			
1.5	708.06	718.46	498.2	508.85	68	68	75	70	15	0.9813	1.7205
1.5	718.46	728.87	508.85	519.54	68	68	75	70	15	0.9785	1.7172
1.5	728.87	739.3	519.54	530.25	68	68	81	72	15	0.9859	1.6978
Delta H to be at intermediate setting from test.									Tolerance	+/- 0.02	+/- 0.15
Test Performed at Vacuum: <u>11</u> in Hg									Deviation	0.0040	0.0140
									Average	0.982	1.712

Percentage Difference in Yi Pretest vs Post Test. 1.50 %

Pretest Yi Value 0.9969

Percentage Difference cannot exceed 5%

Person Performing Calibration:


Flint Barnes

IMC-Agrico Company

Dry Gas Meter Calibration Form

Meter Box Number: 3187

Date: 02/08/00

Barometric Pressure, Pb: 30.25

Standard Test Meter Number: 693497

Delta H	Gas Volume				Temperature, F				Time min.	Yi	Delta H@	
	Standard Meter		Dry Gas Meter		Standard Meter		Dry Gas Meter					
	Initial	Final	Initial	Final	Inlet	Outlet	Inlet	Outlet				
0.5	60.271	65.638	43.039	48.515	70	71	75	74	14	0.9863	1.8772	
1	65.969	71.027	48.852	53.982	70	71	75	74	9	0.9910	1.7470	
1.5	71.662	77.16	54.624	60.198	70	71	80	74	8	0.9948	1.7442	
2	77.793	83.385	60.736	66.395	70	71	81	74	7	0.9964	1.7196	
3	84.125	90.099	67.238	73.163	70	71	81	74	6	1.0142	1.6604	
4	91.448	97.122	74.617	80.318	70	71	80	75	5	0.9987	1.7043	
										Tolerance	+/- 0.02	+/- 0.15
										Deviation	0.0173	0.1351
										Average	0.9969	1.742

Person Performing Calibration:

Flint Barnes

Flint Barnes

IMC-Agrico Company

Dry Gas Meter Calibration Form

Meter Box Number: 3187

Date: 02/08/00

Barometric Pressure, Pb: 30.25

Standard Test Meter Number: 693497

Delta H	Gas Volume				Temperature, F				Time min.	Yi	Delta H@	
	Standard Meter		Dry Gas Meter		Standard Meter		Dry Gas Meter					
	Initial	Final	Initial	Final	Inlet	Outlet	Inlet	Outlet				
0.5	60.271	65.638	43.039	48.515	70	71	75	74	14	0.9863	1.8772	
1	65.969	71.027	48.852	53.982	70	71	75	74	9	0.9910	1.7470	
1.5	71.662	77.16	54.624	60.198	70	71	80	74	8	0.9948	1.7442	
2	77.793	83.385	60.736	66.395	70	71	81	74	7	0.9964	1.7196	
3	84.125	90.099	67.238	73.163	70	71	81	74	6	1.0142	1.6604	
4	91.448	97.122	74.617	80.318	70	71	80	75	5	0.9987	1.7043	
										Tolerance	+/- 0.02	+/- 0.15
										Deviation	0.0173	0.1351
										Average	0.9969	1.742

Person Performing Calibration:

Flint Barnes

Flint Barnes

THERMOMETER CALIBRATIONS

Calibrated BY

Flint Barnes
FLINT BARNES

DATE	ID NO.	TYPE	RANGE	ICE BATH			TEPID WATER			BOILING WATER		
				STD THERM	TEMP	% or o DIFF	STD THERM	TEMP	% or o DIFF	STD THERM	TEMP	
6/26/00	OM1	Them	Dig	38	38	0	62	62	0	210	210	0
6/26/00	OM2	Them	Dig	38	38	0	62	62	0	210	210	0
6/26/00	OM3	Them	Dig	38	38	0	62	62	0	210	210	0
6/26/00	OM4	Them	Dig	34	34	0	62	62	0	210	210	0
6/26/00	PS3	T/T	Dig	34	34	0	72	72	0	212	212	0
6/26/00	PSA (5)	T/T	Dig	34	34	0	68	68	0	210	210	0
6/26/00	PSB (5)	T/T	Dig	34	34	0	70	69	1	210	210	0
6/26/00	PSC (5)	T/T	Dig	34	34	0	70	70	0	210	210	0
6/26/00	PS8-OLD	T/T	Dig	34	34	0	72	72	0	210	210	0
6/26/00	PS6.5	T/T	Dig	34	34	0	68	68	0	212	212	0
6/26/00	PG3	T/T	Dig	34	34	0	72	72	0	210	210	0
6/26/00	PG5	T/T	Dig	34	34	0	70	70	0	212	212	0
6/26/00	E1	T/T	Dig	34	34	0	68	68	0	0		0
6/26/00	E2	T/T	Dig	34	34	0	68	68	0	0		0
6/26/00	E3	T/T	Dig	34	34	0	70	70	0	0		0
6/26/00	E4	T/T	Dig	34	34	0	68	68	0	0		0
6/26/00	HB1	T/T	Dig	0	0	0	70	70	0	212	212	0
6/26/00	HB2	T/T	Dig	0	0	0	70	70	0	210	210	0
6/26/00	HB3	T/T	Dig	0	0	0	72	72	0	212	212	0
6/26/00	HB4	T/T	Dig	0	0	0	70	70	0	210	210	0
6/26/00	PS 8 NE	T/T	Dig	34	34	0	68	68	0	210	210	0
								PS	STEEL	PROBE		
								PG	GLASS	PROBE		
								E	EXIT	ADAPTOR		
								HB	HOT	BOX		
								Them	Digital	Thermometer		
								T/T	Thermometer-Them-Couple			

IMC-Agrico Company

Environmental Department

Nozzle Size Calibration

Facility: IMC-AGRICO New Lakes

Plant: MULTIFOS C-kita

Date: 7/11/2000

Nozzle ID	Run Number	D-1	D-2	D-3	Delta	Average
.250	1, 2, 3	.250	.251	.250	.001	.250

D-1, D-2, D-3

Measurement of Diameter at Three locations
Three Decimal Places required.

Delta

Maximum Difference in a D-1, D-2, D-3.
Value not to exceed 0.004.

Average

Average of D-1, D-2, D-3.
Three Decimal Places required.

Person Performing Calibration:

David Carroll

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler St. Plant City, Florida 33566 (813) 752-5014

NITROGEN OXIDES ANALYZER CALIBRATION DATA

EPA METHOD 7E

COMPANY	IMC-AGRICO CO. NEW WALES FACILITY
SOURCE	MULTIFOS KILN "C"
OPERATOR	M. Gierke
DATE	07/13/00
RUN #S	ALL
INSTRU. SPAN RANGE	1000

	Cylinder value (PPM)	Analyzer calibration responses (PPM)	Absolute difference (PPM)	Difference (% of Span)
Zero	0	0	0	0.0
Mid-range	446	445	1	0.1
High-range	852	850	2	0.2

SYSTEM CALIBRATION BIAS AND DRIFT DATA

		Initial Values			Final Values		Drift (% of span)
		Analyzer calibration response (PPM)	System calibration response (PPM)	System calibration bias (% of span)	System calibration response (PPM)	System calibration bias (% of span)	
Run 1	Zero	0	0	0.0	0	0.0	0.0
	Upscale	445.0	448	0.3	449	0.4	0.1
Run 2	Zero	0	0	0.0	0	0.0	0.0
	Upscale	445.0	449	0.4	448	0.3	-0.1
Run 3	Zero	0	0	0.0	0	0.0	0.0
	Upscale	445.0	448	0.3	448	0.3	0.0

$$\text{System Calibration Bias} = \frac{\text{System Cal. Response} - \text{Analyzer Cal.}}{\text{Span}} \times 100$$



SPECTRA GASES INC.

3434 Route 22 West • Branchburg, NJ 08876 USA Tel: (908) 252-9300 • (800) 932-0624 • Fax: (908) 252-0311
Shipped From: 30 Industrial Drive • Alpha, NJ 08865



CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE PROCEDURE # : G1

CUSTOMER: Cherokee Instruments Inc.
SGI ORDER # : 151728
ITEM# : 3
P.O.# : 3683

CYLINDER # : CC85120
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 680

A-3

CERTIFICATION DATE: 3/15/2000
EXPIRATION DATE: 3/15/2002

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Nitric Oxide	3/7/2000 3/15/2000	353.3 ppm 349.8 ppm	352 ppm	+/- 1%
NOx			352 ppm	Reference Value Only

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Nitric Oxide	GM15-1	CC118978	1014 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Nitric Oxide	Teco 10	10AR-34979-249	Chem	3/15/2000

THIS STANDARD WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: [Signature]

DATE: 3/15/2000

For Technical Information Call
-800-752-1597

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
AIR PRODUCTS AND CHEMICALS, INC.
4822 INDUSTRY LANE
UDI BUSINESS PARK
DURHAM NC 27709

Order No: CSS-072856-01
Batch No: 861-51026
PO:
Release:

Cylinder No: SG9166856BAL
Bar Code No: DTX194
Cylinder Pressure*: 2000 psig
Certification Date: 11/12/1998
Expiration Date: 11/12/2000

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
NITRIC OXIDE	446 ±5.2 PPM	SG91518788AL	NTRM 81627X	844.0 PPM	ROSEMOUNT 951A	010877	10/28/98	CHEMILUMINESCENCE

NO2 (Reference Value Only): 2.20 PPM

NITROGEN Balance Gas

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst:

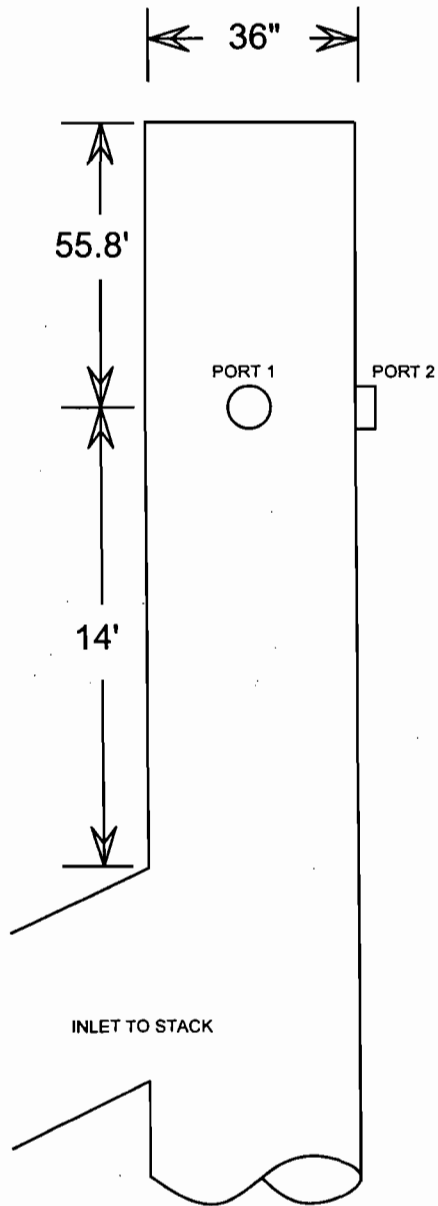
Richard Varbyke
Richard Varbyke

Approved By:

James Laas
James Laas

Stack Diagram and Sampling Locations

SAMPLE PORT LOCATION
NEW WALES OPERATIONS
MULTIFOS C KILN



POINT NO.	INCHES INSIDE STACK WALL
1	1.00
2	2.41
3	4.25
4	6.38
5	9.00
6	12.80
7	23.20
8	27.00
9	29.62
10	31.75
11	33.59
12	35.00

PREPARED: CDT	TITLE: TRAVERSE POINT LOCATION	IMC-AGRIC CO.	
DATE:		LOCATION: NEW WALES	FILE:
REVISED:		SCALE:	DRAWING NO.:

Method 1
Sample and Velocity Traverse Selection

Facility: New Wales
 Plant: Multifos C Kiln
 Company ID: 1108
 FDEP AIRS & Pt. ID: 1050059-014-AV

Points for Circular Stacks

Stack Diameter 36 inches
 Distance Upstream of Disturbance 77.08 feet
 Upstream Diameters 25.69
 Distance Downstream of Disturbance 55.8 feet
 Downstream Diameters 18.60
 Downstream/Upstream Ratio 18.60 25.69

Number of Traverse Points 24 pts
 Number of Ports 2
 Number of Points per Port 12
 Number of Points on Diameter 12
 Traverse Distance Offset 0 inches

Particulate Traverses
 > 7/1.75 > 6/1.5 > 5/1.25 < 5/1.25
 12 16 20 24

Non Particulate Traverses
 > 6/1.5 < 6/1.5
 12 16

Point Number	Distance (inches)	Distance w/offset	Distance %
1	1.00	1.00	2.13
2	2.41	2.41	6.70
3	4.25	4.25	11.81
4	6.38	6.38	17.73
5	9.00	9.00	25.00
6	12.80	12.80	35.57
7	23.20	23.20	64.43
8	27.00	27.00	75.00
9	29.62	29.62	82.27
10	31.75	31.75	88.19
11	33.59	33.59	93.30
12	35.00	35.00	97.87