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QUARTERLY REPORT AIRBORNE URANIUM EMISSIONS STACKS/SCRUBBERS JANUARY 9, 1989 TO APRIL 4, 1989 (FFCA - CLEAN AIR ACT SECTION - ITEM E) REF:5394, 5396

06/26/89

DOE-FMPC/USEPA
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REPORT

ENCLOSURE 1

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QUARTERLY REPORT
AIRBORNE URANIUM EMISSIONS STACKS/SCRUBBERS
JANUARY 9 TO APRIL 4, 1989

FEDERAL FACILITIES COMPLIANCE AGREEMENT
CLEAN AIR ACT SECTION - ITEM E

U.S. DEPARTMENT OF ENERGY
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

AIRBORNE EMISSIONS REPORT FOR THE PERIOD 1/9/89 TO 4/4/89 IN RESPONSE TO ITEM E OF THE CLEAN AIR ACT SECTION FEDERAL FACILITIES COMPLIANCE AGREEMENT

Introduction

This report is submitted in response to Item E of the Clean Air Act Section of the Federal Facilities Compliance Agreement. Specifically, the EPA has required the following action:

> "U.S. DOE shall maintain records of monthly particulate matter emissions and shall provide U.S. EPA with quarterly reports."

The emissions of concern are considered to be particulate uranium. Air emissions at the FMPC are routinely analyzed for total uranium.

Dust Collector

There are forty-six (46) dust collectors currently operational at the FMPC which handle uranium dust. Twenty-one (21) of these were operated sometime during the reporting period. All but one of the total are equipped with a single point particulate sampler. Dust Collector G9N1-1035 is equipped with a multiple point continuous isokinetic sampler. A sampler consists of a pleated paper filter in a cap-shaped holder. Air is drawn through the filter, leaving any particulates on the paper. At regular intervals, the filters are destructively analyzed for uranium.

Scrubbers

The major emission points not monitored at the FMPC are the streams which exit wet scrubber systems. Because of the high moisture content of the exhaust gas, conventional monitors cannot be used. In the case of a filter sampler, the paper quickly becomes saturated and restricts air flow. To date, a real-time monitor has not been found that can be used in the scrubber exhausts. Particulate emissions reports will include estimated uranium losses from the FMPC scrubber systems. These estimates are based on emissions factors obtained from earlier U.S. EPA Method V stack testing.

There are ten (10) scrubbers currently operational at the FMPC which handle uranium emissions. Emission factors have been calculated for five (5) of these. Two (2) of these were operated sometime during the reporting period. Emission estimates are included for these scrubbers. Emission factors for the remaining five scrubbers are being developed.

Other Emissions

Vent points are not included in particulate emissions reports because uranium losses, if any, from these are non-detectable.

SUMMARY OF URANIUM EMISSIONS FROM PARTICULATE STACKS AND SCRUBBERS
FOR THE PERIOD 1/9/89 TO 4/4/89

Emission Point Number	Control Equip.	Stack Sampler Status	U Emissions (kg) Stack Total	% of FMPC Total
Plant 1				
001	G2-172	I	0.000235	0.04
002	G2-6042	I	N/O	
003	G2-76	I	N/O	
005	G2-2	I	N/O	
006	G2-64	I	N/O	
007	G2-1	I	N/O	
010	G2-6014	I	0.001269	0.20
015	G2-171	I	N/O	
016	G2-235	I	N/O	
Total Plant 1 Emissions			0.001504	0.24
Plant 2/3				
001		S		
012	G1-856	I	N/O	0
023	G1-94	I	N/O	0
092		S	N/O	0
093		S	N/O	0
Total Plant 2/3 Emissions			0	0
Plant 4				
001	G4-7	I	N/O	
002		S	N/O	
003	G4-13	I	N/O	
004	G4-14	I	0.037787	5.88
005	G4-2	I	N/O	
006	G4-12	I	N/O	
008	G4-1	I	N/O	
009	G4-5	I	N/O	
025	G4-4	I	0.000968	0.15
Talcum Cooling Vent		I	N/O	
Total Plant 4 Emissions			0.038755	6.03

SUMMARY OF URANIUM EMISSIONS FROM PARTICULATE STACKS AND SCRUBBERS
FOR THE PERIOD 1/9/89 TO 4/4/89

Emission Point Number	Control Equip.	Stack Sampler Status	U Emissions (kg) Stack Total	% of FMPC Total
Plant 5				
2	G5-247	I	0.004251	0.66
3	G5-248	I	0.002381	0.37
4	G5-249	I	0.011035	1.72
5	G5-250	I	0.020941	3.26
9	G5-254	I	N/O	
10	G5-256	I	0.004024	0.63
13	G5-260	I	0.014639	2.28
14	G5-261	I	0.058596	9.12
15	G5A-100	I	0.012862	2.00
16	G5A-101	I	0.007242	1.13
17	G5-262	I	0.004188	0.65
18	G55-E100	I	N/O	
19	G5-267	I	N/O	
E. Mold Cooling Booth		I	0.001375	0.21
Graphite Breakup Booth		I	0.002624	0.41
Total Plant 5 Emissions			0.144158	22.44
Plant 6				
3 S ESP	G6-3578	I	0.002254	0.35
6		S		
Total Plant 6 Emissions			0.002254	0.35
Plant 8				
001	G43-27	I	0.112609	17.53
002 Rotary Kiln		S	0.02222	3.46
005 Primary Calciner		S	0.30039	46.75
006	G8-8035	I	0.001902	0.30
007 Oxidation No. 1		S	N/O	
008	G8-7	I	N/O	
009 Oxidation No. 2		S	N/O	
010 Box Furnace		S	N/O	
011	G43-29	I	0.011894	1.85
Total Plant 8 Emissions			0.449015	69.88

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FOR THE PERIOD 1/9/89 TO 4/4/89

Emission Point Number	Control Equip.	Stack Sampler Status	U Emissions (kg) Stack Total	% of FMPC Total
Plant 9				
001	G9E2-400	I	N/O	
007	G42A-100	I	N/O	
	G9N1-1035D	I	N/O	
	G9N1-1035S	I	N/O	
Total Plant 9 Emissions			0	0
Pilot Plant				
015	G-1	I	N/O	
016	G-2	I	N/O	
R-14	735-13-7041	I	0.002726	0.42
R-50	735-13-7051	I	0.004034	0.63
Total Plant Pilot Plant Emissions			0.006760	1.05
Laboratory				
001	G15-001	I	0.00091	0.01
Total Laboratory Emissions			0.00091	0.01
Summary of Monitored FMPC Air Emissions for the First Quarter CY 1989			0.642537	100

KEY: I - Stack sampler is installed.
S - Scrubber system emissions, where available, are estimated.

N/O = The dust collector and associated process sources were not operated during the reporting period.