

VENTILATION SURVEY
URANIUM REDUCTION COMPANY MILL
MOAD, UTAH

April 14-15, 1959

Participants

Grant S. Winn, Utah State Department of Health
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Report prepared by:

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VENTILATION SURVEY
URANIUM REDUCTION COMPANY MILL
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Introduction

On April 14 and 15, 1959, airflow measurements in the exhaust ventilation system of the crusher building were made by Mr. Grant E. Nunn, Utah State Department of Health, and Messrs. Duncan A. Holaday and Robert L. Harris, Jr. of the Occupational Health Field Station, U. S. Public Health Service. It was originally intended to survey the entire exhaust system of the building. However, because of limited time available for the survey, and certain difficulties which were encountered, a complete survey was not done. Observations and measurements made during the course of the survey permit certain conclusions; these, for the most part, were discussed with the plant management and engineering staffs at the conclusion of the survey.

Observations

In general, the exhaust ventilation system of the crusher building conforms with accepted good practice in its design and construction. It is the opinion of those who participated in this survey that it is basically a good system; a few problems such as those observed almost inevitably occur in any custom-designed dust control system.

1. Accumulation of Material in Ducts

Pitot tube measurements to evaluate performance of the system were begun on the north leg of the system on the first day of the survey. It was discovered that the horizontal run of the main duct on the first level below the jaw and cone crushers contained a substantial quantity of rock and dust. In one 15" diameter section of the main duct an accumulation of more than 7" of rock was found. Pitot tube measurements were discontinued and the mill maintenance group began cleaning the ducts. The cleanout job was completed on that section of the system the following day.

Measurements were not made in the north section of the system; however, it appears that the horizontal run of duct above the north screens has a large accumulation of material. Other horizontal runs of duct may also contain accumulations.

Large rocks, up to about 5" in diameter, were found in the first level main duct when it was opened for inspection and cleaning. It is not definitely known how these got into the system. There is

a short riser on the dust connection to the ore screen on the second level; large rocks may bounce from this screen into the dust. Under-size material from the screen falls through a chute to the first level conveyor; rocks may also bounce into the dust through the riser at the south end of this conveyor.

2. Belt Cleaning Brush

The ore conveyor belt, after discharging to the screen on the third level, south end of the building, is swept by a stationary wire brush. Sweepings fall to a floor grating, then through a chute to the first level conveyor. This is a major dust source.

3. Dust Leakage, South End of First Level Conveyor

Under-size material from the ore screen and sweepings from the ore conveyor belt fall through chutes to the first level conveyor. These chutes feed to the south end of the conveyor. Material falling through the chutes entrains air; this dust-laden air was escaping from the conveyor enclosure even though exhaust was applied near the chute discharge points.

4. Mechanical Maintenance of Ducts

Any exhaust system handling abrasive materials is subject to erosion. The system requires frequent inspection and repair to prevent escape of dust through holes which wear in the ducts. Holes wear in the ducts at points where the dust impinges; thus, even though the system is under negative pressure, dust will escape through holes at these points. Holes in ducts were observed at several points in the system.

5. Ore Conveyor Tunnel

A conveyor belt transports ore from the yard grizzly to the third level of the crusher building through an enclosed tunnel. Dust-laden air passes up through this tunnel to the crusher building. This could be a major dust source, especially during periods when dry ore is processed.

6. Other Dust Sources

The exhaust ventilation system has been designed to control major sources of dust. A few relatively small uncontrolled sources, however, can result in excessive dust exposures for men working in the building. A few such sources, i.e., leaks in equipment, spillage, holes or loose plates in chutes, etc., were observed during the survey.

Measurements

Air velocity measurements were made at several points in the south leg of the exhaust ventilation system using a standard Pitot tube and an inclined draft gage. Velocities were corrected for air density. Air volumes were then calculated using corrected velocities and duct cross sections. A tabulation of data obtained is appended to this report. The data are incomplete, so are of little value as an analysis of the system. They do, however, represent the type of procedure which might be used to analyze the system.

Conclusions

1. Before any effort is made to measure and balance airflow the entire system should be inspected and accumulations of materials in the ducts should be removed. In any dust handling system containing dampers or blast gates some collection of materials in the ducts should be expected. Ducts should be equipped with convenient clean-out openings and should be inspected and cleaned at frequent intervals. Materials removed from ducts during cleaning should be collected or returned to process in such a manner that the operation will not be a source of airborne dust. Ideally, hoods should be designed to collect the fine dust which is of biological significance and to collect as little as possible of the larger material. Providing larger, plenum-type inlets, on the ore screen and at the loading point on the first level conveyor, would be an application of this principle.

2. After the system is cleaned it could be balanced by means of a Pitot tube survey. Measurements can be made at such points that airflow through each hood or branch can be estimated. After the system is satisfactorily balanced by setting dampers for desired airflow, small static suction holes may be drilled in the riser or branch just downstream from each hood or other inlet. With the system in the desired balance, static suction readings may be made at each of these points with a water manometer, manometer gage, or other sensing device having a range of 6 or 8 inches of water negative pressure. These readings may be recorded and used later to monitor operation of the system. A reduced static suction reading during a later monitoring survey would indicate a constriction or stoppage in the branch or main downstream from the suction point; an increased reading would indicate a stoppage at the hood throat upstream from the measuring point or a major constriction in the hoods or main duct farther upstream in the system. Weekly static suction readings at all hoods and inlets are a rapid and convenient means of monitoring the operation of the exhaust system.

3. Some means of dust control for the belt cleaning brush and handling of the sweepings should be devised. The provision of an exhausted enclosure around the brush, moving the brush nearer the discharge point and extending the discharge point hood, and providing a chute for the sweepings rather than permitting them to fall through the air are all possibilities which might be considered.

4. The leakage of dust-laden air from the south end of the first level conveyor enclosure might be reduced or eliminated by providing tight, gasketed joints for the enclosure and an additional exhaust inlet to cause an inflow of air at the belt opening.

5. Holes worn in ducts are repaired without difficulty. Locating them, however, may be a chore. One means of locating such leaks is to inspect the system carefully with a strong flashlight at night with the building lights turned off. The Tyndall effect permits detection of leaks which otherwise might be overlooked. A few leaks can contribute substantially to dust exposures in the building.

6. Efforts to prevent entrance of dust to the building through the ore conveyor tunnel would be worthwhile. Exhausting air from the underground conveyor loading room in such quantities that air moves at about 50 linear feet per minute down the tunnel from the surface would probably provide control. This might be accomplished by extending a duct down the tunnel from an exhaust fan on the surface. A partition across the tunnel at some point between the surface and the end of the exhaust duct would reduce the amount of air necessary for dust control. Water sprays at the conveyor loading point, used in conjunction with ventilation, might improve dust control and further reduce air requirements. Water sprays might also retain values which otherwise would be carried out in exhaust air.

Wetting the ore at this point to near the maximum moisture content which can be accommodated by the mill might also provide sufficient dust control for this source and, in addition, might improve dust control throughout the crusher building.

7. The mill should be carefully inspected for sources of airborne dust other than those associated with the exhaust ventilation system. Loose plates on equipment, leakage from conveyors, etc., can spoil an otherwise good dust control program. The flashlight technique for locating sources such as these may often be used to advantage. Accumulations of dust on beams, equipment, etc., serve as sources of airborne dust. Good housekeeping is a full time job for one man in a plant such as this. Wet methods and/or vacuum cleaning are superior to sweeping from the standpoint of dust control.

The cooperation of the management and staff of the Uranium Reduction Company will in the conduct of this survey is sincerely appreciated. Consultation regarding items discussed in this report or other matters involving occupational health problems may be obtained from the Division of Occupational Health, Utah State Department of Health.

AIRFLOW DATA
EXHAUST VENTILATION SYSTEM
CRUSHER BUILDING
ULANUM REACTION COMPANY MILL

April 14-15, 1959

Hood or Duct	Duct, Fraction Open	Heasuring Point, Upstream from	Duct Size, In.	Velocity, Ft./Min	Volume Hood, CFM	Volume Main, CFM
<u>Before Cleanups:</u>						
1. Ore Conveyor Transfer Point	1/1	CT-1	6	1,570	310	
2. Jaw Crusher	1/4	CT-2	7	1,220	290	
3. Main		CT-9	13	1,310		1,200
4. Screen			7	2,250*	600*	
5. Main		CT-13	18	3,940**		7,000**
<u>After Cleanups:</u>						
6. Ore Conveyor Transfer Point	1/2	CT-1	6	2,150	425	
7. Jaw Crusher	1/4	CT-2	7	1,650	425	
8. Main		CT-9	13	1,430		1,320
9. Screen			7	1,760*	470*	
10. Main		CT-5	15	3,720		4,550
11. 1st Level Conveyor--South	1/3		8	7,200*	3,230*	
12. Main		CT-6	17	3,080		4,850
13. 1st Level Conveyor--Center	1/4		8	860*	300*	
14. Main		CT-13	18	3,550		6,300
15. 1st Level Conveyor--North	1/4		8	4,150*	1,450*	

* Quantities obtained by difference.

** Volume calculated on basis of clean duct. Rock deposited in the duct reduced its cross section; therefore, the actual air volume was lower than that shown by an undetermined amount.

Note: Air entrainment in the conveyor feed chutes may put positive pressure in the south end of the 1st level conveyor enclosure. Even so, the values for air velocity and volume shown in line 11 (1st level conveyor--south) are probably higher than the actual values.

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59

Sampler: L. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	PRECIPITATION SECTION OPERATING DECK	✓	✓
Area of Zone	40 x 21	✓	✓
Classification(s) Working in zone	PRECIP. OPERATOR	✓	✓
Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	2:18 PM	2:12 PM	1:10 PM
Describe Zone conditions:	DUSTY, PAINTERS SAND-BLASTING IN R.I.P. SECTION	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	40
Range air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2251	R 2312	R 2354
Sample submitted to laboratory	10-9-59	10-13-59	10-15-59
Calculated weight of U ₃ O ₈ in sample	3.44×10^{-5}	1.68×10^{-5}	1.13×10^{-5}
Calculated concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

UREG AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Zone Description:	FILTER PRESS AND DRUM FILTER AREA	✓	✓
Area of Zone	60 X 40	✓	✓
Job Classification(s) Working in zone	PRECIP. OPERATOR	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	1:57 PM	1:26 PM	12:46 PM
Describe Zone conditions:	DUSTY, PAINTER'S SAND-BLASTING IN R.I.P. SECTION	NORMAL	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	90	90	90
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2248	R 2309	R 2351
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U_3O_8 in sample	6.06×10^{-5}	3.06×10^{-5}	3.36×10^{-5}
concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	MILL OFFICE	✓	✓
Size of Zone	20 X 20	✓	✓
Classification(s) Working in zone	MILL FOREMEN	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	2:42 PM	1:48 PM	1:34 PM
Describe Zone conditions:	NORMAL	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2250	R 2311	R 2353
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	5.13 x 10 ⁻⁵	2.69 x 10 ⁻⁴	2.54 x 10 ⁻⁴
U concentration in uc/ml	< 1.85 x 10 ⁻¹¹	1.88 x 10 ⁻¹¹	< 1.85 x 10 ⁻¹¹

MARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: L. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Area Description:	YELLOW CAKE CONTROL ROOM	✓	✓
Area of Zone	20 X 10	✓	✓
Job Classification(s) Working in zone	PRECIP. OPERATOR PACKAGING OPERATOR	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	1:28 PM	1:05 PM	12:24 PM
Describe Zone conditions:	CLEAN, PACKAGING OP. ERATOR BLENDING SAMPLE OF PRODUCT	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2247	R 2308	R 2349
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	1.9×10^{-4}	2.09×10^{-3}	1.15×10^{-3}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	14.6×10^{-11}	8.03×10^{-11}

MARKS:

AVERAGE 8.0×10^{-11} uc/ml

UREG AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Rowland

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Sample Description:	TOP OF LEACH TANKS	✓	✓
Location of Zone	110X 83	✓	✓
Classification(s) Working in zone	LEACH OPERATOR	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	8:15 AM	8:03 AM	7:51 AM
Describe Zone conditions:	NORMAL, TANKS STEAMING ON NORTH SIDE	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2230	R 2291	R 2333
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U_3O_8 in sample	1.45×10^{-6}	1.08×10^{-5}	6.31×10^{-6}
Concentration in $\mu\text{Ci/ml}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

URECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 10-9-59

Sampler: J. B. Rowland

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	SAND-SLIME PUMP DECK	✓	✓
Area of Zone	100x83	✓	✓
Job Classification(s) Working in zone	SAND-SLIME OPERATOR, PUMP MECHANICS	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	9:57 AM.	9:44 AM	9:34 AM
Describe Zone conditions:	NORMAL	✓	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2235	R 2248	R 2339
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	2.13 X 10 ⁻⁵	1.18 X 10 ⁻⁵	1.14 X 10 ⁻⁵
Air concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹

REMARKS:

WRECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 10-9-59

Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Site Description:	"A" R.I.P. BANKS DECK	✓	✓
Size of Zone	205 X 39	✓	✓
Job Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	10:15 AM	10:06 AM	11:03 AM
Describe Zone conditions:	VERY DUSTY, PAINTERS SAND BLASTING	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	70	70	70
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2239	R 2277	R 2346
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	7.05×10^{-4}	3.34×10^{-5}	5.82×10^{-5}
U concentration in uc/ml	4.93×10^{-11}	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

UNESCO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Site Description:	'A' R.I.P. DOCKHOUSE	✓	✓
Size of Zone	10' x 9'	✓	✓
Job Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	10:39 AM	10:30 AM	11:27 AM
Describe Zone conditions:	DUSTY, PAINTERS SAND-BLASTING	NORMAL	✓
Sampler Used	STAPLEY	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2241	R 2301	R 2348
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	8.0×10^{-5}	4.3×10^{-5}	3.14×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-5}$	$< 1.85 \times 10^{-5}$	$< 1.85 \times 10^{-5}$

MARKS:

UREGO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	R.I.P. FEED DISTRIBUTOR PLATFORM	✓	✓
Area of Zone	205 X 71	✓	✓
Job Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	11:04 AM	10:53 AM	10:42 AM
Describe Zone conditions:	DUSTY, PAINTERS SAND BLASTING	NORMAL	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2240	R 2303	R 2341
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	5.56×10^{-5}	1.19×10^{-5}	1.98×10^{-5}
U concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: L. B. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	'B' R.I.P. BANKS DECK	✓	✓
Area of Zone	205 X 39	✓	✓
Job Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	11:28 AM	11:15 AM	9:58 AM
Describe Zone conditions:	DUSTY, PAINTERS SAND-BLASTING	NORMAL	✓
Air Sampler Used	STAPLEY	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2244	R 2305	R 2341
Date submitted to laboratory	10-9-59	10-13-59	10-14-59
Total weight of U ₃ O ₈ in sample	8.75×10^{-4}	2.94×10^{-5}	2.32×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Rowland

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL	✓	✓
Description:	OPERATIONS		
	"B" R. I. P.	✓	✓
	DOGHOUSE		
Area of Zone	10 X 9	✓	✓
Classification(s)	R. I. P. OPERATOR		
Working in zone	R. I. P. HELPER	✓	✓
	R. I. P. CREWMAN		
Sample taken	10-9-59	10-13-59	10-15-59
Sample taken	1:04 PM	12:41 PM	10:21 AM
Describe Zone conditions:	DUSTY, PAINTERS SAND-BLASTING OUTSIDE, WINDY IN DOOR MISSING.	NORMAL	✓
Sampler Used	STAPLEY	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2245	R 2306	R 2348
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Cal weight of U ₃ O ₈ in sample	5.64 X 10 ⁻⁵	1.86 X 10 ⁻⁵	5.84 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J. R. Lawman

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	ESPERANZA DRAGS DECK	✓	✓
Size of Zone	100 X 83	✓	✓
Classification(s) Working in zone	SAND-SLIME OPERATOR	✓	✓
Sample taken	10-9-59	10-13-59	10-14-59
Sample taken	9:02 AM	9:20 AM	9:06 AM
Describe Zone conditions:	NORMAL	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Sample air flow rate	15 CFM	15 CFM	15 CFM
Sample volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2234	R 2297	R 2338
Sample submitted to laboratory	10-9-59	10-13-59	10-15-59
Sample weight of U ₃ O ₈ in sample	2.94 X 10 ⁻⁵	2.74 X 10 ⁻⁵	1.1 X 10 ⁻⁵
Sample concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

UKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59Sampler: J.R. Lowmeyer

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	SAND-SLIME TOP DECK	✓	✓
Location of Zone	60X50	✓	✓
Classification(s) Working in zone	SAND-SLIME OPERATOR	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	9:51 AM	8:51 AM	8:40 AM
Describe Zone conditions:	NORMAL	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2237	R 2495	R 2337
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Cal weight of U ₃ O ₈ in sample	2.06×10^{-5}	1.67×10^{-5}	3.61×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-9-59

Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	LEACH OFFICE	✓	✓
Location of Zone	19 X 12	✓	✓
Job Classification(s) Working in zone	LEACH OPERATOR SAND-SLIME OPERATOR	✓	✓
Date Sample taken	10-9-59	10-13-59	10-14-59
Time Sample taken	8:38 AM.	8:26 AM	8:14 AM
Describe Zone conditions:	OPERATOR CHECKING SAMPLES	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2233	R 2843	R 2335
Date submitted to laboratory	10-9-59	10-13-59	10-15-59
Total weight of U ₃ O ₈ in sample	9.4×10^{-6}	9.06×10^{-6}	1.76×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: J. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: PACKAGING OPERATOR

Time Sample Taken: 1:07 P.M.

Describe Operating Conditions: OPERATOR VACUUM CLEANING

Zone	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	Y.C. CONTROL RM	20X10	10	10 L/min	100 L.
2	PACKAGING AREA	55X41	10	"	100 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-9-59

Total Weight of U₃O₈ in Time Weighted Sample: 2.5 x 10⁻⁶ gm.

Time Weighted Average Exposure:

Assay Number R2246

1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: L. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: PRECIPITATION FILTRATION OPERATOR

Time Sample Taken: 11:17 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: DUSTY

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	Y.C. CONTROL ROOM	20X10	10	10 L/min	100 L.
2	PRECIP. DECK	40X21	10	"	100 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 23 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-9-59

Total Weight of U₃O₈ in Time Weighted Sample: 3.13X10⁻⁶ g.

Time Weighted Average Exposure: 2185 x 10⁻¹¹ uc/ml

Assay Number

R2243

Remarks:

PAINTERS

SAND-BLASTING

IN R.I.P.

SECTION V.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. CREWMAN

Time Sample Taken: 10:28 ^{A.M.}

Describe Operating Conditions: DUSTY

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	R.I.P. BANK DECK	205 x 39	45	10 L/min	450 L
2	R.I.P. DOGHOUSE	17 x 9	5	"	50 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2
 Total Time Period of sample: 50 min.
 Average air flow rate: 10 L/min
 Total Volume of air sampled: 500 L
 Date sample submitted to laboratory: 10-9-59
 Total Weight of U₃O₈ in Time Weighted Sample: 2.25 x 10⁻⁵ g
 Time Weighted Average Exposure: 2.68 x 10⁻¹¹ uc/ml
 Assay Number R2240

Remarks:

PAINTER'S SAND-BLASTING.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: H. B. Howard

Department: MILL OPERATIONS

Job Classification Involved: R. I. P. HELPER

Time Sample Taken: 10:02 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: DUSTY

one 2.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WALKING TO LAB	-	5	10 L/min	50 L.
2	R.I.P. BANKS	205x39	10	"	100 L.
3	R.I.P. DOGWASE	17x9	5	"	50 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3

Total Time Period of sample: 20 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-9-59

Assay Number R2238

Total Weight of U₃O₈ in Time Weighted Sample: 1.75 x 10⁻⁶ mg.

Time Weighted Average Exposure:

1.75 x 10⁻¹¹ uc/ml

arks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: A. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. OPERATOR

Time Sample Taken: 9:37 A.M.

Describe Operating Conditions: DUSTY

one n.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	"A" R.I.P. BANKS	205x39	3 1/2	10 L/min	35 L.
2	"B" R.I.P. BANKS	205x39	3 1/2	"	35 L.
3	"A" DOGHOUSE	12x9	7	"	70 L.
4	"B" DOGHOUSE	12x9	7	"	70 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-9-59

Total Weight of U₃O₈ in Time Weighted Sample: 5.63 x 10⁻⁶ g.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Assay Number R2236

Remarks:

PAINTERS ARE SAND BLASTING, VERY DUSTY.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: G.R. Rowland

Department: MILL OPERATIONS

Job Classification Involved: SAND-SLIME OPERATOR

Time Sample Taken: 8:29 A.M.

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	DRAGS DECK	100x83	20	10 L/min	200 L.
2	PUMP DECK	100x83	5	"	50 L.
3	LEACH OFFICE	19x17	25	"	250 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3
 Total Time Period of sample: 50 min.
 Average air flow rate: 10 L/min.
 Total Volume of air sampled: 500 L.
 Date sample submitted to laboratory: 10-9-59
 Total Weight of U₃O₈ in Time Weighted Sample: 1.88 x 10⁻⁶ gms.
 Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Assay Number R2A3R

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: LEACH OPERATOR

Time Sample Taken: 8:04 ^{A.M.}

Describe Operating Conditions: NORMAL

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP OF TANKS	110X83	7	10 L/min	70 L.
2	LEACH OFFICE	19X12	14	"	140 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-9-59

Assay Number R2231

Total Weight of U₃O₈ in Time Weighted Sample: 7.4 X 10⁻⁶ gms.

Time Weighted Average Exposure:

267 x 10⁻¹¹ uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-9-59

Sampler: J. R. Lounsbury

Department: MILL OPERATIONS

Job Classification Involved: BALL MILL OPERATOR

Time Sample Taken: 1:57 ^{PM} P.M.

Describe Operating Conditions: NORMAL

Line	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	OPERATING DECK	170X50	45	10 L/min	450 L
2	CONVEYOR RAMPS AND GALLERY	215X19	5	"	50 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 10-9-59

Total Weight of U₃O₈ in Time Weighted Sample: 1.75 X 10⁻⁶ g.

Time Weighted Average Exposure:

Assay Number R2249

21.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-7-59

Sampler: H.R. Howard

Department: CRUSHING

Job Classification Involved: LOT SAMPLE PREPARATION MAN

Time Sample Taken: 7:55 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: SAMPLES IN PROCESS

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	A CONTINUOUS SAMPLING DEVICE WAS WORN BY THE MAN DURING HIS WORKING SHIFT. THIS DEVICE SAMPLED IN VERY CLOSE PROXIMITY TO THE MAN'S NOSE.		410	10 L/min.	4,100 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 410 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 4100 L.

Date sample submitted to laboratory: 10-7-59

Total Weight of U₃O₈ in Time Weighted Sample: 2.25 x 10⁻⁵ gm

Time Weighted Average Exposure: <1.85 x 10⁻¹¹ uc/ml

Assay Number R2181

Remarks:

SAMPLER WAS WORN CONTINUOUSLY DURING NORMAL WORK OPERATIONS.

(Breathing Zone Sample - Restricted Area)

Sampler: *L. R. Lowman*

Time Sample Taken: 12:45 P.M.

Describe Operating Conditions: *NORMAL*

Total Number of zones sampled: 2
Total Time Period of Sample: 20 min.
Average air flow rate: 10 L/min
Total Volume of air sampled: 200 L
Date sample submitted to laboratory: 10-18-59
Total Weight of U_3O_8 in Time Weighted Sample: 2.3
Time Weighted Average Exposure:

Assay Number 12307
- 11
0 uc/ml

7 aiks: DRYER DOWN, OPERATOR CLEARING UP AREA

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date:

10-13-59

Sampler:

A. R. Leonard

Department:

MILL OPERATIONS

Job Classification Involved:

PRECIPITATION-FILTRATION OPERATOR

Time Sample Taken:

11:07 ^{A.M.}

Describe Operating Conditions:

NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
Y.C. CONTROL ROOM	80X10	10	10 L/min.	100 L.
PRECIP. DECK	40X21	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-13-59

Total Weight of U_2O_8 in Time Weighted Sample: 4.75X10⁻⁶ g.

Time Weighted Average Exposure:

1.85 x 10

Assay Number

172304

- 11

uc/ml

Remarks:

ATKINS RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-13-59

Sampler: G. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. CREWMAN

Time Sample Taken: 9:23 A.M.

Describe Operating Conditions: NORMAL

Line	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	R.I.P. BANK DECK	205 x 39	45	10 L/min	450 L
2	R.I.P. DOGHOUSE	12 x 9	5	"	50 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 50 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 500 L

Date sample submitted to laboratory: 10-13-59

Total Weight of U₃O₈ in Time Weighted Sample: 2.06 x 10⁻⁶ g

Time Weighted Average Exposure: 2.06 x 10⁻⁶ x 10⁻¹¹ uc/ml

Assay Number R 2296

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-13-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. HELPER

Time Sample Taken: 10:45 ^{A.M.}

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WALKING TO LAB	-	5	10 L/min	50 L.
2	R.I.P. BANKS	205 x 39	10	"	100 L.
3	R.I.P. DOGHOUSE	17 x 9	5	"	50 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3

Total Time Period of sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-13-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.31×10^{-4} gm.

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Assay Number R2302

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-13-59

Sampler: L. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. OPERATOR

Time Sample Taken: 10:15 A.M.

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	'A' R.I.P. BANKS	205x39	3 1/2	10 L/min	35 L.
2	'B' R.I.P. BANKS	205x39	3 1/2	"	35 L.
3	'A' R.I.P. DOGHOUSE	12x9	7	"	70 L.
4	'B' R.I.P. DOGHOUSE	12x9	7	"	70 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-13-59

Assay Number R2300

Total Weight of U₃O₈ in Time Weighted Sample: 2.75 x 10⁻⁶ gm.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-13-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: SAND-SLIME OPERATOR

Time Sample Taken: 8:28 A.M.

Describe Operating Conditions:

NORMAL

ne	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	DRAGS DECK	180 X 83	20	10 L/min	200 L.
2	PUMP DECK	180 X 83	5	"	50 L.
3	LEACH OFFICE	19 X 14	25	"	250 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3

Total Time Period of sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 10-13-59

Assay Number R2294

Total Weight of U₃O₈ in Time Weighted Sample: 9.4 x 10⁻⁷ g.

Time Weighted Average Exposure:

4.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-13-59

Sampler: J. R. Howard

Department: MILL OPERATIONS
 Job Classification Involved: LEACH OPERATOR

Time Sample Taken: 8:04 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP OF TANKS	110X83	7	10 L/min	70 L.
2	LEACH OFFICE	19X12	14	"	140 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-13-59

Assay Number R2292

Total Weight of U₃O₈ in Time Weighted Sample: 1.75 x 10⁻⁶ gms.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date:

10-13-59

Sampler:

J. R. Leonard

Department:

MILL OPERATIONS

Job Classification Involved:

BALL MILL OPERATOR

Time Sample Taken:

1:30 P.M.

Describe Operating Conditions:

NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
OPERATING DECK	120X50	45	104/min.	450 L.
CONVEYOR RAMPS AND GALLERY	215X19	5	"	50 L.

Total Number of zones sampled:

2

Total Time Period of Sample:

50 min.

Average air flow rate:

104/min.

Total Volume of air sampled:

500 L.

Date sample submitted to laboratory:

10-13-59

Assay Number

R2310

Total Weight of U_3O_8 in Time Weighted Sample:

1.88×10^{-6}

- 11

Time Weighted Average Exposure:

$< 1.85 \times 10^{-6}$

uc/ml

Remarks:

arks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: H. B. Rumsford

Department: MILL OPERATIONS

Job Classification Involved: R. I. P. CREWMAN

Time Sample Taken: 9:39 A.M.

Describe Operating Conditions:

NORMAL

Zone	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	R. I. P. BANK DECK	205x39	45	10 L/min	450 L.
2	R. I. P. DOGHOUSE	17x9	5	"	50 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 10-15-59

Assay Number R2340

Total Weight of U₃O₈ in Time Weighted Sample: 7.38 x 10⁻⁷ g.

Time Weighted Average Exposure: 21.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: G. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. HELPER

Time Sample Taken: 10:51 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

one to.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WALKING TO LAB	-	5	10 L/min	50 L.
2	R.I.P. BANKS	205 X 39	10	"	100 L.
3	R.I.P. DOGHOUSE	12 X 9	5	"	50 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3

Total Time Period of sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 10-15-59

Total Weight of U₃O₈ in Time Weighted Sample: 1.45 X 10⁻⁵ gm

Time Weighted Average Exposure: 3.72 x 10⁻¹¹ uc/ml

Assay Number R 2345

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: A. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. OPERATOR

Time Sample Taken: 10:29 ^{A.M.}

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	A" R.I.P. BANKS	205x39	3 1/2	10 L/min	35 L.
2	B" R.I.P. BANKS	205x39	3 1/2	"	35 L.
3	A" DOGHOUSE	12x9	7	"	70 L.
4	B" DOGHOUSE	12x9	7	"	70 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-15-59

Assay Number R 2343

Total Weight of U₃O₈ in Time Weighted Sample: 1.5 x 10⁻⁴ g

Time Weighted Average Exposure: < 1.95 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: G. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: SAND-SLIME OPERATOR

Time Sample Taken: 8:15 A.M.

Describe Operating Conditions: NORMAL

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	DRAGS DECK	100x83	20	10 L/min.	200 L.
2	PUMP DECK	100x83	5	"	50 L.
3	LEACH OFFICE	19 x 12	25	"	250 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3
 Total Time Period of sample: 50 min.
 Average air flow rate: 10 L/min.
 Total Volume of air sampled: 500 L.
 Date sample submitted to laboratory: 10-15-59
 Total Weight of U_3O_8 in Time Weighted Sample: 2.38×10^{-5} g.
 Time Weighted Average Exposure: 2.83×10^{-11} uc/ml

Assay Number R7336

Remarks: PAINTING IN PROGRESS ON DRAGS DECK.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: J. R. Rumsford

Department: MILL OPERATIONS

Job Classification Involved: LEACH OPERATOR

Time Sample Taken: 7:57 ^{A.M.}

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP OF TANKS	110x83	7	104 min.	70 L.
2	LEACH OFFICE	19x12	14	"	140 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 min.

Average air flow rate: 104 min.

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 10-15-59

Assay Number R2334

Total Weight of U₃O₈ in Time Weighted Sample: 1.06 x 10⁻⁶ gms.

Time Weighted Average Exposure: 1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 10-14-59

Sampler: J. B. Lowman

Department: MILL OPERATIONS

Job Classification Involved: BALL MILL OPERATOR

Time Sample Taken: 12153 P.M.

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
OPERATING DECK	100X50	45	104/min.	450 L.
CONVEYOR RAMPS AND GALLERY	215X19	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 50 min.

Average air flow rate: 104/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 10-15-59

Total Weight of U_3O_8 in Time Weighted Sample: 7.5×10^{-7} gm.

Time Weighted Average Exposure:

Assay Number R2350

- 11
uc/ml

$< 1.85 \times 10^{-11}$

marks:

(Breathing Zone Sample - Restricted Area)

Sampler: J. R. Leonard

Time Sample Taken: 12:26 P.M.

NORMAL

Total Number of zones sampled:

Total Time Period of Sample:

Average air flow rate:

Total Volume of air sampled.

Date sample submitted to laboratory:

Total Weight of U_3O_8 in Time Weighted Sample:

Time Weighted Average Exposure:

Assay Number *R4354*

- 11

uc/ml

marks:

UREDO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-15-59

Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	STORAGE TANKS AREA	✓	✓
Size of Zone	205 X 100	✓	✓
Classification(s) Working in zone			
First Sample taken	10-13-59	10-14-59	10-16-59
Second Sample taken	3:01 PM.	2:43 PM	9:10 AM
Describe Zone conditions:	NORMAL	✓	✓
Sampler Used	STAPLER	✓	✓
Sampling period in minutes	20	20	20
Range air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU. FT.	300 CU. FT.	300 CU. FT.
Sample assay number	R 2314	R 2354	R 2404
Date submitted to laboratory	10-13-59	10-15-59	10-16-59
Actual weight of U ₃ O ₈ in sample	7.37 X 10 ⁻⁵	1.18 X 10 ⁻⁵	
Concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 10-15-59Sampler: J. R. Lowmud

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Zone Description:	BOILER ROOM	✓	✓
Area of Zone	80 X 56	✓	✓
Job Classification(s) Working in zone	SHIFT MECHANIC	✓	✓
Date Sample taken	10-13-59	10-14-59	10-14-59
Time Sample taken	2:36 PM	1:58 PM	9:37 AM
Describe Zone conditions:	NORMAL, NEW EQUIPT. BEING INST- ALLED,	✓	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	15 CFM	15 CFM
Total volume of air sampled	300 CU.FT.	300 CU.FT.	300 CU.FT.
Sample assay number	R 2313	R 2355	R 2405
Date submitted to laboratory	10-13-59	10-15-59	10-14-59
Total weight of U ₃ O ₈ in sample	1.16×10^{-5}	1.79×10^{-5}	
Air concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	

REMARKS:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-30-59

Sampler: J. R. Rowland

Department: CRUSHING

Job Classification Involved: LOT SAMPLE BUCKER

Time Sample Taken: 8:00 A.M.
P.M.

Describe Operating Conditions: SAMPLES IN PROCESS

Zone no.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	A CONTINUOUS SAMPLING DEVICE WAS WORN BY THE MAN DURING HIS WORKING SHIFT. THIS DEVICE SAMPLED IN VERY CLOSE PROXIMITY TO THE MAN'S NOSE.		430	10 L/min	4300 L
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 430 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 4300 L.

Date sample submitted to laboratory: 10-6-59

Assay Number R0085

Total Weight of U₃O₈ in Time Weighted Sample: 6.38 x 10⁻⁶ g

Time Weighted Average Exposure: <1.85 x 10⁻¹¹ uc/ml

Remarks:

SAMPLER WAS WORN DURING NORMAL WORK
OPERATIONS.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-22-59

Sampler: J. R. Downard

Department: CRUSHING

Job Classification Involved: CRUSHER HELPER (GRIZZLY MAN)

Time Sample Taken: 7:50 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: ORE BEING DUMPED INTO GRIZZLY

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
GRIZZLY SCREEN	27x44	23	104/min	230 L,
ORE PAD DOCKHOUSE	14x11	5	"	50 L,
CRUSHER	83x44	5	"	50 L,

Total Number of zones sampled: 3
 Total Time Period of Sample: 33 min
 Average air flow rate: 104/min
 Total Volume of air sampled: 330 L
 Date sample submitted to laboratory: 9-22-59
 Total Weight of U_3O_8 in Time Weighted Sample: 6.7×10^{-6} gms
 Time Weighted Average Exposure: 21.85×10^{-11} uc/ml

Assay Number R1994

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-22-59

Sampler: H. R. L. L. L.

Department: MILL OPERATIONS

Job Classification Involved: PRECIP. OPERATOR

Time Sample Taken: 8:48 A.M.

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
Y.C. CONTROL RM.	20 X 10	10	104/min	100 L.
PRECIP. DECK	40 X 40	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min

Average air flow rate: 104/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-18-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.84 X 10⁻⁶ gms

Time Weighted Average Exposure: < 1.85 X 10⁻⁶

Assay Number RM997

- 11

uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-22-59

Sampler: J. R. Parnall

Department: MILL OPERATIONS

Job Classification Involved: PACKAGING OPERATOR

Time Sample Taken: 9:45 A.M.

Describe Operating Conditions: OPERATOR LOADING BARRELS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
Y. C. CONTROL ROOM	20x10	10	10 L/min	100 L
PACKAGING AREA	35x41	10	"	100 L

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L

Date sample submitted to laboratory: 9-24-59

Total Weight of U_3O_8 in Time Weighted Sample: 5.89×10^{-4} gms

Time Weighted Average Exposure: $< 1.85 \times 10^{-4}$ uc/ml

Assay Number R200

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-22-59

Sampler: J.P. Parnish

Department: MAINTENANCE

Job Classification Involved: SAINT MICHAEL'S (BOILER OPERATOR)

Time Sample Taken: 10:42 ^{A.M.} ~~P.M.~~

Describe Operating Conditions:

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BOILER ROOM	20X56	20	10 L/min	200 L.

Total Number of zones sampled: 1

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-22-59

Assay Number R2005

Total Weight of U_3O_8 in Time Weighted Sample: 9.19×10^{-7} gm - 11

Time Weighted Average Exposure:

21.95×10^{-6} uc/ml

Remarks: SIDING STILL OUT.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-18-59

Sampler: J.R. Lowmire

Department: CRUSHING

Job Classification Involved: SCOOP MOBILE OPERATOR

Time Sample Taken: 9:16 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: ORE BEING DUMPED INTO GRIZZLY

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
IN CAB	6x4	28	104/min	280 L.
ORE PAD DOGHOUSE	12x11	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 33 min.

Average air flow rate: 104/min

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 9-18-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.3×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number P1962

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-18-59

Sampler: J. R. Leonard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLE BUCKER(SWING)

Time Sample Taken: 7:53 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: SAMPLE TAKING AND PREPARATION

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	SAMPLE PREP.	18X16	7	10 L/min	70 L.
2	MOISTURE ROOM	18X16	5	"	50 L.
3	SCALEHOUSE	18X11	12	"	120 L.
4	ORE PAD	200 DIAM.	16	"	160 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 40 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 9-18-59

Assay Number R1961

Total Weight of U₃O₈ in Time Weighted Sample: 4.48 x 10⁻⁶ gms. -11

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

arks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-18-59

Sampler: L.R. Jurnard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLER

Time Sample Taken: 8:54 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: TRUCKS DUMPING ON ORE PAD

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
ORE PAD	900 SQ. YD.	20	10 L/min	200 L
SCALE HOUSE	24 X 18	5	"	50 L

Total Number of zones sampled: 2

Total Time Period of Sample: 2.5 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 250 L

Date sample submitted to laboratory: 9-18-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.55×10^{-6} gms

Time Weighted Average Exposure:

Assay Number P-1960

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-17-59

Sampler: J. R. Leonard

Department: CRUSHING

Job Classification Involved: LOT SAMPLE PREPARATION MAN

Time Sample Taken: 10150 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: PREPARING LOT SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLE PREP	24x15	23	104/min	230 L.
SCALE HOUSE	24x18	5	"	50 L.
ORE PAD	200 DIAM	5	"	50 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 33 min

Average air flow rate: 104/min

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 9-17-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.53×10^{-6} gms.

Time Weighted Average Exposure: $< 1.85 \times 10$

Assay Number R1957

uc/ml

Remarks:

RAINING OUTSIDE

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-17-59

Sampler: L.B. Lowndes

Department: CRUSHING

Job Classification Involved: SAMPLE TOWER OPERATOR

Time Sample Taken: 8:45 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: FILLING TIME OF BINS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
#1 CUTTER + TOP OF BINS	24x25	49	10 L/min	490 L.
#1 ROLLS CRUSHER	24x25	21	"	210 L.
MCC DECK	86x8	10	"	100 L.
#2 ROLLS CRUSHER	24x25	15	"	150 L.
OUTSIDE	—	5	"	50 L.

Total Number of zones sampled: 5
 Total Time Period of Sample: 100 min.
 Average air flow rate: 10 L/min.

Total Volume of air sampled: 1000 L.

Date sample submitted to laboratory: 9-17-59

Assay Number R1945

Total Weight of U_3O_8 in Time Weighted Sample: 2.85 x 10⁻⁵ gms. - 11

Time Weighted Average Exposure: <1.85 x 10⁻⁵ uc/ml

Remarks:

RAINING OUTSIDE

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-17-59

Sampler: L. B. Leonard

Department: YARD

Job Classification Involved: TAILINGS POND MAN

Time Sample Taken: 12:03 ^{A.M.} P.M.

Describe Operating Conditions: INTERMITTANT LIGHT RAIN FALLING

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
TAILINGS POND	-	10	10 L/min.	100 L.
MILL YARD	-	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-17-59

Total Weight of U_3O_8 in Time Weighted Sample: 9.38 x 10⁻⁷ gms - 11

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Assay Number R1936

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-16-59

Sampler: J. R. Leonard

Department: CRUSHING

Job Classification Involved: LOT SAMPLE PREPARATION MAN

Time Sample Taken: 10:08 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: PREPARING LOT SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLE PREP	24x45	23	10 L/min	230 L.
SCALE HOUSE	24x18	5	"	50 L.
ORE PAD	400 DIAM	5	"	50 L.

Total Number of zones sampled: 3
 Total Time Period of Sample: 33 min.
 Average air flow rate: 10 L/min
 Total Volume of air sampled: 330 L.
 Date sample submitted to laboratory: 9-16-59
 Total Weight of U_3O_8 in Time Weighted Sample: 1.74 x 10⁻⁶ gms.
 Time Weighted Average Exposure: <1.85 x 10⁻⁶ uc/ml

Assay Number RA27

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-16-59

Sampler: J.R. Leonard

Department: CRUSHING

Job Classification Involved: SAMPLE TOWER OPERATOR

Time Sample Taken: 7:58 P.M. A.M.

Describe Operating Conditions: FILLING FINE ORE BINS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
AT #1 CUTTER + TOP OF BINS	29' x 5'	49	10 L/min.	490 L.
AT #1 ROLL CRUSHER	29' x 5'	21	"	210 L.
CRUSHER MCC DECK	8' x 8'	10	"	100 L.
#2 ROLL CRUSHER	29' x 5'	15	"	150 L.
OUTSIDE	-	5	"	50 L.

Total Number of zones sampled: 5

Total Time Period of Sample: 100 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 1000 L.

Date sample submitted to laboratory: 9-16-59

Assay Number R1921

Total Weight of U_3O_8 in Time Weighted Sample: 3.97×10^{-6} gms - 11

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-16-59

Sampler: H. R. Downard

Department: CRUSHING

Job Classification Involved: SCOOPMOBILE OPERATOR

Time Sample Taken. 2:10 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: DUMPING ORE IN CRIZZLY BIN

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
IN CAB	6 x 4	28	104/min.	280 L.
ORE PAD DUGWISE	12 x 11	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 33 min.

Average air flow rate: 104/min.

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 9-16-59

Total Weight of U_3O_8 in Time Weighted Sample: 4.5×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1933

- 11
uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-16-59

Sampler: L.R. Leonard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLE BUCKER (SWING)

Time Sample Taken: 2:26 ^{A.M.} P.M.

Describe Operating Conditions: PREPARING SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLE PREP.	18'x16'	7	10 L/min	70 L.
MOISTURE ROOM	18'x16'	5	"	50 L.
SCALEHOUSE	24'x18'	12	"	120 L.
ORE PAD	400 DIAM.	16	"	160 L.

Total Number of zones sampled: 4

Total Time Period of Sample: 40 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 9-16-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.03×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1932

- 11
 $< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-16-59

Sampler: J.R. Leonard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLER

Time Sample Taken: 1:33 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: TRUCKS DUMPING IN ORE PAD BINS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
ORE PAD	400 DIA	50	10 L/min	800 L
SCALE HOUSE	24x18	5	"	50 L

Total Number of zones sampled: 2
 Total Time Period of Sample: 25 min.
 Average air flow rate: 10 L/min.
 Total Volume of air sampled: 250 L
 Date sample submitted to laboratory: 9-16-59
 Total Weight of U_{308} in Time Weighted Sample: 6.19×10^{-6} gms
 Time Weighted Average Exposure: $< 1.85 \times 10^{-6}$ uc/ml

Assay Number R1931

Remarks: ORE LOTS FAIRLY DAMP, WIND BLOWING.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date:

9-16-59

Sampler:

J. R. Leonard

Department:

YARD

Job Classification Involved:

TAILINGS POND MAN

Time Sample Taken:

11:26 A.M.

Describe Operating Conditions:

COOL DAMP FROM RECENT RAIN

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
TAILINGS POND	-	10	10 L/min	100 L.
MILL YARD	-	10		100 L.

Total Number of zones sampled:

2

Total Time Period of Sample:

20 min.

Average air flow rate:

10 L/min.

Total Volume of air sampled:

200 L.

Date sample submitted to laboratory:

9-16-59

Assay Number

R1929

Total Weight of U_3O_8 in Time Weighted Sample:

3.05×10^{-6} gms.

- 11

Time Weighted Average Exposure:

$< 1.85 \times 10^{-6}$

uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-15-59

Sampler: L.R. Leonard

Department: CRUSHING

Job Classification Involved: CRUSHER OPERATOR

Time Sample Taken: 1:01 ^{AM} P.M.

Describe Operating Conditions: CRUSHER OPERATING

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
MCC DECK	63x44	40	10 L/min.	400 L.
ORE PAD DOORHOUSE	14x11	8	"	80 L.
TRANSFER TOWER	14x14	5	"	50 L.
#2 & #3 CONVEYORS	18x8	5	"	50 L.
#2 & #3 SCREENS	37x33	5	"	50 L.
#1 CONVEYOR RAMP	705x8	5	"	50 L.

Total Number of zones sampled: 6

Total Time Period of Sample: 68 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 680 L.

Date sample submitted to laboratory: 9-15-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.87×10^{-5} gms.

Time Weighted Average Exposure:

Assay Number R1808

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-15-59

Sampler: J.R. Leonard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLE BUCKER (DAY)

Time Sample Taken: 8:49 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: BUCKER PREPARING SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLE PREP.	18X16	7	10 L/min.	70 L.
MOISTURE ROOM	18X16	5	"	50 L.
SCALEHOUSE	24X18	8	"	80 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 80 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-15-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.83×10^{-6} gm

Time Weighted Average Exposure:

Assay Number R1799

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-15-59

Sampler: J. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. CREWMAN

Time Sample Taken: 10:43 A.M.

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
R.I.P. BANK DECK	205 x 39	45	10 L/min	450 L.
R.I.P. DOGHOUSE	14 x 9	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 50 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 9-15-59

Total Weight of U_{308} in Time Weighted Sample: 1.0×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1835

- 11
 $< 1.85 \times 10^{-6}$ uc/ml

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-15-59

Sampler: L.R. Leonard

Department: CRUSHING

Job Classification Involved: LOT SAMPLE BUCKER

Time Sample Taken: 9:07 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: PREPARING LOT SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
AT WORKBENCH	15X14	19	10 L/min	190 L.
AT TABLE	15X14	16	"	160 L.
SCALEHOUSE	24X14	10	"	100 L.
MOISTURE ROOM	18X16	5	"	50 L.

Total Number of zones sampled: 4

Total Time Period of Sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 9-15-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.83×10^{-6} gms

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Assay Number R1801

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-14-59

Sampler: J.R. Lowndes

Department: CRUSHING

Job Classification Involved: CRUSHER OPERATOR

Time Sample Taken: 11:14 A.M.
~~P.M.~~

Describe Operating Conditions: NORMAL OPERATION

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
MCC DECK	65' x 4'	40	10 L/min	400 L.
ORE PAD DOCKHOUSE	14' x 11'	8	"	80 L.
TRANSFER TOWER	19' x 19'	5	"	50 L.
#2 & #3 CONVEYORS	106' x 8'	5	"	50 L.
#2 & #3 SCREENS	37' x 33'	5	"	50 L.
#1 CONVEYOR RAMP	205' x 8'	5	"	50 L.

Total Number of zones sampled: 6

Total Time Period of Sample: 68 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 680 L.

Date sample submitted to laboratory: 9-14-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.09 x 10⁻⁶ gms.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml.

Assay Number R1770

Remarks: ORE LOT SOMEWHAT DRY

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-14-59

Sampler: L.R. Leonard

Department: CRUSHING

Job Classification Involved: CRUSHER CLEAN-UP (BELT PICKER)

Time Sample Taken: 10:00 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: CRUSHER OPERATING

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BELT PICKER'S CHAIR	205 X 8	45	10 L/min.	450 L.
ORE PAD DOGAHOUSE	12 X 11	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 50 min

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 9-14-59

Total Weight of U_3O_8 in Time Weighted Sample: 3.13×10^{-6} gmo.

Time Weighted Average Exposure:

Assay Number R1776

- 11

1.85×10^{-6} uc/ml

Remarks: SIDING REMOVED TO PROVIDE CROSS-VENTILATION

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-14-59

Sampler: J. R. Leonard

Department: CRUSHING

Job Classification Involved: MOISTURE SAMPLE BUCKER (DAY)

Time Sample Taken: 8:42 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: SAMPLES BEING PREPARED

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLE PREP.	18 x 16	7	10 L/min.	70 L.
MOISTURE ROOM	18 x 16	5	"	50 L.
SCALEHOUSE	24 x 18	8	"	80 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-14-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.13×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1765

- 11

$< 1.85 \times 10^{-6}$ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-14-59

Sampler: J. R. Leonard

Department: CRUSHING

Job Classification Involved: LOT SAMPLE BUCKER

Time Sample Taken: 9:06 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: BUCKER PREPARING LOT SAMPLES

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
AT WORK BENCH	15 X 14	19	10 L/min.	190 L.
AT TABLE	15 X 14	16	"	160 L.
SCALE HOUSE	22 X 18	10	"	100 L.
MOISTURE ROOM	18 X 14	5	"	50 L.

Total Number of zones sampled: 4

Total Time Period of Sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 9-14-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.88×10^{-6} gms

Time Weighted Average Exposure:

Assay Number R1767

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

(Breathing Zone Sample - Restricted Area)

9-11-59

L. R. Leonard

MILL OPERATIONS

BALL MILL OPERATOR

9:40 A.M.
P.M.

NORMAL

[illegible]

2

50 min.

101/2

500 L

9-11-57

P1869

 $1.06 \times 10^{-4} \text{ gms}$

uc/ml

$$< 1.85 \times 10$$

AMER 25:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-11-59

Sampler: J.R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. HELPER

Time Sample Taken: 11:00 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
R.I.P. BANK DECK	205x39	10	10 L/min	100 L.
R.I.P. DOGHOUSE	12x9	5	"	50 L.
OUTSIDE MILL	-	5	"	50 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-11-59

Total Weight of U_3O_8 in Time Weighted Sample: 8.1×10^{-7} gms.

Time Weighted Average Exposure:

Assay Number P1874

1.85×10^{-11} uc/ml

Remarks:

(Breathing Zone Sample - Restricted Area)

Describe Operating Conditions:

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
R.I.P. BANK DECK	405 x 39	45	10 L/min	450 L.
R.I.P. DOGHOUSE	14 x 9	5	"	50 L.

Time Weighted Average Exposure:

P1877

uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-10-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: BALL MILL OPERATOR

Time Sample Taken: 11:18 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: OPERATOR HOISING DOWN FLOORS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
OPERATING DECK	170x50	45	10 L/min	450 L.
GALLERY + CONVEYOR RAMPS	213x19	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 50 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 9-10-59

Total Weight of U_{308} in Time Weighted Sample: 6.3×10^{-7} gms.

Time Weighted Average Exposure:

Assay Number R1829

- 11 $< 1.85 \times 10$ uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-10-59

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: R. I. P. HELPER

Time Sample Taken: 1:38 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
R.I.P. BANK DECKS	205x39	10	10 L/min.	100 L.
R.I.P. DOGHOUSES	12x9	5	"	50 L.
OUTSIDE MILL	-	5	"	50 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-10-59

Assay Number R1834

Total Weight of U_3O_8 in Time Weighted Sample: 5.0×10^{-7} gms.

Time Weighted Average Exposure:

$< 1.85 \times 10^{-11}$ uc/ml

Remarks: PAINTERS SAND-BLASTING UNDER R.I.P. DECK

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-10-59

Sampler: L. B. Parnard

Department: MILL OPERATIONS

Job Classification Involved: PRECIPITATION + FILTRATION OPERATOR

Time Sample Taken: 3:02 ^{-after} P.M.

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
YC CONTROL RM.	20X10	10	10 L/min.	100 L.
PRECIP. DECK	40X71	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-10-59

Total Weight of U_3O_8 in Time Weighted Sample: nil

Time Weighted Average Exposure:

Assay Number P1839

<1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-10-59

Sampler: J.P. V. Ward

Department: MILL OPERATIONS

Job Classification Involved: PACKAGING OPERATOR

Time Sample Taken: 3:38 ^{AMT} P.M.

Describe Operating Conditions: OPERATOR LOADING BARRELS

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
Y.C. CONTROL RM.	2011	10	10 L/min.	100 L.
PACKAGING AREA	55141	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-10-59

Assay Number R1841

Total Weight of U_3O_8 in Time Weighted Sample: 4.40X10⁻⁷ gm.

Time Weighted Average Exposure: <1.85 x 10⁻¹¹ uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-10-59

Sampler: J. R. Howard

Department: MAINTENANCE

Job Classification Involved: SHIFT MECHANIC (BOILER OPERATOR)

Time Sample Taken: 4:57 ^{A.M.} P.M.

Describe Operating Conditions: SIDING REMOVED TO INSTALL NEW EQUIPT.

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BOILER ROOM	80x56	20	10 L/min	200 L.

Total Number of zones sampled: 1

Total Time Period of Sample: 20 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 9-10-59

Total Weight of U_3O_8 in Time Weighted Sample: nil

Time Weighted Average Exposure:

Assay Number RR45

$< 1.85 \times 10^{-11}$ uc/ml

Remarks:

MOST OF SIDING AND ROOFING REMOVED.

(Breathing Zone Sample - Restricted Area)

Sampler: L.R. Leonard

Department: CRUSHING
Job Classification Involved: CRUSHER CLEAN-UP (BELT PICKER)

Time Sample Taken: 10:14 P.M.

Describe Operating Conditions: - CRUSHER OPERATING

ne	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
	BELT, PICKER'S CHAIR	205 X 8	45	10 L/min.	450 L.
	ORE PAD DOGHOUSE	12 X 11	5	"	50 L.
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
1					
2					
3					
4					
5					

Total Number of zones sampled:

Total Time Period of Sample:

Average air flow rate:

Total Volume of air sampled:

Date sample submitted to laboratory: 4-9-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.56×10^{-6} gms

Time Weighted Average Exposure:

Assay Number P1P03

- 11 uc/ml

Remarks:

SPACE UNLIMITED

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 9-9-59

Sampler: J. B. Leonard

Department: CRUSHING

Job Classification Involved: CRUSHER HELPER (GRIZZLY MAN)

Time Sample Taken: 11:13 A.M.
P.M.

Describe Operating Conditions: ORE BEING DUMPED INTO GRIZZLY

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
GRIZZLY SCREEN	27x44	23	10 L/min	230 L.
ORE PAD DOGHOUSE	15x11	5	"	50 L.
CRUSHER	83x42	5	"	50 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 33 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 9-9-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.94 x 10⁻⁶ gms.

Time Weighted Average Exposure:

Assay Number R1806

<1.85 x 10⁻¹¹ uc/ml

Remarks:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	C. PUSKAS	✓	✓
Description:	MOISTURE SAMPLE BUCKING ROOM	✓	✓
Size of Zone	18 X 16	✓	✓
Classification(s) Working in zone	MOISTURE SAMPLE BUCKER	✓	✓
Sample taken	8-21-59	9-14-59	9-15-59
Sample taken	1:07 PM	8:40 AM	8:42 AM
Describe Zone conditions:	FAIRLY CLEAN, SOME SAMPLE REJECT ON FLOOR. BUCKER PREPARING SAMPLES.	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Sampling air flow rate	15 CFM	20 CFM	20 CFM
Total volume of air sampled	450 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1570	R 1764	R 1798
Sample submitted to laboratory	8-24-59	9-14-59	9-15-59
Calculated weight of U_3O_8 in sample	1.25×10^{-5}	4.99×10^{-5}	8.06×10^{-5}
Calculated concentration in uc/ml	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: J. R. Powell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	-	✓
Description:	LOT SAMPLE BUCKING ROOM	✓	✓
Location of Zone	15 x 14	-	✓
Classification(s) Working in zone	LOT SAMPLE BUCKER	✓	✓
Sample taken	8-31-59	9-14-59	9-15-59
Sample taken	1:44 PM	9:04 AM	9:03 AM
Describe Zone conditions:	CLEAN, LOT SAMPLE BUCKER PREPARING SAMPLES	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Sample air flow rate	15 CFM	20 CFM	80 CFM
Volume of air sampled	450 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1571	R 1766	R 1800
Sample submitted to laboratory	8-24-59	9-14-59	9-15-59
Weight of U ₃ O ₈ in sample	4.41 x 10 ⁻⁶	8.0 x 10 ⁻⁵	2.34 x 10 ⁻⁴
Concentration in uc/ml	< 1.85 x 10 ⁻¹¹	< 1.85 x 10 ⁻¹¹	< 1.85 x 10 ⁻¹¹

REMARKS:

(General Air Sampling Restricted Area)

Date: 8-30-59Sampler: H. P. Jones

Sample Data	Sample #1	Sample #2	Sample #3
rtment:		✓	✓
Description:	CRUSHED HELPER CRUSHED HELPER CRUSHED HELPER		✓
of Zone	100 X 100	✓	✓
Classification(s) Working in zone	CRUSHED HELPER CRUSHED HELPER CRUSHED HELPER	✓	✓
Sample taken	8-21-59	9-14-59	9-9-59
Sample taken	2:57 PM	9:06 AM	10:05 AM
ribe Zone conditions:	CRUSHED HELPER CRUSHED HELPER CRUSHED HELPER CRUSHED HELPER CRUSHED HELPER	✓	✓
Sampler Used	STAFLEX	✓	✓
ling period in minutes	30	30	20
age air flow rate	15 CFM	10 CFM	10 CFM
l volume of air sampled	450 CU.FT.	300 CU.FT.	400 CU.FT.
le assay number	R 1573	R 1768	R 1802
submitted to laboratory	8-24-59	9-14-59	9-9-59
l weight of U ₃ O ₈ in sample	1.84 x 10 ⁻⁵	2.94 x 10 ⁻⁵	2.58 x 10 ⁻⁵
concentration in uc/ml	<1.85 x 10 ⁻⁴	<1.85 x 10 ⁻⁴	<1.85 x 10 ⁻⁴

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J.R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CR. TRAINS	✓	✓
Description:	GRIZZLY SCREEN	✓	✓
Location of Zone	47 174	✓	✓
Classification(s) Working in zone	CRUSHER HELPER SCOPMOBILE OPERATOR	✓	✓
Date Sample taken	8-24-59	9-14-59	9-22-59
Time Sample taken	1:21 PM	2:35 PM	7:50 AM
Describe Zone conditions:	ORE BEING DUMPED INTO GRIZZLY BIN BY LOADERS	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	22	20	20
Range air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	220 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1574	R 1805	R 1993
Date submitted to laboratory	8-24-59	9-14-59	9-22-59
Actual weight of U ₃ O ₈ in sample	1.15 X 10 ⁻⁷	2.16 X 10 ⁻⁷	1.80 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

REMARKS:

USECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J.R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHERS	✓	✓
Description:	#1 CONVEYOR TUNNEL AND PIT	✓	✓
Area of Zone	15' 05" x 8'	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER CLEAN-UP	✓	✓
Sample taken	8-25-59	9-14-59	9-15-59
Sample taken	8:46 AM	10:31 AM	1:00 PM
Describe Zone conditions:	OPR ON #1 BELT BELT PICKER'S POSITION CROSS- VENTILATED	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	400 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1590	R 1777	R 1804
Sample submitted to laboratory	8-26-59	9-14-59	9-15-59
Actual weight of U ₃ O ₈ in sample	3.25 X 10 ⁻⁵	6.25 X 10 ⁻⁵	9.14 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: H. B. Purnell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Sample Description:	#1 HEARTH DECK	✓	✓
Area of Zone	40 X 40	✓	✓
Classification(s) Working in zone	PACKAGING OPERATIONS	✓	✓
Sample taken	8-27-59	9-10-59	9-24-59
Sample taken	1:28 PM	3:23 PM	9:08 AM
Describe Zone conditions:	FLOOR BEING MOPPED, NO PAPERS ON DRYING LINES DUST LEAK BELOW.	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Range air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1640	R 1840	R 1948
Sample submitted to laboratory	8-28-59	9-10-59	9-24-59
Calculated weight of U ₃ O ₈ in sample	1.78×10^{-3}	3.14×10^{-4}	3.67×10^{-3}
Concentration in uc/ml	12.4×10^{-11}	$< 1.85 \times 10^{-11}$	19.3×10^{-11}

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. B. Brown

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	YELLOW CAKE REPULP TANKS AND FLOOR SUMP AREA	✓	✓
Area of Zone	60 X 40	✓	✓
Classification(s) Working in zone	PACKAGING OPERATOR	✓	✓
Date Sample taken	8-27-59	9-10-59	9-22-59
Time Sample taken	3:00 PM.	4:35 PM	10:16 AM
Describe Zone conditions:	FLOOR WET, NO VISIBLE YELLOW CAKE ON FLOOR	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Range air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1643	R 1844	R 2001
Date submitted to laboratory	8-28-59	9-10-59	9-22-59
Calculated weight of U ₃ O ₈ in sample	6.1×10^{-5}	4.89×10^{-5}	2.0×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Purnard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	ENGINEERING OPERATIONS	✓	✓
Description:	BOILER ROOM	✓	✓
Location of Zone	ENGINEERING	✓	✓
Classification(s) Working in zone	SHIFT MECHANIC	✓	✓
Time Sample taken	8-28-59	9-10-59	9-22-59
Time Sample taken	9:39 AM	5:00 PM	10:47 AM
Describe Zone conditions:	INSTALLING NEW COMPRESSORS FREIGHT DOOR AND SIDING OPEN	✓	✓
Sampler Used	STAPLER	✓	✓
Sampling period in minutes	30	20	20
Range air flow rate	10 CFM	70 CFM	80 CFM
Actual volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1644	R 1846	R 2002
Time submitted to laboratory	8-28-59	9-10-59	9-22-59
Actual weight of U_3O_8 in sample	6.1×10^{-5}	2.35×10^{-5}	3.45×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

UNESD AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: H. B. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	YARD	✓	✓
Description:	TAILINGS POND DOCKHOUSE	✓	✓
Area of Zone	F X 6	✓	✓
Classification(s) Working in zone	TAILINGS POND MAN	✓	✓
Sample taken	8-28-59	9-16-59	9-17-59
Sample taken	12:51 PM	11:29 AM	1:50 PM
Describe Zone conditions:	SLIGHT WIND BLOWING FROM DIRECTION OF RIVER.	GROUND DAMP DUE TO RECENT RAIN	LIGHT INTERMITTANT RAIN FALLING
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1647	R 1928	R 1934
Sample submitted to laboratory	8-28-59	9-16-59	9-17-59
U ₃ O ₈ weight in sample	4.62×10^{-6}	6.75×10^{-6}	2.44×10^{-6}
U ₃ O ₈ concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	YARD	✓	✓
Description:	TAILINGS POND NORTH DIKE	✓	✓
Size of Zone	approx. 3500 x 100	✓	✓
Classification(s) Working in zone	TAILINGS POND MAN	✓	✓
Sample taken	8-28-59	9-16-59	9-17-59
Sample taken	1:40 PM	12:21 AM	2:34 PM
Describe Zone conditions:	WIND BLOWING DUST AND SAND ALONG DIKE	GROUND DAMP DUE TO RECENT RAIN	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Sampling air flow rate	15 CFM	80 CFM	80 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1649	R 1930	R 1935
Sample submitted to laboratory	8-28-59	9-16-59	9-17-59
Calculated weight of U_3O_8 in sample	2.95×10^{-4}	1.23×10^{-4}	1.88×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Sample Description:	FILTER PRESS AND DRUM FILTER AREA	✓	✓
Size of Zone	60 X 40	✓	✓
Classification(s) Working in zone	PRECIP. OPERATOR	✓	✓
Date Sample taken	8-27-59	9-10-59	9-11-59
Time Sample taken	10:30 AM	1:07 PM	11:25 AM
Describe Zone conditions:	SIDING OUT TO ALLOW ENTRY OF NEW EQUIPMENT	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1635	R 1836	R 1876
Date submitted to laboratory	8-28-59	9-10-59	9-11-59
Total weight of U ₃ O ₈ in sample	3.74×10^{-4}	1.46×10^{-4}	6.69×10^{-5}
Concentration in uc/ml	2.62×10^{-11}	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J. R. Pivard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	YELLOW CAKE CONTROL ROOM	✓	✓
Size of Zone	80 X 10	✓	✓
Classification(s) Working in zone	PRECIP. OPERATOR PACKAGING OPERATOR	✓	✓
1st Sample taken	8-27-59	9-10-59	9-11-59
2nd Sample taken	9:55 AM	1:46 PM	11:05 AM
Describe Zone conditions:	ROOM CLEAN, WINDOW OPEN FOR VENTILATION	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Sampling air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1632	R 1833	R 1875
Sample submitted to laboratory	8-28-59	9-10-59	9-11-59
Calculated weight of U_3O_8 in sample	1.39×10^{-4}	3.15×10^{-4}	5.74×10^{-5}
Calculated concentration in $\mu\text{Ci}/\text{ml}$	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J. R. Linnard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Site Description:	MILL OFFICE	✓	✓
Area of Zone	20 X 20	✓	✓
Job Classification(s) Working in zone	MILL FOREMEN	✓	✓
Date Sample taken	8-27-59	9-10-59	9-24-59
Time Sample taken	12:42 PM	2:55 PM	8:46 AM
Describe Zone conditions:	AIR CONDITIONS AREA CLEAN	✓	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1638	R 1838	R 1996
Date submitted to laboratory	8-28-59	9-10-59	9-24-59
Total weight of U ₃ O ₈ in sample	9.21×10^{-5}	5.23×10^{-5}	1.19×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Parnall

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Location Description:	#5 HEARTH DECK	✓	✓
Area of Zone	19 X 75	✓	✓
Classification(s) Working in zone	PACKAGING OPERATOR	✓	✓
Sample taken	8-27-59	9-10-59	9-24-59
Sample taken	1:55 PM	3:48 PM	9:31 AM
Describe Zone conditions:	DUST COMING UP FROM LOWER LEVEL.	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Sample air flow rate	10 CFM	20 CFM	20 CFM
Sample volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1641	R 1842	R 1999
Sample submitted to laboratory	8-28-59	9-10-59	9-24-59
Sample weight of U ₃ O ₈ in sample	3.55×10^{-4}	1.12×10^{-4}	1.32×10^{-4}
Sample concentration in uc/ml	2.49×10^{-11}	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

URKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-54Sampler: J. B. Powell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	PACKAGING AREA	✓	✓
Size of Zone	55 x 41	✓	✓
Classification(s) Working in zone	PACKAGING OPERATOR	✓	✓
First Sample taken	8-27-54	9-10-54	9-22-54
Second Sample taken	2:29 PM	4:11 PM	9:54 AM
Describe Zone conditions:	DUST LEAK AT PULVERIZER, WIND BLOWING IN FREIGHT DOOR. OPERATOR VACUUMING FLOOR AND CHANGING BARRELS	NORMAL	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	K 1642	R 1843	R 2000
Date submitted to laboratory	8-28-54	9-10-54	9-22-54
Calculated weight of U ₃ O ₈ in sample	4.60 x 10 ⁻³	1.05 x 10 ⁻⁴	2.29 x 10 ⁻⁴
Concentration in mc/ml	3.28 x 10 ⁻¹⁰	< 1.85 x 10 ⁻¹¹	< 1.85 x 10 ⁻¹¹

REMARKS: LEAK AT

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	ESPERANZA DRAGS DECK	✓	✓
Size of Zone	100 X 83	✓	✓
Classification(s) Working in zone	SAND-SLIME OPERATOR	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	9:27 AM	11:01 AM	9:18 AM
Describe Zone conditions:	NORMAL, CONSTRUCTION IN PROGRESS IN MILL	✓	RAINING OUTSIDE
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.FT.
Sample assay number	R 1453	R 1469	R 1499
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Actual weight of U ₃ O ₈ in sample	5.06×10^{-5}	4.96×10^{-5}	2.06×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	SAND-SLIME PUMP DECK	✓	✓
Area of Zone	100 AB3	✓	✓
Classification(s) Working in zone	SAND-SLIME OPERATOR PUMP MECHANICS	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	11:03 AM	10:30 AM	9:50 AM
Describe Zone conditions:	SOME SAND ON FLOOR FROM PUMP BEING REPAIRED	NORMAL	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU. FT.	500 CU. FT.	500 CU. FT.
Sample assay number	R 1457	R 1467	R 1500
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Calculated weight of U_3O_8 in sample	3.81×10^{-5}	1.84×10^{-5}	1.38×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: G. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	R.I.P. FEED DISTRIBUTOR PLATFORM	✓	✓
Location of Zone	205 NW1	✓	✓
Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	1:05 PM	8:50 AM	11:00 AM
Describe Zone conditions:	RAINING OUTSIDE AND THROUGH OPEN PORTION OF ROOF.	NORMAL	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.FT.
Sample assay number	R 1458	R 1464	R 1503
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Weight of U ₃ O ₈ in sample	1.45×10^{-4}	3.22×10^{-5}	2.97×10^{-5}
Concentration in uc/ml	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J.B. Samuel

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Job Description:	A R.I.P. DOCKHOUSE	✓	✓
Size of Zone	18 X 9	✓	✓
Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
1st Sample taken	8-18-59	8-19-59	8-20-59
2nd Sample taken	2:20 PM	7:50 AM	1:00 PM
Describe Zone conditions:	PAINTERS PAINTING FLOOR BELOW PLATFORM	✓	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Range air flow rate	20 CFM	20 CFM	200 CFM
Total volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.FT.
Sample assay number	R 1460	R 1461	R 1504
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Initial weight of U ₃ O ₈ in sample	1.40×10^{-5}	4.97×10^{-5}	1.40×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

UREGO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

L. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	R.I.P. BANKS DECK	✓	✓
Area of Zone	205 X 39	✓	✓
Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken.	8-18-59	8-19-59	8-20-59
Time Sample taken	1:50 PM	8:21 AM	10:16 AM
Describe Zone conditions:	NORMAL	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.FT.
Sample assay number	R 1459	R 1463	R 1501
Date submitted to laboratory	8-19-59	8-19-59	8-20-59
Total weight of U ₃ O ₈ in sample	4.53×10^{-5}	1.88×10^{-4}	4.63×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

MARKS:

URECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: G. R. Pownall

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Zone Description:	"B" R. I. P. DOGHOUSE	✓	✓
Area of Zone	12 X 9	✓	✓
Job Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Date Sample taken	8-18-59	8-19-59	8-20-59
Time Sample taken	9:00 AM	9:20 AM	2:00 PM
Describe Zone conditions:	NORMAL	✓	✓
Air Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.F
Sample assay number	R 1452	R 1465	R 1506
Date submitted to laboratory	8-19-59	8-19-59	8-20-59
Total weight of U ₃ O ₈ in sample	9.31 X 10 ⁻⁶	1.19 X 10 ⁻⁵	5.3 X 10 ⁻⁶
Air concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: J. R. Pineda

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	"B" R.I.P. BANKS DECK	✓	✓
Size of Zone	405 X 39	✓	✓
Classification(s) Working in zone	R.I.P. OPERATOR R.I.P. HELPER R.I.P. CREWMAN	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	10:30 AM	10:00 AM	1:30 PM
Describe Zone conditions:	SECTIONS OF ROOFING REMOVED FOR VENTILATION. CONSTRUCTION OF NEW PRECIP. SECTION IN PROGRESS.	✓	✓
Sampler Used	STAPLEY	✓	✓
Sampling period in minutes	25	25	25
Average air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU. FT.	500 CU. FT.	500 CU. FT.
Sample assay number	R 1456	R 1466	R 1505
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Weight of U ₃ O ₈ in sample	1.94×10^{-5}	2.85×10^{-5}	1.58×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

UNESCO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: G. R. Arnold

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	STORAGE TANK AREA	✓	✓
Size of Zone	205 X 100	✓	✓
Classification(s) Working in zone			
Sample taken	8-28-59	9-10-59	9-27-59
Time Sample taken	10:10 AM	5:30 PM	11:11 AM
Describe Zone conditions:	CONSTRUCTION WORK IN PROGRESS PAINTERS ARE PAINTING IN R.I.P. BANKS AREA	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	80 CFM	20 CFM
Total volume of air sampled	300 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1646	R 1847	R 2003
Date submitted to laboratory	8-28-59	9-10-59	9-27-59
Total weight of U ₃ O ₈ in sample	3.25 X 10 ⁻⁵	1.14 X 10 ⁻⁴	3.68 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-54Sampler: J. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	PRECIP. SECTION OPERATING DECK	✓	✓
Area of Zone	40 X 81	✓	✓
Classification(s) Working in zone	PRECIP. OPERATOR	✓	✓
Sample taken.	8-27-54	9-10-54	9-11-54
Sample taken	11:03 AM	2:30 PM	11:43 AM
Describe Zone conditions:	PAINTERS PAINTING UNDER R.I.P. SECTION.	NORMAL	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Range air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1636	R 1837	R 1878
Sample submitted to laboratory	8-28-54	9-10-54	9-11-54
Calculated weight of U ₃ O ₈ in sample	4.09×10^{-5}	6.73×10^{-5}	2.68×10^{-4}
Calculated concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT /
(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: J. R. Arnold

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	TOP DECK, SAND - SLIME SECTION	✓	✓
Location of Zone	60 X 50	✓	✓
Classification(s) Working in zone	SAND - SLIME OPERATOR	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	10:01 AM	2:08 PM	8:50 AM
Describe Zone conditions:	NORMAL, WELDING AND CONSTRUCTION IN PROGRESS IN MILL	RAINING OUT- SIDE.	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Sample air flow rate	20 CFM	20 CFM	20 CFM
Volume of air sampled	500 CU.FT.	500 CU.FT.	500 CU.FT.
Sample assay number	R 1455	R 1473	R 1448
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Weight of U ₃ O ₈ in sample	4.44 X 10 ⁻⁵	5.20 X 10 ⁻⁵	2.49 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

KS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: S.B. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	CRUSHER MCC DECK	✓	✓
Size of Zone	65' x 48'	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER CLEAN-UP	✓	✓
Sample taken	8-24-59	9-14-59	9-15-59
Sample taken	2:00 PM	11:24 AM	1:29 PM
Describe Zone conditions:	DUST IN AIR, RUNNING HIGH TONNAGE. DUST COLLECTOR NOT OPERATING PROPERLY.	NORMAL	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	40	20	20
Sample air flow rate	10 CFM	10 CFM	10 CFM
Sample volume of air sampled	400 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1576	R 1769	R 1807
Sample submitted to laboratory	8-24-59	9-14-59	9-15-59
Sample weight of U ₃ O ₈ in sample	5.9×10^{-4}	1.54×10^{-4}	1.07×10^{-3}
Sample concentration in uc/ml	3.0×10^{-11}	$< 1.85 \times 10^{-11}$	5.63×10^{-11}

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: H. R. Purnell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	CRUSHER GROUND FLOW	✓	✓
Location of Zone	83X42	✓	✓
Classification(s) Working in zone	CRUSHER OPERATING CRUSHER CLEANUP	✓	✓
Sample taken	8-25-59	9-14-59	9-15-59
Sample taken	9:14 AM	2:10 PM	3:29 PM
Describe Zone conditions:	CRUSHER OPERATING, CLEAN-UP MAN VACUUMING BEAMS AND PLATFORMS	LARGE LEAK IN DUST COLLECTOR DUCT, VERY DUSTY	NORMAL, LEAK FIXED,
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Sample air flow rate	20 CFM	20 CFM	20 CFM
Volume of air sampled	400 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1594	R 1775	R 1813
Sample submitted to laboratory	8-26-59	9-14-59	9-15-59
Weight of U ₃ O ₈ in sample	2.81×10^{-6}	4.55×10^{-7}	1.43×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	2.4×10^{-11}	$< 1.85 \times 10^{-11}$

KS:

URECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: A.R. Pownall

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	#2 CONVEYOR RAMP	✓	✓
Size of Zone	104 X 8	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER HELPER	✓	✓
Date Sample taken	8-25-59	9-14-59	9-15-59
Time Sample taken	10:35 AM	1:47 PM	3:05 PM
Describe Zone conditions:	CRUSHER OPERATING, CLEAN-UP MAN VACUUMING PLATFORM	✓	LIGHT RAIN FALLING OUTSIDE
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Range air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	400 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R1595	R1774	R1812
Date submitted to laboratory	8-26-59	9-14-59	9-15-59
Calculated weight of U ₃ O ₈ in sample	2.18×10^{-4}	2.57×10^{-4}	2.39×10^{-4}
Concentration in uc/ml	$<1.85 \times 10^{-11}$	4.47×10^{-11}	$<1.85 \times 10^{-11}$

MARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J.R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	TRANSFER TOWER	✓	✓
Area of Zone	19 X 19	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER CLEAN-UP	✓	✓
Sample taken	8-25-59	9-14-59	9-15-59
Sample taken	9:34 AM	1:23 PM	2:41 PM
Describe Zone conditions:	SIDING REMOVED TO PROVIDE CROSS-VENT. ILATION.	LEAK IN ORE CHUTE, ORE PILED ON FLOOR	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Sample air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	400 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1593	R 1773	R 1811
Sample submitted to laboratory	8-26-59	9-14-59	9-15-59
Uranium weight of U ₃ O ₈ in sample	6.13×10^{-5}	6.10×10^{-4}	3.41×10^{-4}
Uranium concentration in uc/ml	$< 1.85 \times 10^{-11}$	3.21×10^{-11}	$< 1.85 \times 10^{-11}$

LRKS:

URECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 8-30-59

Sampler: G. L. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	# 3 CONVEYOR RAMP	✓	✓
Location of Zone	106 X 8	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER CLEAN-UP	✓	✓
Sample taken	8-25-59	9-14-59	9-24-59
Sample taken	10:08 AM	1:01 PM	8:17 AM
Describe Zone conditions:	ORE ON #3 BELT, BELT SPRAYS NOT OPERATING	NORMAL	NORMAL
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	20 CFM	20 CFM	20 CFM
Volume of air sampled	400 CU. FT.	400 CU. FT.	400 CU. FT.
Assay number	R 1592	R 1772	R 1995
Submitted to laboratory	8-26-59	9-14-59	9-24-59
Weight of U ₃ O ₈ in sample	8.0 X 10 ⁻⁵	2.65 X 10 ⁻⁴	8.18 X 10 ⁻⁴
Concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	4.31 X 10 ⁻¹¹

RKS:

URECO AIRBORNE RADIATION REPORT.

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. R. Purnell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Sample Description:	CRUSHER VIBRATING SCREENS #2 AND #3	✓	✓
Location of Zone	37X33	✓	✓
Classification(s) Working in zone	CRUSHER OPERATOR CRUSHER CLEAR-UP	✓	✓
Date Sample taken	8-24-59	9-14-59	9-15-59
Time Sample taken	2:44 PM	12:39 PM	1:53 PM
Describe Zone conditions:	DUST IN AIR, ORE ON FLOOR FROM LEAK IN SCREEN HOUSING.	LEAK IN SHAKER HOUS- ING, DUST IN AIR.	LIGHT RAIN FALLING OUTSIDE
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	40 CFM	80 CFM
Total volume of air sampled	300 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1578	R 1771	R 1809
Date submitted to laboratory	8-24-59	9-14-59	9-15-59
Actual weight of U ₃ O ₈ in sample	1.42×10^{-6}	2.22×10^{-4}	3.05×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-9}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J. R. Hummel

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	#4 CONVEYOR RAMP	✓	✓
Location of Zone	26Y8	✓	✓
Classification(s) Working in zone	SAMPLE TOWER OPERATOR	✓	✓
Sample taken	8-25-59	9-16-59	9-17-59
Sample taken	3:09 PM	8:47 AM	9:32 AM
Describe Zone conditions:	ORE ON #4 BELT. RUNNING HIGH TUNNAGE.	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	40	40
Sample air flow rate	80 CFM	20 CFM	20 CFM
Sample volume of air sampled	400 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R 1603	R 1923	R 1947
Sample submitted to laboratory	8-26-59	9-16-59	9-17-59
Sample weight of U ₃ O ₈ in sample	5.81×10^{-4}	7.99×10^{-5}	1.18×10^{-4}
Sample concentration in uc/ml	2.74×10^{-11}	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J.R. Kinnel

Sample Data	Sample #1	Sample #2	Sample #3
Location:	CRUSHING	✓	✓
Description:	SAMPLE TOWER, TOP FLOOR	✓	✓
Location of Zone	7-9-75	✓	✓
Classification(s) Working in zone	SAMPLE TOWER OPERATOR	✓	✓
Date Sample taken	8-25-59	9-16-59	9-17-59
Time Sample taken	2:12 PM	7:58 AM	8:45
Describe Zone conditions:	#1 SAMPLE CUTTER OPER- ATING, OPE ON #4 BELT	✓	RAINING OUTSIDE
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	15 CFM	80 CFM	80 CFM
Total volume of air sampled	450 CU.FT.	400 CU.FT.	400 CU.FT.
Sample assay number	R1600	R1920	R1944
Date submitted to laboratory	8-26-59	9-16-59	9-17-59
Cal weight of U ₃ O ₈ in sample	2.13×10^{-5}	6.44×10^{-5}	1.16×10^{-4}
Concentration in uc/ml	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$	$<1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

J.R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	SAMPLE TOWER, THIRD FLOOR	✓	✓
Area of Zone	49 X 75	✓	✓
Classification(s) Working in zone	SAMPLE TOWER OPERATOR	✓	✓
Date Sample taken	8-25-59	9-16-59	9-17-59
Time Sample taken	1:38 PM	9:13 AM	9:57 AM
Describe Zone conditions:	#1 POLLS CRUSHER OPERATING, ORE IN SAMPLING CIRCUIT	✓	RAINING OUTSIDE
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Range air flow rate	15 CFM	20 CFM	20 CFM
Actual volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1599	R 1944	R 1948
Date submitted to laboratory	8-26-59	9-16-59	9-17-59
Actual weight of U ₃ O ₈ in sample	2.56×10^{-4}	1.63×10^{-4}	1.63×10^{-4}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: H. R. Purnell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	SAMPLE TOWER SECOND FLOOR	✓	✓
Area of Zone	5-9 X 25	✓	✓
Classification(s) Working in zone	SAMPLE TOWER OPERATOR	✓	✓
Sample taken	8-25-59	9-16-59	9-17-59
Sample taken	1:07 PM	9:37 AM	10:00 AM
Describe Zone conditions:	#1 ROLLS CRUSHER OPERATING, ORE IN SAMPLING CIRCUIT	✓	✓
Sampler Used	STAYLEX	✓	✓
Sampling period in minutes	20	20	20
Average air flow rate	15 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU.FT	400 CU.FT.	400 CU.FT.
Sample assay number	R 1597	R 1925	R 1949
Sample submitted to laboratory	8-26-59	9-16-59	9-17-59
Weight of U_3O_8 in sample	6.94×10^{-5}	1.51×10^{-5}	4.89×10^{-5}
Concentration in $\mu\text{g/ml}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-54Sampler: J. R. Larnard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CPUSHING	✓	✓
Description:	SAMPLE TOWER, LOT PREP ROOM	✓	✓
Location of Zone	89 X 25	✓	✓
Classification(s) Working in zone	LOT SAMPLE PREPARATION MAN	✓	✓
Sample taken	8-25-54	9-16-54	9-17-54
Sample taken	11:07 AM	10:27 AM	10:50 AM
Describe Zone conditions:	CLEAN, OPERATOR PREPARING SAMPLE NEW DUCT AND HOOD ON ROTARY DRUM DRYER, FLAPS ON COFFEE MILL	NEW DRUM DRYER DUMPING CHUTE REDUCES SPILLAGE AND DUST	✓
Sampler Used	STATLEX	✓	✓
Sampling period in minutes	20	20	20
Approximate air flow rate	20 CFM	20 CFM	20 CFM
Volume of air sampled	400 CU. FT.	400 CU. FT.	400 CU. FT.
Assay number	R 1596	R 1946	R 1950
Submitted to laboratory	8-26-54	9-16-54	9-17-54
Weight of U_3O_8 in sample	2.0×10^{-5}	4.77×10^{-5}	1.32×10^{-4}
Concentration in $\mu\text{Ci}/\text{ml}$	$< 1.15 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

KS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: A. R. P. P. P.

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSHING	✓	✓
Description:	FINE ORE BINS, TOP FLOOR	✓	✓
Location of Zone	268 X 15	✓	✓
Classification(s) Working in zone	SAMPLE TOWER OPERATOR	✓	✓
Sample taken	8-25-59	9-16-59	9-17-59
Sample taken	2:44 PM	8:24 AM	9:08 AM
Describe Zone conditions:	ORE BEING DUMPED INTO BINS.	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	20
Sample air flow rate	20 CFM	20 CFM	20 CFM
Sample volume of air sampled	400 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1602	R 1922	R 1946
Sample submitted to laboratory	8-26-59	9-16-59	9-17-59
Sample weight of U ₃ O ₈ in sample	4.19 X 10 ⁻⁵	3.75 X 10 ⁻⁵	1.11 X 10 ⁻⁴
Sample concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹

RKS:

UREGO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: H. R. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	BALL MILL GALLERY, TOP FLOOR	✓	✓
Area of Zone	215 X 19	✓	✓
Classification(s) Working in zone	BALL MILL OPERATOR,	✓	✓
Sample taken	8-26-59	9-15-59	9-11-59
Sample taken	10:00 AM	10:32 AM	9:45 AM
Describe Zone conditions:	ORE BEING PULLED OUT OF BINS BY FEEDER BELTS	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Sampled air flow rate	10 CFM	20 CFM	20 CFM
Sample volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1611	R 1830	R 1871
Sample submitted to laboratory	8-26-59	9-15-59	9-11-59
Sample weight of U ₃ O ₈ in sample	5.34 X 10 ⁻⁵	7.08 X 10 ⁻⁵	4.10 X 10 ⁻⁵
Sample concentration in uc/ml	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹	< 1.85 X 10 ⁻¹¹

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J. B. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	BALL MILL GALLERY, GROUND FLOOR	✓	✓
Area of Zone	715 X 19	✓	✓
Classification(s) Working in zone	BALL MILL OPERATOR	✓	✓
Sample taken	8-26-59	9-15-59	9-11-59
Sample taken	10:57 AM	10:08 AM	9:27 AM
Describe Zone conditions:	ORE BEING FED TO BALL MILL CONVEYORS	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	20 CFM	20 CFM
Volume of air sampled	300 CU.FT.	400 CU. FT.	400 CU. FT.
Assay number	R 1613	R 1828	R. 1870
Submitted to laboratory	8-26-59	9-15-59	9-11-59
Weight of U_3O_8 in sample	3.32×10^{-5}	1.32×10^{-4}	1.78×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-30-59Sampler: J.R. Linnard

Sample Data	Sample #1	Sample #2	Sample #3
Location:	MILL OPERATIONS	✓	✓
Description:	BALL MILL OPERATING DECK AND CONVEYOR RAMPS	✓	✓
Size of Zone	170 X 50	✓	✓
Classification(s) Working in zone	BALL MILL OPERATOR,	✓	✓
Sample taken	8-26-59	9-10-59	9-11-59
Sample taken	1:50 PM	12:08 PM	10:11 AM
Describe Zone conditions:	BOTH BALL MILLS OPERATING, SIDING REMOVED FOR VENTILATION	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Approximate air flow rate	10 CFM	20 CFM	20 CFM
Volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Assay number	R 1615	R 1831	R 1872
Submitted to laboratory	8-26-59	9-10-59	9-11-59
Weight of U ₃ O ₈ in sample	2.43×10^{-5}	3.66×10^{-5}	1.17×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$	$< 1.85 \times 10^{-4}$

KS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-30-59

Sampler:

F.R. Spurr

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Location Description:	BALL MILL GROUND FLOOR	✓	✓
Area of Zone	150 X 50	✓	✓
Classification(s) Working in zone	BALL MILL OPERATOR	✓	✓
First Sample taken	8-26-59	9-10-59	9-11-59
Second Sample taken	2:45 PM	12:42 PM	10:34 AM
Describe Zone conditions:	BOTH BALL MILLS OPERATING FLOORS HOSED DOWN.	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	30	20	20
Average air flow rate	10 CFM	20 CFM	20 CFM
Total volume of air sampled	300 CU. FT.	400 CU. FT.	400 CU. FT.
Sample assay number	R 1616	R 1832	R 1873
Date submitted to laboratory	8-26-59	9-10-59	9-11-59
Total weight of U ₃ O ₈ in sample	1.80 X 10 ⁻⁵	1.51 X 10 ⁻⁵	1.0 X 10 ⁻⁵
Concentration in uc/ml	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹	<1.85 X 10 ⁻¹¹

MARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: J. R. Lunn

Sample Data	Sample #1	Sample #2	Sample #3
Department:	ADMIN.		
Description:	OFFICES AND CORRIDORS		
Size of Zone	150 X 40		
Classification(s) Working in zone	OFFICE AND ADMINISTRATIVE PERSONNEL		
Date Sample taken	8-17-59		
Time Sample taken	7:51 AM		
Describe Zone conditions:	OFFICE WORKERS ARRIVING, HEAVY FOOT TRAFFIC. AREA VERY CLEAN. AIR CONDITIONED		
Sampler Used	STAPLE X		
Sampling period in minutes	20		
Average air flow rate	25 CFM		
Total volume of air sampled	500 CU. FT.		
Sample assay number	R 1424		
Date submitted to laboratory	8-17-59		
Calculated weight of U_3O_8 in sample in gms.	$<4.39 \times 10^{-5}$		
Calculated concentration in uc/ml	$<1.85 \times 10^{-11}$		

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: H. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MAINTENANCE		
Description:	MACHINE SHOP		
Location of Zone	113 X50		
Classification(s) Working in zone	MECHANICS MACHINISTS WELDERS ELECTRICIANS		
Sample taken	8-17-59		
Sample taken	8:25 AM		
Describe Zone conditions:	WELDING AND MECHANICAL REPAIRS IN PROGRESS		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	25 CFM		
Total volume of air sampled	500 CU. FT.		
Sample assay number	R 1425		
Sample submitted to laboratory	8-17-59		
Weight of U_3O_8 in sample	$<4.3 \times 10^{-5}$		
Concentration in $\mu\text{C}/\text{ml}$	$<1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MAINTENANCE		
Location Description:	GARAGE		
Area of Zone	168 X 38		
Classification(s) Working in zone	AUTOMOTIVE MECHANICS		
Date Sample taken	8-17-59		
Time Sample taken	8:59 AM		
Describe Zone conditions:	REPAIRING WENCH TRUCK AND WELDER. LARGE DOORS OPEN.		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	25 CFM		
Total volume of air sampled	500 CU. FT.		
Sample assay number	R1476		
Date submitted to laboratory	8-17-59		
U weight of U ₃ O ₈ in sample	$< 4.3 \times 10^{-6}$		
U concentration in uc/ml	$< 1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-28-59

Sampler:

L. R. Brown

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MAINTENANCE		
Description:	PAINT SHOP		
Location of Zone	48X75		
Classification(s) Working in zone	PAINTERS OILERS		
Sample taken	8-17-59		
Sample taken	10:35 AM		
Describe Zone conditions:	AREA FAIRLY CLEAN, TRUCKS PASSING BY OUTSIDE DOOR		
Sampler Used	STAPLEY		
Sampling period in minutes	80		
Sampled air flow rate	85 CFM		
Sample volume of air sampled	5.00 CU. FT.		
Sample assay number	R 1429		
Sample submitted to laboratory	8-17-59		
Sample weight of U_3O_8 in sample	$<4.3 \times 10^{-5}$		
Sample concentration in uc/ml	$<1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-28-59

Sampler:

J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MAINTENANCE		
Description:	CARPENTER SHOP		
Location of Zone	85 MCC		
Classification(s) Working in zone	CARPENTERS		
Sample taken	8-17-59		
Sample taken	11:16 AM.		
Describe Zone conditions:	TRUCKS DRIVING BT OUTSIDE DUST, DIRT IN AIR		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	85 CFM		
Volume of air sampled	500 CU. FT.		
Sample assay number	R 1430		
Sample submitted to laboratory	8-17-59		
Weight of U_3O_8 in sample	$< 4.3 \times 10^{-5}$		
concentration in $\mu\text{C}/\text{ml}$	$< 1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: G. R. Lumsden

Sample Data	Sample #1	Sample #2	Sample #3
Department:	WATER PLANT		
Description:	PUMPHOUSE #2 AND PUMPHOUSE #3		
Location of Zone	20X70 / 36X44		
Classification(s) Working in zone	REAGENT MAN		
Sample taken	8-17-59		
Sample taken	10:04 AM.		
Describe Zone conditions:	PAINTING IN PUMPHOUSE #3, FLOORS HOSED DOWN		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	25 CFM		
Total volume of air sampled	500 CU. FT.		
Sample assay number	R 1428		
Sample submitted to laboratory	8-17-59		
Uranium weight of U ₃ O ₈ in sample	4.3×10^{-5}		
Uranium concentration in uc/ml	1.85×10^{-11}		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: H. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	WAREHOUSE		
Description:	WAREHOUSE		
Size of Zone	113 x 50		
Classification(s) Working in zone	WAREHOUSE MEN		
Sample taken	8-17-59		
Sample taken	9:28 AM.		
Describe Zone conditions:	AIR CONDITIONED AREA CLEAN.		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	85 CFM		
Total volume of air sampled	500 CU. FT.		
Sample assay number	R1427		
Sample submitted to laboratory	8-17-59		
U weight of U ₃ O ₈ in sample	$<4.3 \times 10^{-5}$		
concentration in uc/ml	$<1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: J. R. Runkel

Sample Data	Sample #1	Sample #2	Sample #3
Department:			
Description:	CHANGE HOUSE		
Area of Zone	8.0 X 8.0		
Classification(s) Working in zone	JANITOR, ALL MILL PERSONNEL DURING SHIFT CHANGE		
Sample taken	8-17-59		
Sample taken	12:40		
Describe Zone conditions:	AIR CONDITIONED VERY CLEAN		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Sample air flow rate	85 CFM		
Sample volume of air sampled	500 CU. FT.		
Sample assay number	K 1431		
Sample submitted to laboratory	8-17-59		
Sample weight of U_3O_8 in sample	$< 4.3 \times 10^{-5}$		
Sample concentration in uc/ml	$< 1.85 \times 10^{-4}$		

URKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: J.R. Purnell

Sample Data	Sample #1	Sample #2	Sample #3
Department:	LAB.		
Description:	ANALYTICAL AND METALLURGICAL LABS.		
Area of Zone	114 X 52		
Classification(s) Working in zone	ANALYTICAL CHEM- ISTS, METAL- LURGICAL LAB. TECHNICIANS		
Date Sample taken	8-17-59		
Time Sample taken	1:06 PM		
Describe Zone conditions:	VERY CLEAN. AIR WASH SYSTEM AND AIR CONDITIONED. SAMPLES IN PROCESS.		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Stage air flow rate	25 CFM		
Total volume of air sampled	500 CU.FT.		
Sample assay number	R 1430		
Date submitted to laboratory	8-17-59		
Weight of U_3O_8 in sample	$< 4.3 \times 10^{-5}$		
Concentration in $\mu\text{C}/\text{ml}$	$< 1.85 \times 10^{-11}$		

RKS:

UNESCO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: J. R. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	LAB.		
Description:	FLUORIMETRIC LAB.		
Location of Zone	12 X 8		
Classification(s) Working in zone	CONTROL CHEMISTS		
Sample taken	8-17-59		
Sample taken	1:37 PM.		
Describe Zone conditions:	AIR CONDITIONED. SAMPLES IN PROCESS, PELLETS IN FUSION FURNACE.		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Sampled air flow rate	85 CFM		
Volume of air sampled	500 CU. FT.		
Sample assay number	R 1433		
Sample submitted to laboratory	8-17-59		
Weight of U_3O_8 in sample	$<4.3 \times 10^{-5}$		
Concentration in $\mu\text{C}/\text{ml}$	$<1.85 \times 10^{-11}$		

RKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date:

8-28-59

Sampler:

J. B. Leonard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	CRUSAING		
Description:	SCALEHOUSE		
Area of Zone	77X18		
Classification(s) Working in zone	SCALEMAN		
Time Sample taken	8-17-59		
Time Sample taken	7:07 PM		
Describe Zone conditions:	TRUCKS BEING WEIGHED. TRAFFIC NORMAL		
Sampler Used	STAPLEX		
Sampling period in minutes	20		
Average air flow rate	75 CFM		
Total volume of air sampled	500 CU.FT.		
Sample assay number	R1434		
Date submitted to laboratory	8-17-59		
Total weight of U ₃ O ₈ in sample	$< 4.3 \times 10^{-5}$		
Concentration in uc/ml	$< 1.95 \times 10^{-11}$		

MARKS:

URECO AIRBORNE RADIATION REPORT
(General Air Samples-Restricted Area)

Date: 8-28-59

Sampler: G. B. Howard

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	TOP OF LEACH TANKS.	✓	✓
Location of Zone	110 X 83	✓	✓
Classification(s) Working in zone	LEACH OPERATOR	✓	✓
Date Sample taken	8-18-59	8-19-59	8-20-59
Time Sample taken	8:10 AM.	1:30 PM	7:55 AM
Describe Zone conditions:	SLIGHT WIND BLOWING, CON- STRUCTION WORK IN PROGRESS NEARBY.	✓	✓
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	25	25	25
Range air flow rate	20 CFM	20 CFM	20 CFM
Total volume of air sampled	500 CU. FT.	500 CU. FT.	500 CU. FT.
Sample assay number	R 1451	R 1472	R 1494
Date submitted to laboratory	8-19-59	8-19-59	8-20-59
Calculated weight of U ₃ O ₈ in sample	1.48×10^{-5}	1.45×10^{-5}	1.20×10^{-5}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

URECO AIRBORNE RADIATION REPORT

(General Air Samples-Restricted Area)

Date: 8-28-59Sampler: G. R. Dumas

Sample Data	Sample #1	Sample #2	Sample #3
Department:	MILL OPERATIONS	✓	✓
Description:	LEACH OFFICE	✓	✓
Area of Zone	19 X 12	✓	✓
Classification(s) Working in zone	LEACH OPERATOR SAND - SLIME OPERATOR	✓	✓
Sample taken	8-18-59	8-19-59	8-20-59
Sample taken	7:55 AM	12:50 PM	8:22 AM
Describe Zone conditions:	OPERATORS CHECKING SAMPLES	✓	RAINING DURING SAMPLE PERIOD
Sampler Used	STAPLEX	✓	✓
Sampling period in minutes	20	20	25
Range air flow rate	20 CFM	25 CFM	20 CFM
Total volume of air sampled	400 CU. FT.	500 CU. FT.	500 CU. FT.
Sample assay number	R 1449	R 1471	R 1496
Sample submitted to laboratory	8-19-59	8-19-59	8-20-59
Calculated weight of U_3O_8 in sample	1.02×10^{-5}	8.75×10^{-6}	2.0×10^{-6}
Concentration in uc/ml	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$	$< 1.85 \times 10^{-11}$

REMARKS:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-28-59

Sampler: J. R. Howard

Department: MAINTENANCE

Job Classification Involved: SHIFT MECHANIC (BOILER OPERATOR)

Time Sample Taken: 9:41 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: INSTALLING NEW EQUIPMENT

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BOILER ROOM	80X56	20	10 L/min	200 L.

Total Number of zones sampled: 1

Total Time Period of Sample: 20 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-28-59

Assay Number R1645

Total Weight of U_3O_8 in Time Weighted Sample: 1.06X10⁻⁶ gms

- 11 <1.85 x 10⁻¹¹ uc/ml

Time Weighted Average Exposure:

Remarks: SHEETING REMOVED TO ALLOW INSTALLATION
OF NEW EQUIPMENT

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date:

8-27-59

Sampler:

J. R. Purnell

Department:

MILL OPERATIONS

Job Classification Involved:

R.I.P. CREW MAN

Time Sample Taken:

10:20 A.M.
P.M.

Describe Operating Conditions:

NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
ON R.I.P. BANK DECK	205x39	45	10 L/min.	450 L.
R.I.P. DOGHOUSE	18x9	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 8-28-59

Total Weight of U_{308} in Time Weighted Sample: 4.37×10^{-7} g

Time Weighted Average Exposure:

1.85×10^{-11} uc/ml

Assay Number

R1634

Remarks:

REPLACING BASKET CABLES AND
HEAD PACE

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-27-54

Sampler: G. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: P. I. P. HELPER

Time Sample Taken: 9:58 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
WALKING TO LAB	-	5	10 L/min	50 L.
ON P.I.P. DECK	205 X 34	10	"	100 L.
P.I.P. DOGHOUSE	17 X 9	5	"	50 L.

Total Number of zones sampled: 3

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-28-54

Assay Number R1633

Total Weight of U_3O_8 in Time Weighted Sample: 4.56 X 10⁻⁶ gms. - 11

Time Weighted Average Exposure: 11.85 x 10⁻⁶ uc/ml

Remarks: REPLACING BASKET CABLES.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-28-59

Sampler: G. P. Leonard

Department: YAFI

Job Classification Involved: TAILINGS POND MAN

Time Sample Taken: 12:51 ^{AM} P.M.

Describe Operating Conditions: WINDY, SAND BLOWING

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
POND DOCKHOUSE AND DIKES		10	10 L/min	100 L.
MILL YARD		10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-28-59

Total Weight of U_3O_8 in Time Weighted Sample: 5.63 x 10⁻⁷ gms.

Time Weighted Average Exposure: (185 x 10⁻⁷) uc/ml

Assay Number R1648

- 11

Remarks: WIND BLOWING SAND ALONG DIKES.

AIRBORENE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-27-59

Sampler: H. R. Leonard

Department: MILL OPERATIONS

Job Classification Involved: PRECIPITATION OPERATOR

Time Sample Taken: 11:03 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
Y.C. CONTROL ROOM	20x10	10	10 L/min.	100 L.
PRECIP. DECK	40x21	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-28-59

Total Weight of U_3O_8 in Time Weighted Sample: 2.56×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1637

$< 1.85 \times 10^{-11}$ uc/ml

Remarks: DECKS HOSED DOWN.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-27-59

Sampler: J. R. Howard

Department: MILL OPERATION

Job Classification Involved: PACKAGING OPERATOR

Time Sample Taken: 12:44 ^{A.M.} P.M.

Describe Operating Conditions: BARREL BEING FILLED + SAMPLED

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BARREL CHUTE	55X41	10	10 L/min.	100 L.
Y.C. CONTROL ROOM	80X10	10	"	100 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-28-59

Assay Number R1639

Total Weight of U_3O_8 in Time Weighted Sample: 2.94×10^{-6} gms. - 11

Time Weighted Average Exposure: $< 1.85 \times 10$ uc/ml

Remarks: DUST LEAK AROUND PULVERIZER, WIND BLOWING IN EIGHT DIRECTION

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-27-59

Sampler: J.R. Lowndes

Department: CRUSHING

Job Classification Involved: SCOOPMOBILE OPERATOR

Time Sample Taken: 9:01 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: DUMPING ORE INTO GRIZZLY

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
IN LOADER CAB	6 X 4	28	10 L/min.	280 L.
PAD DOGHOUSE	12 X 11	5	"	50 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 33 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 8-28-59

Assay Number R1631

Total Weight of U_3O_8 in Time Weighted Sample: 5.64×10^{-7} gm.

Time Weighted Average Exposure:

$< 1.85 \times 10^{-11}$ uc/ml

Remarks: ORE LOT DAMP, AND CLOSE TO

CRUSHING PIT

(Breathing Zone Sample - Restricted Area)

8-76-59

H. P. Howard

CALL MILL OPERATOR

10.32 4.32

2

5-11-11

10 *L. major*

500

9-24-59

R1612

d Sample: 4/2 X 0-4

- 11 uc/ml

 $5.1,85 \times 10$

ORE ON BELTS FAIRLY DAMP

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 7-26-59

Sampler: H. P. Howard

Department: C. P. W. H. G.

Job Classification Involved: MOISTURE SAMPLER

Time Sample Taken: 1:15 A.M. - P.M.

Describe Operating Conditions: TRUCKS DUMPING

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
SAMPLING TRUCKS	2000 sq. ft.	20	10 L/min	2000 L.
SCALEHOUSE	2000 sq. ft.	5		500 L.

Total Number of zones sampled: 2

Total Time Period of Sample: 25 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 2500 L.

Date sample submitted to laboratory: 8-16-59

Total Weight of U_3O_8 in Time Weighted Sample: 7.38×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1614

- 11
1.99 x 10⁻¹¹ uc/ml

Remarks: ORE LOADS FAIRLY DAMP

ATMOSPHERIC RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-25-59

Sampler: J. R. Gurnea

Department: CRUSHING

Job Classification Involved: CRUSHER CLEANUP MAN (BEST FOOT)

Time Sample Taken: 8:51 A.M.
P.M.

Describe Operating Conditions: GOOD DRY CFE ON BELT

Zone	Zone Description	Area	Minutes of Sample	Air Flow during Sample	Volume of Air Sampled
1	IN CHAIR	20578	45	10 L/min	450 L
2	ONE PAIR DISMOUNT	178711	5		50 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 50 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 500 L

Date sample submitted to laboratory: 8-26-59

Total Weight of U_3O_8 in Time Weighted Sample: 9.75×10^{-7} gms

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Assay Number R1591

marks:

SIDE SHEETING REMOVED FOR CROSS VENTILATION

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-15-59

Sampler: C.R. Leonard

Department: CRUCIAL

Job Classification Involved: MAINT. TOWER OPERATOR

Time Sample Taken: 5:15 P.M.

Describe Operating Conditions: ENGINE ALMOST ENDED

Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
BY #1 CUTTER	54X25	49	10 L/min.	490 L.
BY #1 PULLEY	49X13	21	"	210 L.
#4 BELT RAMP & MCC DECK	76X8	10	"	100 L.
BY #2 ROLLS	29X45	15	"	150 L.
OUTSIDE BLDG.	-	5	"	50 L.

Total Number of zones sampled: 5

Total Time Period of Sample: 100 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 1000 L.

Date sample submitted to laboratory: 8-16-59

Total Weight of U_2O_8 in Time Weighted Sample: 2.10×10^{-6} gms.

Time Weighted Average Exposure:

Assay Number R1601

- 11
uc/ml

Remarks: BELT DOWN DURING PART OF SAMPLING PERIOD

(Breathing Zone Sample - Restricted Area)

Date: 8-25-59

Sampler: L. R. Fournier

Department: CPUSING

Job Classification Involved:

Time Sample Taken: 7:00 P.M.

Describe Operating Conditions: PREPARING SAMPLES

Zone	Zone Description	Area	Minutes in Sample	Air Rate during Sample	Volume of Air Sampled
1	ORE PAD	200 sq. ft.	5	10 L/min	50 L
2	SCALE HOUSE	24 x 12	5	"	50 L
3	PREPARING SAMPLES	24 x 15	33	"	330 L
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3

Total Time Period of sample: 33 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 330 L.

Date sample submitted to laboratory: 8-26-59

Assay Number R 1598

Total Weight of U_3O_8 in Time Weighted Sample: 7.19×10^{-7} gms

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Remarks:

NEW DUST COLLECTOR DUCT ON
ROTARY DRYER, FLAPS ON COFFEE
MILL OPENINGS.

ALBANY REMEDIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-25-59

Sampler: H. R. [Signature]

Department: CRIPPER

Job Classification Involved: PAINT REMOVAL

Time Sample Taken: 7:56 P.M.

Describe Operating Conditions: PREPARING LOT SAMPLES

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	AT SAMPLE BEACH	15 X 14	19	10 L/min.	190 L.
2	IN BUCKING ROOM	15 X 4	6		160 L.
3	IN MOISTURE ROOM	18 X 16	5	"	50 L.
4	SCALE HOUSE	24 X 18	15		105 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 50 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 500 L.

Date sample submitted to laboratory: 8-26-59

Total Weight of U₃O₈ in Time Weighted Sample: 1.75 X 10⁻⁶ gms. -11

Time Weighted Average Exposure:

Assay Number R1584

< 1.75 x 10⁻⁶ uc/ml

Remarks:

APPEARS BETTER SINCE LARGE VACUUM
CLEANER. WAS PUT INTO SERVICE.

RESPIRABLE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-24-59

Sampler: J. R. Lunn

Department: CRUSHING DEPT

Job Classification Involved: TRUCK OPERATOR

Time Sample Taken: 2:53 P.M.

Describe Operating Conditions: DUSTY STOCKPILE ORE

Zone	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	MCC PLATFORM	45 X 44	40	10 L/min	400 L.
2	TRANSFER TOWER	19 X 19	5	"	50 L.
3	#3 CONVEYOR RAMP	106 X 8	5	"	50 L.
4	SECONDARY SCREEN	37 X 33	5	"	50 L.
5	#1 CONVEYOR RAMP	905 X 8	5	"	50 L.
6	ORE PAD DOCKHOUSE	17 X 11	8	"	80 L.
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 6

Total Time Period of sample: 68 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 680 L.

Date sample submitted to laboratory: 8-24-59

Total Weight of U₃O₈ in Time Weighted Sample: 4.44 X 10⁻⁵ g.

Time Weighted Average Exposure:

Assay Number R1577

3.9 x 10⁻¹¹ uc/ml

marks:

DUSTY STOCKPILE ORE, DUST COLLECTOR NOT WORKING PROPERLY. CLEAN-UP MEN VACUUM-CLEANING DECKS AND BEAMS.

VERY DUSTY DUE TO STOCKPILE ORE.

(Breathing Zone Sample - Restricted Area)

Date: 8-20-59

Sampler: J. R. Purnell

Department: MILL OPERATIONS

Job Classification Involved: SAND-SLIME SEPARATOR

Time Sample Taken: 8:15 A.M.
-P.M.

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP DECK	600 sq ft	1	10 L/min	10 L
2	DRAKS DECK	2000 sq ft	2	10 L/min	20 L
3	PUMP DECK	1000 sq ft	1	10 L/min	10 L
4	LEACH OFFICE	19 x 14	10	10 L/min	100 L
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 30 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L

Date sample submitted to laboratory: 8-20-59

Assay Number R-1497

Total Weight of U_3O_8 in Time Weighted Sample: 1.5×10^{-7} gms.

Time Weighted Average Exposure:

1.5×10^{-11} uc/ml

marks:

(Breathing Zone Sample - Restricted Area)

Date: 8-30-58Sampler: C. R. HowardDepartment: Mine OPERATIONSJob Classification Involved: EXPLOSION PROTECTIONTime Sample Taken: 1:30 ^{AM} ~~PM~~Describe Operating Conditions: Normal

one of	Zone Description	Area	Minutes of Sample	Air Flow during Sample	Volume of Air Sampled
1	2' RP BANKS	415.38	3 1/2	10 L/min	35 L.
2	8' PIP BANKS	415.38	3 1/2		35 L.
3	4' DOGHOUSE	14.89	—		70 L.
4	8' DOGHOUSE	14.89	7		70 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4Total Time Period of sample: 8 1/2 minAverage air flow rate: 10 L/minTotal Volume of air sampled: 82.5 L.

Date sample submitted to laboratory:

Total Weight of U_3O_8 in Time Weighted Sample: 8×10^{-8} gram

Time Weighted Average Exposure:

Assay Number P-1506 6.125×10^{-11} cc/ml

marks:

AERIAL SURVEILLANCE REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-25-59 Sampler: H. P. Howard

Department: CRUISING UNIT

Job Classification Involves: RESTRICTED SAMPLE BUOY (TA)

Time Sample Taken: 12:50 P.M.

Describe Operating Conditions: TRUCKS DUMPING ON PAIL

Line No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	SAMPLE AREA	12x6	7	104/min.	728 L.
2	IN BUCKING TAIL	12x16	5		520 L.
3	SCALE HOUSE	4x18	7		728 L.
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 3
 Total Time Period of sample: 20 min.
 Average air flow rate: 104/min.
 Total Volume of air sampled: 200 L.
 Date sample submitted to laboratory: 8-24-59
 Total Weight of U_3O_8 in Time Weighted Sample: 1.2×10^{-5} gms
 Time Weighted Average Exposure: 3.4 $\times 10^{-11}$ uc/ml

Assay Number R1569

marks:

ORE LOADS FAIRLY DAMP, OPERATOR CRUSHING SAMPLES.

(Breathing Zone Sample - Restricted Area)

Date: 8-20-59

Sampler: J. R. Givens

Department: CHRYSLER CORP.

Job Classification Involved: TRUCK DRIVER (LOCAL)

Time Sample Taken: 2:42 P.M.

Describe Operating Conditions: TRUCKS LOADED WITH ORE

Zone	Zone Description	Area	Minutes in Sample	Air Rate during Sample	Volume of Air Sampled
1	ORE	100 sq. ft.	1	10 L/min	100 L
2	SAMPLE AREA	100 sq. ft.	1	10 L/min	100 L
3	IN FORWARD ROOM	100 sq. ft.	1	10 L/min	100 L
4	SCALE HOUSE	100 sq. ft.	1	10 L/min	100 L
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 40 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 400 L

Date sample submitted to laboratory: 8-24-59

Assay Number R 1572

Total Weight of U_3O_8 in Time Weighted Sample: 1.84×10^{-5} gm - 11

Time Weighted Average Exposure: 2.7×10^{-5} uc/ml

Remarks:

ORE LOADS FAIRLY DAMP

Breathing Zone Sample - Restricted Area

Date: 8-20-54

Sampler: G. P. French

Department: Health

Job Classification Involves: None

Time Sample Taken: 7:45 A.M.

Describe Operating Conditions: Normal

Zone	Zone Description	Area	Minutes of Sample	Air Flow during Sample	Volume of Air Sampled
1	TOP OF TANK	11883	7	10 L/min	70 L
2	LEAKS OFF OF	7888	14	10	140 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 8-20-54

Assay Number R-1495

Total Weight of U_3O_8 in Time Weighted Sample: 1.2×10^{-7} gm.

Time Weighted Average Exposure:

1.85×10^{-11} uc/ml

Remarks:

MONITORING OF AIR QUALITY IN A CONTAMINATED AREA

Date: 8-14-59

Sampler: W. P. Lumsden

Department: Environmental Health

Job Classification: Environmental Health

Time Sample Taken: 8:00 A.M.

Describe Operating Conditions: Normal

Zone	Zone Description	Air	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	Top of Zone	100	7	10 l/min	70 L
2	Lean side	100	14	10 l/min	140 L
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 minutes

Average air flow rate: 10 l/min

Total Volume of air sampled: 210 L

Date sample submitted to laboratory: 8-14-59

Assay Number P-1470

Total Weight of U_3O_8 in Time Weighted Sample: 4.38×10^{-6} gm

Time Weighted Average Exposure: 26.85×10^{-6} uc/ml

Remarks:

(Breathing Zone Sample - Restricted Area)

Date: 8-14-50

Sampler: E. R. Howard

Department: Mine (FELT)

Job Classification Involved: HEAD-CLONE OPERATOR

Time Sample Taken: 1:00 ^{AM} _{P.M.}

Describe Operating Conditions: WINDY - CLOUDY

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP DECK	20x50	1	10 L/min	10 L.
2	DRAGE DECK	20x33	2		80 L.
3	PUMP DECK	100x12	1		10 L.
4	LEACH OFFICE	14x12	10	"	100 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 20 min.

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-19-50

Total Weight of U₃O₈ in Time Weighted Sample: 1.44 x 10⁻⁴ gms - 11

Time Weighted Average Exposure: < 1.85 x 10⁻⁴ uc/ml

Assay Number R 1468

Remarks:

SOME RAIN LEAKS IN ROOF

Department: Health, Safety & Environment

Date: 8-19-58

Sampler: F. P. Lusk

Department: Health, Safety & Environment

Job Classification Involved: Health, Safety & Environment

Time Sample Taken: 7:55 A.M. P.M.

Describe Operating Conditions: Normal

Zone No.	Zone Description	Area	Number of Sample	Air Rate during Sample	Volume of Air Sampled
1	2' PIP EAST	25 x 35	30	10 L/min	35 L
2	18' PIP EAST	40 x 35	30	10 L/min	35 L
3	8' DOGHOUSE	10 x 15	7	10 L/min	70 L
4	18' DOGHOUSE	14 x 15	7	10 L/min	70 L
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 81 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 30 L

Date sample submitted to laboratory: 8-19-58

Total Weight of U₃O₈ in Time Weighted Sample: 1.2 x 10⁻⁴ gm

Time Weighted Average Exposure: < 1.85 x 10⁻⁴ uc/ml

Assay Number R1468

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-18-59

Sampler: J. P. Leonard

Department: MILL OPERATIONS

Job Classification Involved: LEACH OPERATOR

Time Sample Taken: 7:55 A.M.

Describe Operating Conditions: OPERATOR TAKING SAMPLES

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP OF TANKS	110 x 83	7	10 L/min	70 L.
2	LEACH OFFICE	19 x 12	14		140 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 910 L.

Date sample submitted to laboratory: 8-19-59

Total Weight of U₃O₈ in Time Weighted Sample: 8.8×10^{-7} gms

Time Weighted Average Exposure: $< 1.85 \times 10^{-11}$ uc/ml

Assay Number R-1448

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-18-54

Sampler: J. R. Howard

Department: MILL OPERATIONS

Job Classification Involved: SAND-SLIME OPERATOR

Time Sample Taken: 8:20 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: NORMAL

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	TOP DECK	60X50	1	10 L/min	10 L.
2	DRAKS DECK	100X83	8	"	80 L.
3	PUMP DECK	100X83	1	"	10 L.
4	LEACH OFFICE	19X17	10	"	100 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 20 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-19-54

Total Weight of U₃O₈ in Time Weighted Sample: 1.69X10⁻⁶ gms

Time Weighted Average Exposure:

Assay Number R 1450

1.85 x 10⁻¹¹ uc/ml

marks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-18-59

Sampler: T. R. Lounsbury

Department: MILL OPERATIONS

Job Classification Involved: R.I.P. OPERATOR

Time Sample Taken: 2:00 ^{with} P.M.

Describe Operating Conditions: NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	'A' RIP BANKS	705X39	3 1/2	10 L/min	35 L.
2	'B' RIP BANKS	705X39	3 1/2	"	35 L.
3	'A' DOGHOUSE	17X9	7	"	70 L.
4	'B' DOGHOUSE	17X9	7	"	70 L.
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 4

Total Time Period of sample: 21 min.

Average air flow rate: 10 L/min.

Total Volume of air sampled: 210 L.

Date sample submitted to laboratory: 8-19-59

Total Weight of U₃O₈ in Time Weighted Sample: 4.44 x 10⁻⁵ gm

Time Weighted Average Exposure:

Assay Number R1454

1.85 x 10⁻¹¹ uc/ml

Remarks:

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: J. R. Lowndes

Department: CRUSHING (SCALEHOUSE)

Job Classification Involved: SCALEMAN

Time Sample Taken: 2:06 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: WEIGHING TRUCKS

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	SCALEHOUSE	22x18	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R1423

Total Weight of U₃O₈ in Time Weighted Sample: 7×10^{-6} gms

Time Weighted Average Exposure: 1.85×10^{-11} uc/ml

marks:

AIR CONDITIONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: J. R. Rowland

Department: FLUORIMETRIC LAB

Job Classification Involved: CONTROL CHEMISTS

Time Sample Taken: 1:37 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: OPERATOR RUNNING PLATES

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	FLUORIMETRIC LAB	12 X 8	20	90 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R1422

Total Weight of U₃O₈ in Time Weighted Sample: 27 mg

Time Weighted Average Exposure: 21.85 x 10⁻¹¹ uc/ml

marks:

AIR CONDITIONED, VERY CLEAN

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: F. R. Howard

Department: ANALYTICAL LAB

Job Classification Involved: CHEMISTS, METALLURGICAL TECH.

Time Sample Taken: 1:10 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: VERY CLEAN AREA

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	LAB	114X52	20	80 L/min	400 L
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min

Total Volume of air sampled: 400 L

Date sample submitted to laboratory: 8-17-59

Assay Number R1421

Total Weight of U₃O₈ in Time Weighted Sample: 2.7 ug.

Time Weighted Average Exposure: 21.95 x 10⁻¹¹ uc/ml

marks: PAINTING IN LUNCHROOM. AIR
CONDITIONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: J. R. Purnard

Department: WATER TREATMENT

Job Classification Involved: REAGENT MAN

Time Sample Taken: 10:04 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: PAINTING IN PUMPHOUSE #3

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PUMPHOUSE #2	80X78	10	20 L/min	200 L.
2	PUMPHOUSE #3	36X74	10	20 L/min	200 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 20 min

Average air flow rate: 20 L/min

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Total Weight of U₃O₈ in Time Weighted Sample: < 7.4 x 10⁻¹¹

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Assay Number R-1417

marks:

GOOD HOUSEKEEPING, PAINTERS PAINTING
PIPES AND NEW EQUIPMENT

AIRBORNE RADIATION REPORT
(Breathing Zone Sample - Restricted Area)

Date: 8-11-64

Sampler: L.R. Lennick

Department: _____

Job Classification Involved: _____

Time Sample Taken, _____ A.M.
_____ P.M.

Describe Operating Conditions: WORKING IN AREA

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CAN	00770			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min

Average air flow rate: 20 l/min

Total Volume of air sampled: 400 l

Date sample submitted to laboratory: 8-11-64

Assay Number R1420

Total Weight of U₃O₈ in Time Weighted Sample: < 7 ug

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

VERY GOOD HOUSEKEEPING MAINTAINED,
AIR CONDITIONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: F. R. Leonard

Department: MAINTENANCE (PAINT SHOP)

Job Classification Involved: PAINTERS, OILERS

Time Sample Taken: 10:35 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: AREA WAS CLEAN

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PAINT SHOP	48x85	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min

Average air flow rate: 20 L/min

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R1418

Total Weight of U₃O₈ in Time Weighted Sample: <7.40

Time Weighted Average Exposure:

<1.85 x 10⁻¹¹ uc/ml

marks:

PAINTERS WERE SPRAY PAINTING SIGNS.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: A. R. Howard

Department: MAINTENANCE

(CARPENTER SHOP)

Job Classification Involved: CARPENTERS

Time Sample Taken: 11:16 A.M.
P.M.

Describe Operating Conditions: CARPENTERS MAKING FORMS

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CARPENTER SHOP	25x20	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R-1419

Total Weight of U₃O₈ in Time Weighted Sample: < 7.00

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

marks: ALL DOORS OPEN FOR VENTILATION.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: L.B. Lowndes

Department: MAINTENANCE (GARAGE)

Job Classification Involved: AUTOMOTIVE MECHANICS

Time Sample Taken: 8:59 ~~A.M.~~ P.M.

Describe Operating Conditions: REPAIR WORK IN PROGRESS

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	GARAGE	128 x 32	20.	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R-1415

Total Weight of U_3O_8 in Time Weighted Sample: < 7 ug

Time Weighted Average Exposure: < 1.95 x 10⁻¹¹ uc/ml

Remarks:

LARGE DOORS OPEN, NO VEHICLES INSIDE.
REPAIR WORK ON WELDING MACHINE IN PROGRESS

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: F. R. Lowndes

Department: MAINTENANCE (MACHINE SHOP)

Job Classification Involved: MACHINISTS, WELDERS, MECHANICS, ELECTRICIANS

Time Sample Taken: 8:26 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: WELDING IN PROGRESS.

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	MACHINE SHOP	113 X 50	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min.

Average air flow rate: 20 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R-1414

Total Weight of U₃O₈ in Time Weighted Sample: 27 ug

Time Weighted Average Exposure: 21.85 x 10⁻¹¹ uc/ml

Remarks:

FAIRLY GOOD HOUSEKEEPING CONDITIONS

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59Sampler: J. R. HowardDepartment: WAREHOUSEJob Classification Involved: WAREHOUSEMENTime Sample Taken: 9:30 A.M.
P.M.Describe Operating Conditions: AREA CLEAN

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WAREHOUSE	113X50	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1Total Time Period of sample: 20 min.Average air flow rate: 20 L/minTotal Volume of air sampled: 400 L.Date sample submitted to laboratory: 8-17-59Assay Number R-1416Total Weight of U_3O_8 in Time Weighted Sample: 67.4Time Weighted Average Exposure: 61.85 $\times 10^{-11}$ uc/ml

Remarks:

GOOD HOUSEKEEPING IS MAINTAINED

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-17-59

Sampler: G. B. Howard

Department: ADMINISTRATIVE DEPT.

Job Classification Involved: ACCOUNTANTS, OFFICE STAFFS, MANAGEMENT PERSONNEL

Time Sample Taken: 7:55 A.M. P.M.

Describe Operating Conditions: OFFICE PERSONNEL BEGINNING WORK

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CORRIDORS AND OFFICES	150 sq ft	20	20 L/min.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min

Average air flow rate: 20 L/min.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-17-59

Assay Number R-1413

Total Weight of U₃O₈ in Time Weighted Sample: < 7 ug

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

BUILDING IS AIR CONDITIONED

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-14-59

Sampler: L. R. Leonard

Department: FLUORIMETRIC LABORATORY

Job Classification Involved: CONTROL CHEMISTS

Time Sample Taken: 9:34 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: SAMPLES BEING RUN.

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	FLUOR. LAB.	12x8	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number P1361

Total Weight of U₃O₈ in Time Weighted Sample: < 4.3 x 10⁻⁵ g

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

VERY CLEAN, AIR CONDITIONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-14-59Sampler: A. B. RowlandDepartment: ANALYTICAL LABORATORYJob Classification Involved: ANALYTICAL CHEMISTS, METALLURGICAL TECH.Time Sample Taken: 9:10 ^{A.M.}
~~P.M.~~Describe Operating Conditions: SAMPLES BEING PROCESSED

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	ANALYTICAL LAB	114x52	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1Total Time Period of sample: 20 MIN.Average air flow rate: 20 L/MINTotal Volume of air sampled: 400 L.Date sample submitted to laboratory: 8-14-59Assay Number P1360Total Weight of U₃O₈ in Time Weighted Sample: <43x10⁻⁵ gmsTime Weighted Average Exposure: <1.85 x 10⁻¹¹ uc/ml

Remarks:

LAB AIR CONDITIONED, VERY CLEAN.PAINTERS PAINTING IN LUNCH ROOM.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-14-59

Sampler: H. B. Howard

Department: CHANGE HOUSE

Job Classification Involved: CHARGE

Time Sample Taken: 8:37 A.M.

Describe Operating Conditions: WORKING WITH NO FLOPS

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CHANGE HOUSE	80X20	20	20 L/MIN	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number R1359

Total Weight of U₃O₈ in Time Weighted Sample: 4.3 x 10⁻⁵

Time Weighted Average Exposure: 1.85 x 10⁻¹¹ uc/ml

Remarks:

CHANGE HOUSE IS AIR CONDITIONED.

GOOD HOUSEKEEPING IS MAINTAINED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-14-59

Sampler: J. R. Howard

Department: MAINTENANCE DEPT (PAINT SHOP)

Job Classification Involved: PAINTERS, OILERS

Time Sample Taken: 8:11 A.M.
P.M.

Describe Operating Conditions: ALL DOORS CLOSED

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PAINT SHOP	48x25	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number R1358

Total Weight of U_3O_8 in Time Weighted Sample: 4.3×10^{-5} -11

Time Weighted Average Exposure: 1.85×10^{-11} uc/ml

marks:

LUNCH ROOM BENCH AND POP MACHINE
MOVED INTO PAINT SHOP.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-14-59

Sampler: J. R. R. R.

Department: MAINTENANCE (CARPENTER SHOP)

Job Classification Involved: CARPENTERS

Time Sample Taken: 7:46 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: CARPENTERS WORKING, SAW OPERATING.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CARPENTER SHOP	25x20	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number R 1357

Total Weight of U₃O₈ in Time Weighted Sample: 4.3×10^{-5} gm

Time Weighted Average Exposure: 1.85×10^{-11} uc/ml

arks:

CARPENTER SHOP HAS DIRT FLOOR,
MAY BECOME DUST SOURCE IN WINDY
WEATHER CONDITIONS.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: A. R. Rowland

Department: C RUSHING DEPT (SCALEHOUSE)

Job Classification Involved: SCALE MAN

Time Sample Taken: 1:35 ^{AM} P.M.

Describe Operating Conditions: AREA CLEAN, TRUCK TRAFFIC NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	SCALEHOUSE	22 X 18	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number R1356

Total Weight of U₃O₈ in Time Weighted Sample: < 7 ug

Time Weighted Average Exposure:

< 1.85 x 10⁻¹¹ uc/ml

Remarks:

SCALEHOUSE IS AIR CONDITIONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: H. R. Howard

Department: WATER TREATMENT PLANT

Job Classification Involved: REAGENT MAN

Time Sample Taken: 1:01 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: PLUMBERS WORKING ON PIPING.
FLOOR WAS WET DOWN.

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PUMPHOUSE #2	80X78	10	20 L/MIN.	200 L.
2	PUMPHOUSE #3	36X74	10	"	200 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Total Weight of U₃O₈ in Time Weighted Sample: < 4.3 x 10⁻⁵ g.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Assay Number R1355

Remarks:

GOOD HOUSEKEEPING IS MAINTAINED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: J. R. Howard

Department: WAREHOUSE

Job Classification Involved: WAREHOUSE MEN

Time Sample Taken: 11:15 A.M.
P.M.

Describe Operating Conditions: WAREHOUSE WAS CLEAN

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WAREHOUSE	113X50	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Total Weight of U₃O₈ in Time Weighted Sample: 4.3×10^{-5} gms

Time Weighted Average Exposure:

Assay Number R1353

1.85×10^{-11} uc/ml

marks:

WAREHOUSE IS KEPT IN CLEAN
CONDITION

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: J. R. Powell

Department: ADMINISTRATIVE DEPT.

Job Classification Involved: ACCOUNTANTS, OFFICE STAFFS, MANAGEMENT PERSONNEL

Time Sample Taken: 9:51 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: ACCOUNTING AND ADMINISTRATIVE OFFICE WORK IN PROGRESS.

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CORRIDORS AND OFFICES	150 X 40	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Total Weight of U₃O₈ in Time Weighted Sample: 4.3×10^{-5} g.

Time Weighted Average Exposure: 1.85×10^{-11} uc/ml

Assay Number R1351

Remarks:

BUILDING IS AIR CONDITIONED, AND GOOD HOUSE KEEPING CONDITIONS ARE MAINTAINED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: L.R. Howard

Department: MAINTENANCE

(GARAGE)

Job Classification Involved: AUTOMOTIVE MECHANICS

Time Sample Taken: 10:51 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: SEVERAL VEHICLES BEING REPAIRED.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	GARAGE	128 X 32	20	20 L/MIN.	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Total Weight of U₃O₈ in Time Weighted Sample: 4.3×10^{-5} g

Time Weighted Average Exposure:

Assay Number R1354

1.85×10^{-11} uc/ml

Remarks:

LARGE GARAGE DOORS WERE OPEN, FLOOR WAS FAIRLY CLEAN.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-13-59

Sampler: F. R. Leonard

Department: MAINTENANCE (MACHINE SHOP)

Job Classification Involved: MACHINISTS, WELDERS, ELECTRICIANS, MECHANICS.

Time Sample Taken: 10:25 ^{A.M.} _{P.M.}

Describe Operating Conditions: WELDING AND MOTOR REPAIRS IN PROGRESS.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	MACHINE SHOP	113X50	20	20 L/min	400 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 20 L/MIN.

Total Volume of air sampled: 400 L.

Date sample submitted to laboratory: 8-14-59

Assay Number R1352

Total Weight of U₃O₈ in Time Weighted Sample: < 4.3 x 10⁻⁵ g.

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

SHOP WAS IN FAIRLY CLEAN CONDITION.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-4-59

Sampler: H. R. Howard

Department: LABORATORY (FLUORIMETRIC)

Job Classification Involved: CONTROL CHEMISTS

Time Sample Taken: 7:40 A.M.
P.M.

Describe Operating Conditions: LAB VERY CLEAN, CHEMIST PREPARING AND READING SAMPLES.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	FLUORIMETRIC LAB	12 X 8	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1
 Total Time Period of sample: 20 MIN.
 Average air flow rate: 10 L/MIN.
 Total Volume of air sampled: 200 L.
 Date sample submitted to laboratory: 8-4-59
 Total Weight of U₃O₈ in Time Weighted Sample: < 1.45 x 10⁻¹¹ uc/ml
 Time Weighted Average Exposure:

Assay Number R-1177

Remarks: VERY GOOD HOUSEKEEPING IS MAINTAINED.
LAB IS AIR CONDIT.IONED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J. R. Howard

Department: CRUSHING DEPT (SCALE HOUSE)

Job Classification Involved: SCALE MAN

Time Sample Taken: 11:01 A.M.
P.M.

Describe Operating Conditions: AREA CLEAN, TRUCK TRAFFIC NORMAL

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	SCALE HOUSE	22 X 18	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Total Weight of U_3O_8 in Time Weighted Sample: < 1 μg

Time Weighted Average Exposure:

Assay Number R-1167

6.85×10^{-2} uc/ml

Remarks: SCALE HOUSE IS AIR CONDITIONED. GOOD HOUSEKEEPING IS MAINTAINED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: T.R. Howard

Department: LABORATORY (ANALYTICAL)

Job Classification Involved: ANALYTICAL CHEMISTS, METALLURGICAL TECH.

Time Sample Taken: 12:45 ^{A.M.} _{P.M.}

Describe Operating Conditions: LAB VERY CLEAN, SAMPLES BEING PROCESSED.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	LAB ROOMS	114x52	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Total Weight of U₃O₈ in Time Weighted Sample: < 1 μg

Time Weighted Average Exposure: < 0.25 x 10⁻¹¹ uc/ml

Assay Number R-1172

Remarks:

VERY GOOD HOUSE KEEPING IS MAINTAINED. LAB IS AIR CONDITIONED. INCOMING AIR PASSES THROUGH AIR WASH SYSTEM.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59 Sampler: H. B. Rowland
 Department: WATER TREATMENT PLANT
 Job Classification Involved: PLANT MAN
 Time Sample Taken: 9:15 A.M.
 Describe Operating Conditions: FLOORS WERE HOSED DOWN AND MOPPED.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PUMPHOUSE #2	80 X 28	10	10 L/MIN.	100 L.
2	PUMPHOUSE #3	36 X 24	10	"	100 L.
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 2
 Total Time Period of sample: 20 MIN.
 Average air flow rate: 10 L/MIN.
 Total Volume of air sampled: 200 L.
 Date sample submitted to laboratory: 8-3-59
 Total Weight of U₃O₈ in Time Weighted Sample: < 1.44
 Time Weighted Average Exposure: < 7.85 x 10⁻¹¹ uc/ml
 Assay Number R1165

marks: GOOD HOUSEKEEPING IS MAINTAINED IN BOTH PUMPHOUSES. NEW EQUIPMENT BEING INSTALLED IN PUMPHOUSE #3.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 7-2-59

Sampler: L. R. Rowland

Department: _____

Job Classification Involved: _____

Time Sample Taken: _____ A.M.
 _____ P.M.

Describe Operating Conditions: _____

one to.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CHANCE HOUSE				200 L
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 min

Average air flow rate: 10 L/min

Total Volume of air sampled: 200 L

Date sample submitted to laboratory: 8-2-59

Total Weight of U_3O_8 in Time Weighted Sample: 1.35×10^{-11} uc/ml

Time Weighted Average Exposure: _____

Assay Number R-1171

Remarks: CHANCE HOUSE IS AIR CONDITIONED. VERY GOOD HOUSE KEEPING IS MAINTAINED.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J. R. Purnell

Department: MAINTENANCE DEPT. (PAINT SHOP)

Job Classification Involved: PAINTERS, DILERS

Time Sample Taken: 1:40 ^{Asst.} P.M.

Describe Operating Conditions: AREA FAIRLY CLEAN, MUCH TRAFFIC IMMEDIATELY OUTSIDE LARGE DOOR.

one o.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	PAINT SHOP	48 X 95	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Assay Number R-1170

Total Weight of U₃O₈ in Time Weighted Sample: < 1.95

Time Weighted Average Exposure: < 1.95 x 10⁻¹¹ uc/ml

Remarks:

PASSING TRUCKS CAUSING VISIBLE DUST IN AIR. LARGE DOOR WAS OPEN, DUST DRIFTING INTO PAINT SHOP.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J.R. Howard

Department: ADMINISTRATIVE DEPT.

Job Classification Involved: ACCOUNTANTS, OFFICE STAFFS, MANAGEMENT PERSONNEL

Time Sample Taken: 7:55 ^{A.M.} _{P.M.}

Describe Operating Conditions: ACCOUNTING AND ADMINISTRATIVE OFFICE WORK IN PROGRESS.

Line	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CORRIDORS AND OFFICES	150 x 40	20	10 L/MIN.	200 L
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Total Weight of U₃O₈ in Time Weighted Sample: < 1.4 x 10⁻¹¹ uc/ml

Time Weighted Average Exposure: < 4.8 x 10⁻¹¹ uc/ml

Assay Number R1162

Remarks: BUILDING IS AIR CONDITIONED AND KEPT IN A VERY CLEAN HOUSEKEEPING CONDITION.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J. B. Leonard

Department: NAVY

Job Classification Involved: WAREHOUSE

Time Sample Taken: 10:00 A.M.
P.M.

Describe Operating Conditions: WAREHOUSE WAS CLEAN

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	WAREHOUSE	113 X 50	20	10 L/MIN	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Assay Number R-1166

Total Weight of U₃O₈ in Time Weighted Sample: < 1 μ g

Time Weighted Average Exposure: < 1.85 x 10⁻¹¹ uc/ml

Remarks:

WAREHOUSE IS KEPT IN GOOD HOUSEKEEPING
CONDITION.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J. R. Leonard

Department: MAINTENANCE DEPT. (CARPENTER SHOP)

Job Classification Involved: CARPENTERS

Time Sample Taken: 1:15 ^{A.M.} ~~P.M.~~

Describe Operating Conditions: CARPENTERS BUILDING CATWALK DECKING.

one to.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	CARPENTER SHOP	25x70	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1

Total Time Period of sample: 20 MIN.

Average air flow rate: 10 L/MIN.

Total Volume of air sampled: 200 L.

Date sample submitted to laboratory: 8-3-59

Assay Number R-1169

Total Weight of U₃O₈ in Time Weighted Sample: < 2 μg

Time Weighted Average Exposure: < 4.85 x 10⁻¹¹ uc/ml

marks:

PASSING TRUCKS CAUSING SOME VISIBLE DUST IN AIR.

AIRBORNE RADIATION REPORT

(Breathing Zone Sample - Restricted Area)

Date: 8-3-59

Sampler: J. R. Howard

Department: MAINTENANCE DEPT (MACHINE SHOP)

Job Classification Involved: MACHINISTS, WELDERS, ELECTRICIANS,
A.M. MECHANICS.

Time Sample Taken: 8:20 A.M.

Describe Operating Conditions: WELDING ON LOADER SCOOP, ELECTRICIANS
REPAIRING ELECTRIC MOTOR.

Zone No.	Zone Description	Area	Minutes of Sample	Air Rate during Sample	Volume of Air Sampled
1	MACHINE SHOP	113 x 50	20	10 L/MIN.	200 L.
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Total Number of zones sampled: 1
 Total Time Period of sample: 20 MIN.
 Average air flow rate: 10 L/MIN.
 Total Volume of air sampled: 200 L.
 Date sample submitted to laboratory: 8-3-59
 Total Weight of U_3O_8 in Time Weighted Sample: < 1.40
 Time Weighted Average Exposure: (1.85×10^{-11}) uc/ml

Assay Number R-1163

Remarks: THE SHOP IS KEPT IN GOOD HOUSE KEEPING
CONDITION. CONTAMINATED EQUIPMENT IS OCCASIONALLY
BROUGHT INTO THE SHOP FOR REPAIR.

(Breathing Zone Sample - Restricted Area)

Sampler:

Job Classification Involved: AUTOMOTIVE MECHANICS

Time Sample Taken: 8:50 A.M.
P.M.

Time Sample Taken: 0.50 P.M.
Describe Operating Conditions: SOME GREASE AND SAW DUST ON FLOOR.

Total Number of zones sampled: 1
Total Time Period of sample: 20 MIN.
Average air flow rate: 10 L/MIN.
Total Volume of air sampled: 200 L.
Date sample submitted to laboratory: 8-3-59
Total Weight of U_3O_8 in Time Weighted Sample:
Time Weighted Average Exposure:

Assay Number R 1164

$< 1.8 \times 10^{-11}$ uc/ml

GARAGE IS KEPT IN A CLEAN CONDITION.
THE DOORS ARE USUALLY KEPT OPEN FOR
VENTILATION.