

# URANIUM REDUCTION COMPANY

INTER-OFFICE CORRESPONDENCE

To: L. A. Palmer

From: B. B. Ward

Date: October 23, 1959

Subject: RADIATION REPORT FOR SEPTEMBER, 1959

The following report covers the work completed or "in process" on our radiation control program during the month of September.

## INTERNAL RADIATION

1. The MDC film badge program is progressing satisfactorily. Film badge readings received from the General Electric Company thus far indicate that none of our employees are over the maximum allowable exposure. Some of the operating personnel have reported difficulty in keeping the two halves of the film badge holder together. These difficulties were reported to the General Electric Company and in reply they stated that a newly designed film badge holder was available. Since this difficulty was not resolved until the late part in September, and only two weeks remain in our film badge program, we have not changed our film badge holder.
2. Two film badges for use during the month of September were received from the Idaho Operations Office of the AEC. These badges were distributed to all personnel and the film badges exposed during the month of August were returned to their office. No results of their survey have been made available.

## AIR SAMPLING

1. In our letter of reply to the AEC order, we stated that an eight hour breathing zone sample would be collected for several employees, the results of these eight hour breathing zone samples to be compared with the results obtained by our regular multiple time weighted breathing zone sampling method. The jobs were checked in this manner: (a) lot sampler preparation was (b) lot sampler. The eight hour breathing zone samples were obtained by attaching a sampling nozzle to a harness. This harness positioned the sampling nozzle at the nose of the employee. Air was sucked through the filter paper held in the nozzle at a rate of five liters per minute. The air flow rate was checked periodically and a new filter paper installed every two hours. The results of these eight hour samples compared very closely with the results of the samples obtained by our conventional method. Both of the jobs evaluated had air concentrations no less than  $1.0 \times 10^{-11}$  cc/cc.

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# URANIUM REDUCTION COMPANY

INTER-OFFICE CORRESPONDENCE

To: L. A. Painter

From: B. B. Ward

Date: October 23, 1959

Subject: RADIATION TENDENCY FOR SEPTEMBER, 1959

The following report covers the work completed or "in process" on our radiation control program during the month of September.

## RADIATION MONITORING

1. The film badge program is progressing satisfactorily. Film badge readings received from the Desorah Company thus far indicate that most of our employees are over the maximum allowable exposure. Some of the operating personnel have reported difficulty in keeping the two halves of the film badge holder together. These difficulties were reported to the Desorah Company and in reply they stated that a newly designed film badge holder was available. Since this difficulty was not resolved until the last week in September, and only two weeks remain in our film badge program, we have not changed our film badge holder.
2. Two film badges for use during the month of September were received from the Home Operations Office of the JF. These badges were distributed to all personnel and the film badges exposed during the month of August were returned to their office. No results of their survey have been made available.

## AIR SAMPLING

1. In our letter of reply to the JF order, we stated that an eight hour breathing zone sample could be collected for several employees, the results of these eight hour breathing zone samples to be compared with the results obtained by our regular multiple time weighted breathing zone sampling method. Two jobs were checked in this manner: (a) lot sampler preparation room (b) lot sampler. The eight hour breathing zone samples were obtained by attaching a sampling nozzle to a harness. This harness positioned the sampling nozzle at the nose of the employee. Air was sucked through the filter paper held in the nozzle at a rate of five liters per minute. The air flow rate was checked periodically and a new filter paper installed every two hours. The results of these eight hour samples compared very closely with the results of the samples obtained by our conventional method. Both of the jobs evaluated had air concentrations of less than  $1.05 \times 10^{-6}$  cc/cc.



EMPLOYEE ILLNESS AND INJURY

1. The Personnel Department has sent to the Film Safety Appliances Company for a 16 mm film entitled "The Air We Breathe". Advertising literature indicates this film covers the subjects of the proper care and uses for respirators. If preliminary screening shows this film to be worthwhile, showings for ALL personnel will be scheduled.
2. Mr. T. E. Pearson and I attended a seminar on "Industrial Hygiene in a Modern Mill" which was held in Nash, August 31 to September 1, inclusive. The meeting was jointly sponsored by the Utah State Department of Health and the U. S. Public Health Department. Representatives from seven mills were in attendance. A copy of the topics covered during the course is attached.
3. The installation of larger "radiation" signs at all mill entrances was completed.

PERSONNEL AND EQUIPMENT PURCHASES

1. The permanent type vacuum cleaner that was ordered for use in the Cracking Plant has not been delivered as yet. In the interim period our special Cracking Department cleaning man is utilizing a portable vacuum cleaner for use in this department. The results of his work are readily apparent and the cleanup work, while slow, is progressing satisfactorily.
2. The permanent type vacuum cleaner that was ordered for the Product Packaging area was delivered. Installation of this unit will be made in October.

CRACK CLEANUP PROGRAM

1. Product Packaging area: The problem of disposal of the Shriver Press papers has not been solved as yet. A letter was received from the Mining Equipment Company stating that their experimental work in the use of various types of rotating impellers for recycling these papers resulted in complete failure. The use of an attrition mill for this purpose is being investigated. A sample of our filter paper was sent to the Oprent, Mallison Company for experimental work in this type mill. A proposal was received from the Joel P. Mallison Company for the installation of an imitatorator. This proposal is being held for further study until results of the wet digesting method have been received.
2. Two soft rubber gaskets were installed on the lids of the product dust collector discharge drums. These gaskets have decreased the amount of dust created when the hoppers are emptied.

3. Instructions were issued to crushing department employees to keep the doors of the bay at the time are fully closed at all times. The east doors have been a source of high dose concentration in the bin gallery. The Maintenance Department has obtained part of the work necessary to put the doors in good condition again.
4. Far mist spray nozzles were installed in the stream on the jaw crusher discharge and the cone crusher discharge. These sprays are operating but final adjustment is still to be made.
5. A new dust collecting duct was installed underneath the shuttle conveyor carrying the No. 1 and No. 2 vibrating screens. This duct has lowered the dust concentration in this area considerably.
6. Discharge plugs were installed in the dust collection ducts in the feed and mid discharge end of the No. 1 and No. 2 vibrating screens. All ducts in the Crushing Plant collection system were checked.
7. A complete air velocity and air volume survey of the Crushing Plant dust collector system was made. The system was balanced and another survey made. The results of this survey show that the air velocity in all the ducts of the system are above those recommended by the State Health Department manual.
8. Preliminary work was started for the installation of an air balancing duct on the No. 1 System vibrator in the Sample Plant. The No. 2 System vibrator duct was changed and is now operating very satisfactorily.
9. The exhaust hood and discharge ducts of the rotary dryer in the Sample Tower preparation room was redesigned and the necessary work completed. This unit is now operating satisfactorily.
10. A vacuum hood completely enclosing the grill "B" blower located in the Sample Tower preparation room was installed. As yet this unit has not been connected to the dust collector system.
11. Air balancing ducts and fog mist sprays have been installed on the discharge ducts on the No. 9 and No. 10 fine air bins. In preparation of this area and an air survey of the dust concentration in this area as opposed to the area around the No. 1 and No. 2 discharge chutes, where no changes have been made, will be evaluated.
12. A letter of inquiry regarding the installation of an "electrostatic" dust concentration detector and recorder for use in the Crushing Plant was written to the Bailey Instrument Company.



EXPERIMENTAL TREATMENT PLANT

1. All work necessary to prepare the experimental waste treatment plant on tailings pond effluent has been completed. Experimental work will be started in the near future.

CONTINUING RADIATION MONITORING

1. In accordance with our radiation control program, river samples were taken at points one mile above the mill, five miles below the mill, and ten miles below the mill. A sample of tailings pond effluent was also taken. These samples were sent to the Combustion Engineering Company laboratory for radium analysis.
2. Analytical results for river water samples taken during the month of August were received from the Combustion Engineering Company. These results are on file in the plant radiation file.
3. The equipment for the analysis of Radium-226 was received and the work necessary to utilize our radiation laboratory was completed. Preliminary investigations on methods of analysis for Radium were started. Future analysis of samples for Radium will be handled by our laboratory staff.

E. H. Wynn  
Plant Metallurgist

RECEIVED

# RADIA ON SURVEY

Date

Instrument

Time	Location	General Conditions	Specific Observations	MREM/HR Gamma	Distance from Source	MREM/HR Exposure
	ADJ. BLDG.					
	GARAGE	CLEAN	PAINT BEING REMOVED	.15		.12
	WATER PLANT	CLEAN	CONCRETE #2	.11		
			PAINTED #3	.15		.13
	CARPENTER SHOP		RT. 4x4 IN	.20		.25
	PAINT SHOP	CLEAN	IN CENTER OF	.17		
			LUB. ROOM	.13		.40
	CANAGE HOUSE	VERY CLEAN	IN LOCKER ROOM	.13		
	LAB. BLDG.	CLEAN	WALLS 2x4	.15		
			CEILING 2x4	.14		
			SAMPLE ROOM	.32	1'	.12
			CABINETS			
	SCALE HOUSE	CLEAN	AT REAR	.12	1'	
			IT. WALLS 2x4		1'	
			LOADING DOOR	.34	1'	.14
	OT. SAMPLE		IN WOOD BLDG.	.22	1'	
	BOOKING ROOM		BLK. BLDG.	.10	1'	.25
	MOISTURE DETERMINATION ROOM	CLEAN	BY WOOD BLDG.	.30	1'	
		CLEAN	SHEDS			
			FEELS S.W.	.22		.50
			OUTSIDE WOOD			
	CRANE PAD	NOT CLEAN	BY WOOD BLDG.	.45	1'	
			BY WOOD BLDG.			
			BY WOOD BLDG.	.40	1'	



# RADIATION SURVEY

Date 10-12-59

Instrument 368-113

Time	Location	General Conditions	Specific Observations	MREM/HR Gamma	Distance from Source	MREM/HR Exposure
	CRUSHER	FAIRLY CLEAN	#1 CONVEYOR	.75	1'	
			#1 MILL FEEDER CHAIR	.70	1'	.75
			#2 CONVEYOR 2ND FLOOR	.75	1'	
			#3 CONVEYOR	.78	1'	
			#4 CONVEYOR	.74	1'	
			#2 & #3 REFINES	.80	1'	
			#2 CONVEYOR	.30	1'	
			#3 CONVEYOR	.30	1'	
			#4 CONVEYOR	.30	1'	
			TRANSFER TOWER 2ND FLOOR	1.40	1'	
	SAMPLE RIWER	CLEAN FILLING PITS	TOP OF BINS	.40 / .70	1'	
			#1 SAMPLER	.18	1'	
			3RD FLOOR	.30		.40
			2ND FLOOR	.30		
			12 FLOOR SOUTH WALL	.40	1'	
			SAMPLE IN DRYER	.40	1'	
			AT NORTH BLANCH	.50	1'	.60
			SAMPLE CABINET	.60	1'	
	BALL MILL	CLEAN, NEW	GALLERY, 2ND	.54	1'	
		CONSTRUCTION	GALLERY, 1ST	.52	1'	
			STOVE - CRUSHER	.52	1'	

## RADIATION SURVEY

Date 15-12-51

Instrument GM-15

Time	Location	General Conditions	Specific Observations	MRM/HR Gamma	Distance from Source	MRM/HR Exposure
	LEACH SECTION	CLEAN	SIDE OF TANK	.42	1'	
			TOP OF TANK	.75	1'	
			4' DOORHOUSE	.06	1'	.20
	SAND SLIME SECTION	HOSE IN CATWALK	DRAGGERS	.15/40	1'	
			DOWN DECK	.15	1'	.75
	R.I.P. SECTION	CLEAN	RAIL DECK	.14	1'	
			DISTRIBUTOR DECK	.15	1'	
			SHEEDS STEEL	.08	1'	
			8' DOORHOUSE	.20	1'	
			3' DOORHOUSE	.09	1'	.20
			STEEL DECK	.45	1'	
			DOWN DECK	.00	1'	
	STORAGE TANKS AREA	HEM. SMO. DETECTION	BARGE TANKS	.08	1'	
			W. FEED	.12	1'	.75
			PRESS. TANKS	.44	1'	
	FILTER DECK	FLOOR WASH	DRUM FILTERS	.40	1'	
			PRESS. FILTERS	.32	1'	.60
	MILL OFFICE	CLEAN	AT WALL NEAREST HEARTH DRYER	.36	1'	
			IN CENTER OF OFFICE	.24	1'	.30
	PRECIP. SECTION	SPUT DOWN	OPERATING DECK	.20	1'	
			THICKENER, TOP	.36	1'	.30
			THICKENER, BOTTOM	1.00	1'	
	HEARTH DRYER	SAUT DOWN	6' TANKS, WALL	.50	1'	
	PACKAGING		11' HEARTH	.40	1'	
			45' HEARTH	.32	1'	
			PACKAGING CHUTE	1.00	1'	
			LOADED BARRELS	1.50	1'	



## RADIATION SURVEY

Date 12-18-54

Instrument

Time	Location	General Conditions	Specific Observations	MREM/HR Gamma	Distance from Source	MREM/HR Exposure
	BOILER ROOM	High	Boiler Room	.05		.05
	S.X. PLATFORM	Shut down	ON CATWALK	1.20		1.20
	TAILINGS POND		POSHOUSE	.90		
			SOUTH DIKE	1.60		
			NORTH DIKE	1.35		1.60
			EFFLUENT DITCH	6.50		
			M.A. ROAD	.32		
	CRUSHED DPE STOCKPILES		UPL. HIGH GRATE #1	3.8/5.0	1'	
			" " " " #2	1.5/3.3	1'	
			" " " " #3	3.6/5.0	1'	
			" " " " #4	9.4/9.8	1'	
			" " " " #6	1.6/1.2	1'	