

## URANIUM REDUCTION COMPANY

## INTER-OFFICE CORRESPONDENCE

To : L. A. Pate

From : B. B. Winn

Date: March 10, 1960

Subject: RADIATION REPORT FOR JANUARY, 1960

The following report covers the work completed or "in process" on our radiation control program during the month of ~~March~~ *January*

## EXTERNAL RADIATION PROGRAM

1. The first quarter, 1960 external radiation survey of all areas in the plant was conducted by Mr. T. E. Downard of our staff. This survey was conducted by means of a Model SMX-112 Scintillator counter. A copy of Mr. Downard's report is on file in the radiation file in the Personnel Department.

Comparison of the results of this survey with our job classification mean level exposures is generally in good agreement. The survey shows that all areas in the plant are well below the maximum allowable exposure. The tailings pond area gave readings of 1.6 mrem/hour exposure; this is below the maximum allowable exposure but necessitates a continuation of our part time "pondman" schedule. If a full time employee is scheduled on the pond, a mean level of exposure for this job would have to be established and permanent records maintained on his exposure.

## AIR SAMPLING

The first quarter, 1960 general air sampling and breathing zone air sample survey was started during the month. This survey is still in process. The volume of air taken for a sample has been increased from that volume described in our radiation policy program, this change being

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## URANIUM REFINING COMPANY

## INTER-OFFICE CORRESPONDENCE

To : L. A. Palmer

From : B. B. Wynn

Date : March 10, 1960

Subject : RADIATION REPORT FOR JANUARY, 1960

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

January

## EXTERNAL RADIATION PROGRAM

I. The first quarter, 1960 external radiation survey of all areas in the plant was conducted by Mr. T. E. Downard of our staff. This survey was conducted by means of a Model SBK-11B Scintillator counter. A copy of Mr. Downard's report is on file in the radiation file in the Personnel Department.

Comparison of the results of this survey with our job classification mean level exposures is generally in good agreement. The survey shows that all areas in the plant are well below the maximum allowable exposure. The tailings pond area gave readings of 1.6 mrem/hour exposure; this is below the maximum allowable exposure but necessitates a continuation of our part time "pondman" schedule. If a full time employee is scheduled on the pond, a mean level of exposure for this job would have to be established and permanent records maintained on his exposure.

## AIR SAMPLING

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recommended by Messrs. Johnston and Kast of the AEC. Since this recommended change has been adopted as our standard practice, it will not be referred to again in monthly reports.

To date, 78 general air samples and 33 breathing zone air samples have been collected. Of the 78 general air samples collected, five were over the maximum allowable concentration of  $5.0 \times 10^{-11}$  uc/ml. None of the breathing zone samples taken to date are over the maximum allowable concentration. The following table is a resume of the five general air samples that were over the limit.

Area	No. Samples Collected	Over MAC	Under MAC	Ave.	Last Qtr. Ave.	Remarks
Transfer Tower, Bottom Floor	3	$7.02 \times 10^{-11}$ $9.69 \times 10^{-11}$	$1.24 \times 10^{-11}$	$5.98 \times 10^{-11}$	$7.81 \times 10^{-11}$	Ore chute plugs during 1st sample resulting in spill creating dust.
Crusher #3 Conveyor Ramp	3	$5.16 \times 10^{-11}$	$4.21 \times 10^{-11}$ $1.84 \times 10^{-11}$	$3.73 \times 10^{-11}$	$8.97 \times 10^{-11}$	One sample taken while dust collector broke down - the one over the limit taken at end of lot while quite dusty.
Sample tower 3rd floor	3	$10.8 \times 10^{-11}$	$1.24 \times 10^{-11}$ $1.24 \times 10^{-11}$	$4.32 \times 10^{-11}$	$3.81 \times 10^{-11}$	Sample over the limit taken while dust collector not functioning properly.
Sample tower 4th floor	3	$17.8 \times 10^{-11}$	$1.24 \times 10^{-11}$ $1.24 \times 10^{-11}$	$6.76 \times 10^{-11}$	$2.0 \times 10^{-11}$	Sample over the limit taken while dust collector not functioning properly.

Five of the six samples taken and over the maximum allowable concentration were collected while the dust collector was broken down or was not functioning properly. Immediate repair of all dust collecting facilities breakdowns should be made in order to minimize "dusty areas".

#### EMPLOYEE EDUCATION AND INSTRUCTION

1. On January 13, 1960, I attended a conference in Phoenix, Arizona. This conference was called by the United States Public Health Department and was entitled "Conference on Interstate Pollution of the Colorado River and its Tributaries". A verbatim report on this conference will be forwarded to us by Mr. Lynn Thatcher, Executive Secretary, Utah State Water Pollution Control Board. The states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming were represented by members of their respective Boards of Health or other similar state agency. The only representatives present other than federal or state agencies were Mr. Robert Beverly, Union Carbide Nuclear and myself. In summary, the Chairman of the conference, Mr. M. Stein, United States Department of Health stated as follows:

1. All state and federal agencies represented state that a water pollution problem does exist, the magnitude of which is unknown at the present time.

2. In order to institute a preventative program rather than a corrective program, each state represented petitioned the United States Public Health Service to conduct a study of the Colorado River basin in conjunction with the appropriate various state agencies.



to insure maximum protection to the public and the protection of public health.

protection of public health.

a. Sources of pollution both present and future.

b. Water uses.

c. The analyzing of all waters in the Colorado River basin.

d. The effect of all present and future uses on water quality.

4. A system of priority will be established so the most pressing problems are corrected first.

5. This study will not be just a data finding report but like the Animas River report, pollutant producing sources will be required to clean up.

6. The second session of the conference will be held 12 to 15 months from this date, tentatively set for Las Vegas, Nevada.

2. On January 19, 1960, Mr. T. F. Izzo and Mr. Job: Goff of our staff attended a seminar sponsored by the AEC at Idaho Falls, Idaho. The purpose of this seminar was to discuss the investigation by the AEC into various analytical procedures for the determination of  $Ra_{226}$ . The summary of this meeting was that AEC personnel are convinced that there are two procedures by which mill effluent samples can be analyzed for  $Ra_{226}$  correctly. These two methods are:

a. "Emanation" method

b. Method developed by Sill and Ebersole of the AEC staff.

Messrs. Izzo and Goff feel that the conclusions reached by the AEC staff are correct and the method proposed by Sill and Ebersole is correct.

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Messrs. L. L. and Co. have received the modified Marshall procedure which we are currently using. It is expected that the new procedure will be completed by the end of the year. The new procedure will be used for the analysis of Radium.

As a result of this seminar, our method is being changed to meet the new procedure. Various equipment changes are necessary. Purchase orders and work orders have been written so the necessary installation can be completed. Until such time as this work is completed, no analytical work for  $Ra_{226}$  will be made.

#### PRE-PLANNED HOUSEKEEPING PROGRAM

1. The Spencer vacuum producer installation in the crushing plant was completed and is currently being used for cleaning work.

#### CRASH CLEAN-UP PROGRAM

1. Incinerator for burning filter press papers has been received but is not installed as yet.

2. The vacuum hood over the hearth roaster is being used but installation of a bag on fan discharge is not complete.

To increase the air velocity into the hood, a work order was written to enclose the bottom of the hood except for those areas covering the hearth roaster doors. This work order not completed.

3. The Al Sheet Metal Company completed the installation of several new dust collecting hoods in the crushing plant and the installation of baffles in the moisture bucking room exhaust hood. The hoods installed in the crushing plant are located in the sample tower and provide a vacuum source for the removal of dust for the lot sampler while discharging dried ore samples from the rotary dryer and also while cutting samples on the Jones riffle.



#### COLORADO RIVER SAMPLING PROGRAM

1. The regular monthly sample survey of the Colorado River was completed. As described in the paragraph on Employee Education and Instruction, no assays will be made on these samples until the radiation laboratory is renovated.

#### SPECIAL PROGRAM

1. Two urine samples were collected and assayed. None of the samples were over 100 ug/L.

2. Some of the equipment for the installation of the "electric eye monitor" in the crushing plant has been received. No work is scheduled on this unit until all equipment is on hand.

3. Previous velometer surveys in the crushing plant have been made with a velometer borrowed from the Utah State Department of Health. Since this equipment is no longer available, a purchase order was issued for the purchase of a suitable industrial velometer. This equipment is scheduled for delivery by February 1, 1960.

4. On January 14, 1960, a letter was received from the Travelers Insurance Company in regard to possible radiation damage to the general public as viewed by their representative. In line with this survey, I wrote memos to L. A. Painter and John Goff outlining several new test programs. Copies of these memos are in the Insurance Coverage file of the radiation file. The action taken are as follows:

a. Installation of "No Trespassing" signs on the tailings pond perimeter.

b. On February 1, 1960, we will install five dust deposition plates at various points on the Wheeler ranch located in the valley south of the mill. Permission to install these plates was obtained from Mr. H. Ruggeri, Manager of the Wheeler property. These plates will remain in the field for a one year period, at this time they will be collected and analyzed for  $U_3O_8$  and  $Ra_{226}$ .

c. On January 17, 1960, we started making two monthly composites of the mill effluent. One of these composites is to be assayed for  $Ra_{226}$ . The other composite is to be assayed for Fe, Cu, Mg, Na, Mn, Cl,  $NO_3$ ,  $SO_4$ ,  $U_3O_8$ , total solids, dissolved solids and pH. An assay sheet with the results of each sample will be compiled by the Chief Chemist and kept on file in the plant radiation file.

E. E. Winn  
Plant Metallurgist



URANIUM REDUCTION COMPANY

INTER-OFFICE CORRESPONDENCE

To : L. A. Painter

From: B. B. Winn

Date : March 9, 1960

Subject : RADIATION REPORT FOR DECEMBER, 1959

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

EXTERNAL RADIATION PROGRAM

1. The AEC film badge program terminated on December 11, 1959. To date, the results of this survey have not been forwarded to us.

AIR SAMPLING

1. As described in my October and November reports, Messrs. Johnson and Kent made an inspection of our mill on October 29 and 30. During this tour they also took some general air samples and breathing zone samples in various mill areas. Mr. T. E. Downard accompanied the inspectors on part of this air sampling survey. His report of their survey is on file in the Metallurgical Department's radiation file. On December 20, 1959, Mr. Kent telephoned me and gave me the results of eight air samples taken during this tour. Of the eight samples reported, six were general air samples, one a "process" sample and one a breathing zone sample. Forty samples were collected and of these forty, the eight reported were over the maximum allowable concentration of  $5 \times 10^{-11}$  mc/ml. Seven of the samples reported as being over the maximum allowable concentration were in the bench area and were caused by dust in this area being carried throughout the general area. The dust was generated from two sources, the first being

the drying of filter press papers on the handrails, etc., on the #1 hearth deck, and the second, by a positive pressure in the hearth which caused puffs of smoke to be blown from the roaster doors when opened for either inspection or insertion of dried press papers.

Remedial actions had been taken prior to receiving this report from Mr. Kant. The actions taken were as follows:

- a. Signs bearing the words "Caution - Dusty Area - Respirator Required" were installed.
- b. The draft gauge line was unplugged and operators were informed of the necessity of maintaining a negative pressure in the roaster.
- c. Work order was written for installation of an umbrella type vacuum hood over the top of the hearth.
- d. Purchase order issued for an incinerator.

The eighth sample reported as being over the maximum allowable concentration was a breathing zone sample taken on the lot sampler while engaged in splitting a sample through the Jones riffle. An investigation into a vacuum hood to correct this condition was started immediately.

Mr. T. R. Downard wrote a report of the telephone conversation with Mr. Kant and this report is on file in the Metallurgical Department files.

#### PRE-PLANNED HOUSEKEEPING PROGRAM

1. The work of installing the Spender vacuum producer in the crushing plant is still in process.

#### CRASH CLEAN-UP PROGRAM

1. The incinerator that has been ordered has not been received.
2. The umbrella type hood over the hearth roaster has been installed but is not in operation as the exhaust fan has not been installed.



3. Contract for several corrective type vacuum hoods were given to the Al Sheet Metal Company for various installations in the crushing plant.

#### COLORADO RIVER SAMPLING SCHEDULE

1. The regular monthly sample survey of the Colorado River was made as described in our radiation program.

#### SPECIAL PROGRAM

1. One urine sample was collected and assayed. Results of all samples taken thus far are below 100 ug/l.
2. As described in my September report, a letter had been written to the Bailey Instrument Company relative to the feasibility of installing an electric eye monitor in the crushing plant for measuring and recording the dust concentration in the atmosphere. Their representative called on us and a purchase order was issued with the Bailey Meter Company for this equipment.

B. E. Wian  
Plant Metallurgist