

COMPLIANCE INSPECTION REPORT

1. Name and address of licensee Uranium Reduction Company 557 First Security Building Salt Lake City, Utah	2. Date of inspection October 26-29, 1959
	3. Type of inspection Follow-up
	4. 10 CFR Part(s) applicable 20 - 40
5. License number(s), issue and expiration dates, scope and conditions (including amendments) R-161, Amendment 3 (renewed in its entirety) Issued: 10-10-58 Expires: 4-1-62 Scope: "To receive possession of and title to raw material, without limitation as to quantity, from producers and distributors thereof licensed by the Atomic Energy Commission to transfer and deliver possession and title to such material, for processing at your plant at Moab, Utah, in accordance with Contract Number AT(05-1)-266 between Uranium Reduction Company, First Security Bank of Utah as trustee and the Atomic Energy Commission. "To receive, transfer, or deliver possession or title to refined source material, in the form of uranium concentrates, from or to persons appropriately licensed by the Commission for resale to the Atomic Energy Commission." Conditions: "you are required to maintain records of your inventories, receipts and transfers of refined source material. "This license is subject to all the provisions of the Atomic Energy Act of 1954 now or hereafter in effect and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20, 'Standards for Protection Against Radiation', except that partial exemption is hereby granted from Section 20.203(e)(2) and exemption is (Continued)	

6. Inspection findings (and items of noncompliance) Although the Division of Licensee Inspection, ID, is to date not in receipt of evidence of final action by DLR with regard to the URC reply to their orders, a follow-up inspection of the mill was conducted. The inspection was made prior to the completion of correspondence between the licensee and DLR at the request of Inspection Headquarters, Washington, D. C. The primary purpose of the inspection was to observe and evaluate conditions in the mill with respect to compliance with Federal Regulations and license conditions. The inspectors did note, however, results of the action URC had taken in connection with their reply to orders from DLR. Supplementary air and Colorado River water samples were also collected for analysis. As a result of the inspection, the following items of noncompliance were observed or otherwise noted: 10 CFR 20.105 Concentrations in effluents to unrestricted areas (b) Concentrations of radium in liquid effluent released to unrestricted areas are in excess of MPC (Par. 36). 10 CFR 20.205 Caution signs, labels and signals (d)(1) Areas where concentrations of airborne uranium exceed 25 per cent of MPC were not posted (Par. 27).	
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7. Date of last previous inspection February 24-25, 1959	8. Is "Company Confidential" information contained in this report? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Specify page(s) and paragraph(s))
DISTRIBUTION: Insp. HQ (4) ← Insp. ID (1) GJ (1) Approved by: Donald I. Walker, Director Division of Licensee Inspection Idaho Operations Office JUL 11 1960 (Date report prepared)	
Original signed by WILLIS E. JOHNSTON Original signed by WILLIS E. JOHNSTON (Inspector)	

If additional space is required for any numbered item above, the continuation may be extended to the reverse of this form using foot to head format, leaving sufficient margin at top for binding, identifying each item by number and noting "Continued" on the face of form under appropriate item.

RECOMMENDATIONS SHOULD BE SET FORTH IN A SEPARATE COVERING MEMORANDUM

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granted from Section 20.203(f)(2) for areas and containers in the plant, provided that all entrances to the mill are posted in accordance with Section 20.203(e)(2) to indicate that all areas and containers in the plant may contain radioactive materials."

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Uranium Reduction Company

9. The initial, routine inspection of the uranium ore processing mill, operated by Uranium Reduction Company at Moab, Utah, was accomplished on December 10, 1957, by Dr. Donald I. Walker, Director, Division of Licensee Inspection, Idaho Operations Office. As a result of this inspection, the licensee was cited for noncompliance with the following sections of 10 CFR 20:

20.201(b) Failure to conduct surveys
20.203(e)(2) Failure to properly post areas
20.203(f)(2) Failure to label containers

10. The report of the inspection was transmitted to Inspection Headquarters January 14, 1958, and forwarded to the Division of Licensing and Regulation January 30, 1958. Mr. R. F. Hollis, General Manager of URC at Moab, Utah, was contacted by DLR in a letter dated May 23, 1958, and informed of the items of noncompliance and requested to reply within 30 days stating what measures would be taken to establish compliance together with the dates said compliance would be accomplished. By letters dated June 4, 1958, and July 3, 1958, Mr. Hollis proposed a course of action aimed at reaching compliance with 10 CFR 20. DLR replied August 14, 1958, that only partial compliance could be reached by the proposals and that posting and labeling requirements definitely applied to URC. Mr. Hollis then wrote on September 9, 1958, that the posting at URC would be taken care of. DLR action was completed in this regard by informing Mr. Hollis on October 10, 1958, that corrective action taken at URC would be reviewed during the next inspection. Also, enclosed was Amendment 3 to License R-161 exempting URC from the provisions of 10 CFR 20.203(e)(2) and (f)(2).
11. A follow-up inspection of the mill was then performed February 24 and 25, 1959, by D. I. Walker. Items of noncompliance for which the licensee was cited were:

10 CFR 20.201(b) - Failure to determine external radiation dosages to personnel.

Failure to determine airborne radioactivity concentrations.

Failure to initiate program for determining concentrations of radioactive materials in effluent released to unrestricted areas.

These findings were reported to DLR March 30, 1959. As a result of this report, orders were issued to URC on July 13, 1959, to the effect that they must submit by August 15, 1959, a complete statement of those steps they intended to take to bring their mill into compliance. (These orders are included in this report as Appendix A.)

12. On August 10, 1959, Mr. R. F. Hollis replied to the Commission's orders with a summation of what URC had done and was proposing to do in order to comply, (see Appendix B). Acknowledgment of receipt of this reply was made by DLR on August 20, 1959. As explained in Par. 6, this follow-up inspection was conducted prior to the completion of DLR correspondence with the licensee at the request of Inspection Headquarters.

Uranium Reduction Company

13. On July 23, 1959, grab water samples were collected at several points on the Colorado River to evaluate the effects of the URC effluents upon the stream in that area. These samples (four in number) were collected by W. B. Johnston and A. W. Holmes, Inspectors, Idaho Operations Office. The analyses of these samples for radium and uranium were performed by the Analysis Branch, Health and Safety Division, ID, and results were forwarded to Inspection Division Headquarters on July 26, 1959. The analytical method used was the revised Harwell Procedure. The excess of the water samples was saved and after having revised their analytical procedure, the Analysis Branch analyzed the water for radium and thorium. These results appear in Appendix E of this report.
14. From August 4 through 7, 1959, a survey of the URC mill was conducted by a team representing the Idaho Inspection Division. The team consisted of R. T. Kant, Licensee Inspection Division, ID; M. Weinstein, Health and Safety Division, NY; J. Scott, Production Evaluation Division, and J. H. Watts of the Source Material Procurement Division, Grand Junction Operations Office. The survey included the collection of samples for airborne uranium (both general air and breathing zone varieties), water sampling of the Colorado River (into which URC supplies the mill effluent overflow), and a survey for external radiation hazards. The results of this survey are included herein as Appendix E. Film badges supplied (at the request of the Division of Licensee Inspection) by the Personnel Metering Branch, Health and Safety Division, ID, were issued to the entire staff at the Uranium Reduction Company on August 11, 1959. The badges were replaced each month during the four-month badging period. These film badge results were previously forwarded to Inspection Headquarters.
15. During the period October 26 through 29, 1959, R. T. Kant and W. B. Johnston made a follow-up inspection in the course of which supplemental air and water samples were gathered. See Appendix F for the results of this sampling. The main objective of the inspection was to determine the state of compliance of conditions in the mill with regard to Federal Regulations and license conditions. Another objective of the follow-up inspection was to review the records of surveys made by mill personnel to determine airborne concentrations of uranium to which workers were being exposed. Examination of these data compiled by the mill's Radiological Safety Group indicated that no one was being exposed to concentrations of airborne uranium in excess of the maximum permissible concentrations. Appendix C contains examples of both breathing zone and general air samples. URC, incidentally, uses the fluorimetric method of analysis for uranium. Only a very few of the results show airborne concentrations of uranium in excess of MPC. In fact, the majority of the results reviewed by the inspectors were below the limit of detection, which, according to the mill analysis group, is 1.85×10^{-14} $\mu\text{C}/\text{ml}$. According to Mr. B. B. Winn, Plant Metallurgist, a determination is made of how much time is spent by an employee in each area he frequents. A breathing zone sample is then collected in each of these areas for a time commensurate to that percentage of the total work day the man is in the particular area. The filter discs are then composited and analyzed to give the result which indicates the average concentration to which the man is exposed while working. Occasionally, as shown in the examples in Appendix C, air sampling results indicate that personnel are being overexposed. Time-weighted exposures have been determined a number of times for each mill worker, however, and in no case does the average of this sampling indicate overexposure. In fact, the results of all mill sampling reviewed by the inspectors show a total of 5 general air and 1 breathing zone sample which exceeds MPC. The records also show that the highest external radiation level measured was 5 mr/hr at contact with high grade ore. The average external radiation level was approximately 0.3 mr/hr.

Uranium Reduction Company

In a tour of the mill, conducted by Winn, photographs were taken by the inspectors to illustrate the changes URC had made in their attempt to comply with regulations. These photographs appear in Appendix G with appropriate captions.

16. On July 20, 1959, URC initiated a film badge program. This program incorporated the badging of all mill personnel regardless of the job or operation in which they were involved. This service was supplied by Tracerlab, Inc., on a weekly basis. The badges contained a 13-week accumulative film as well as one which was processed weekly. The highest weekly reading noted by the inspectors was 95 mrem gamma and 215 mrem beta for a total of 310 mrem beta-gamma. Average readings were less than 25 per cent of the permissible weekly exposure, below which film badging is not required by regulations. Records showed that many exposures were below Tracerlab's limits of detection.
17. According to Winn, the respirator program at URC is a management controlled operation. Indoctrination in the use of the mask and the importance of keeping it clean is given the new employee along with the complete indoctrination program he receives upon commencing employment. It might be said, at this point, that this indoctrination training does not end here but continues with periodic talks and instructional motion pictures. This was corroborated by the various bulletins and announcements of training periods which the inspectors observed while at the mill. In areas where atmospheric dust loading is above normal, signs are posted cautioning personnel of the condition and requiring them to wear their respirators. These warnings are in addition to the regulation signs posted at all entrances to areas where airborne dust may occur. According to Winn, use of the respirators is imperative and is a condition of employment. Supervisory personnel enforce the wearing of this protective equipment, Winn said.
18. Whereas the ore pad was, at the time of the inspection, periodically cleaned utilizing an ordinary street sweeper, a crusting agent known as Arzan A is to be used to keep dust at a minimum, according to Winn. It might be well to mention at this particular time that when the sprays installed in the grizzly hopper (shown in part in Photograph 1) are covered over by ore, the dust generated above the spray height is suppressed by hosing down each load of ore that is bucked onto the grizzly grate from the ore pad.
19. Water sprays and fog nozzles were observed, by the inspectors, to be installed and operable at the locations which were found to be dust generation points. The water sprays are for the purpose of preventing dust generation by keeping the ore well moistened. The fog nozzles are used to suppress the dust by forming a blanket of mist. The action of the fog nozzles and sprays, as pointed out by Winn, seems effective in containing the dust at transfer points on the belts. These installations are illustrated in Photographs 1, 2, 3, 7 and 8. Each transfer point is enclosed by a steel housing. These enclosures make possible the build-up of pressure in the housing due to the ram effect of the ore as it descends onto the lower belt. According to Winn, equalization of this pressure has been achieved by the use of air balancing ducts connecting the lower housing with the upper. An example of this pressure equalizing duct is shown in Photographs 2 and 5. Such ducts were installed in addition to the items proposed by URC in their reply to the orders received from DLR. Mr. Winn also confirmed that the replacement of the belt conveyor to the jaw crusher had been accomplished to eliminate dust fall-off on the return cycle of the belt.

20. The dust collection system in the crushing plant had undergone considerable modification, according to Winn. Mr. Winn explained that much of the dust which formerly was generated in the crushing area was found to be attributable to plugged dust collection ducts. This has been avoided by the installation of new dampers in dust collection pipes and these have been set at the optimum position recommended by the designers. According to Winn, duct plugging is avoided by weekly inspections and periodic cleaning of the duct work. Furthermore, Winn informed the inspectors that much of the difficulties encountered in the crushing plant were due to the need for redesign of the traveling dust collector blow back air reversing mechanisms in the dust collection units located adjacent to and servicing the crushing area. He informed the inspectors that this has been accomplished. Housekeeping in the crusher facility is achieved at intervals which prevent the accumulation of dust and larger ore particles. The dust collection system operates efficiently enough to keep the need for housekeeping efforts at a minimum, according to Winn. One man is assigned the full time duty of maintaining cleanliness in the crushing plant. At one point where the ore returns to the main crusher area from the transfer house, ore drops from the belt at the transfer point through the grated flooring to the level below. A deposition of ore results on this lower level in the area of the vibrating screens. This deposit of ore is not allowed to accumulate, but dust was noted by the inspectors to be generated in this particular area. Mr. Winn told the inspectors that they were working to rectify this situation.
21. Mr. Winn stated that the high efficiency of the dust collection system has necessitated the elevating of the duct housing which is in direct contact with the moving ore. Thus, the inlet vent was moved far enough from the conveyor belt to prevent the larger particles from being drawn into the dust collection units, a problem which previously existed and resulted in collection duct blockage. This elevated housing is shown in Photographs 6 and 7.
22. Photograph 9 illustrates a sump constructed to catch the ore and ore dust which gravitates from above the cone crusher in the crushing plant. This construction acts not only as a receptacle for descending material, but also allows the ore to reach the cone crusher via the sloping bottom of the collection trough.
23. In addition to the Spencer vacuum cleaning plant presently installed in the yellow cake drying and packaging section (see Par. 31), a similar unit and dust system will be installed for use in the crushing area, according to Winn. The motor will be located over the fine ore bins and utilization of this installation in the sample preparation room will eliminate the use of the Black and Decker portable vacuum cleaner now in operation there. The Black and Decker cleaner, the addition of which was part of the URC proposal, has not been big enough or powerful enough to satisfy the needs in this area, according to Winn.
24. Mr. Winn explained that the weights at tension points on the conveyor belts are a great source of dust generation in that ore caked on the belts is knocked loose at these points. A proposal that is going to be tried is a belt beater and brush arrangement. This will be integrated with the dust collection system venting in some manner. Fine ore bearing dust does accumulate in large quantities at each tension point under the present set-up, as seen by the inspectors.

25. The coffee mill (illustrated in Photograph 12) has been hooded in such a manner as to vent the dust effectively without decreasing the facility with which the operation is carried out, Winn stated. The hood extends partially over the lip of the mill, but dust elimination is relatively complete due to the strong vacuum effect of the venting which URC has achieved in all of their dust collecting ductwork.
26. Mr. Winn mentioned that a proposal has been entertained whereby the installation of dust sensitive photoelectric cells be made at points of possibly high density atmospheric loading. These cells would actuate alarms of one type or another when airborne dust concentrations surpassed that which was tolerable. This had not progressed past the proposal stage at the time of the inspection.
27. The inspectors found unposted entrances to areas where concentrations of airborne uranium exceeded 25 per cent of MPC when these concentrations were averaged over the number of hours in a week that individuals were in the area. Although failure to post these areas constitutes an item of noncompliance with 10 CFR 20.203(d)(1) "Caution signs, labels and signals", the areas were properly posted in the presence of the inspectors and this item can now be reported as in compliance with regulations.
28. Nothing had yet been contrived at the time of the inspector's visit by which the Shriver press filter papers might be disposed of and the yellow cake recovered. This seemed to be a perplexing problem with which mill personnel were struggling without result (see Photograph 15).
29. As reported in the URC reply to orders, Winn assured the inspectors that the installation of the stainless steel angle demisters in the scrubber box, the installation of removable glass wool filters on the discharge side of the scrubber, and the revision of water spray piping and valving in the scrubber box have all been completed. Revision of the balance of air flow between the product crusher and the discharge chute has also been accomplished, according to Winn. Roaster discharge of U_3O_8 particles in the flue gases has thus been corrected, according to Winn. Although the plant was in operation at the time of the inspection, precluding the observance by the inspectors of the installations made within operating equipment, they were assured by Winn that such installations had been made. The inspectors were able to observe all outwardly visible changes.

Photograph 17 shows the enclosure of the area under the platform supporting the yellow cake roaster-scrubber. This stainless steel housing prevents the splashing which previously occurred during cleaning of the scrubber. The inspectors noted the cleanliness in this area which, according to Winn, is attributable to this installation.
31. A new Spencer vacuum cleaning plant, mentioned previously in Par. 23, has been installed centrally in the yellow cake packaging area to service this area and the several roaster levels (see Photograph 20). Permanently located ducts with numerous outlets preclude the necessity of carrying portable vacuum units about this area. Only the hose and tool are required since the hose may be plugged into any of the many available receptacles. Attachments have been secured to the sides of the roaster beneath each of the hearth doors. To these appurtenances may be affixed a tray which catches the yellow cake which falls from the doors when they are opened for inspections. This prevents contamination of floor and surrounding area by containing the materials which fall from the door. In turn, the trays are easily vacuumed, (see Photographs 18 and 19).

Uranium Reduction Company

32. The necessity for extensive corrective action regarding the condition whereby UO_2 escaped through the roaster lid vent hole was averted as described in Mr. Hollis' reply to the URC orders. The condition was rectified by cleaning and recalibrating the plugged draft gauge and regulating pressure such that a negative pressure is maintained within the roaster.
33. The painting program in the yellow cake drying and packaging areas was observed by the inspectors to be completed as reported by the mill manager in his response to orders.
34. The barite treatment of the liquor overflow from the tailings pond had not been placed in operation at the time of the inspection. Photograph 23 shows the equipment from which the barite will be introduced into the tailings liquor overflow. The right foreground shows a portion of the retention pond in which the treated liquor will remain until the retention pond fills to an overflow weir and the treated solution flows by ditch to the Colorado River.
35. Other efforts made by URC in addition to those proposed in their letter to DLR are as follows:
 - a. Rubber enclosed and sealed syntron vibrators (as shown in Photographs 10 and 11) help hold dust generation to a minimum in the sample tower area. In Photograph 10, the pressure relief duct work may be noted. This is designed to prevent the escape of fines due to the highly efficient venting achieved in the URC dust collection duct work.
 - b. The Y-blender enclosure in the sample preparation room (shown in Photograph 13) completely encompasses the blender itself. Loading is accomplished through a port at the top, and the blender is unloaded through the door in the front on the bottom. As observed by the inspectors, the evacuation of the enclosure, together with the sealing around all doors, make this enclosure literally dust proof. A manual draft control in the exhaust pipe at the top allows loading and unloading to be accomplished without loss of fines to the dust collection system. This housing, when entirely sealed and draft open, can virtually be seen to partially collapse from the draft effect.
 - c. Normally the rotary drier (Photograph 14) is an open mechanism, but at URC the drier is closed for operation by securing the cover (seen raised in the photograph). A gasketed chute, which is observable in the picture, permits the sample bucket to be attached securely and in a manner not to generate dust while emptying the drier. Venting to the dust collection system is visible at the top of the photograph.
 - d. The yellow cake filter drums (Photograph 16) are encased in rubberized canvas to contain any material which might be splashed about. The inspectors observed no yellow cake on the floors in this area. The floors here are hosed down at regular intervals, according to Winn, and as observed by the inspectors.

Uranium Reduction Company

- e. Dust discharge equipment is integrated into the hammer mill atop the roaster discharge to the final product barrels. The yellow cake dust is exhausted to enclosed barrels below the dust collection unit outside the packaging area. Periodically, these barrels are removed and lidded. Photographs 21 and 22 show the dust discharge equipment and dust collection unit, respectively.
36. The mill program for sampling the Colorado River is rather an encompassing operation, according to Winn. He informed the inspectors that the river has been sampled all the way to the confluence with the Green River some 80 miles (by river) below the mill. Normally, river sampling is accomplished once a month and samples are collected as far as 10 miles below the mill. The extent to which URC has gone to determine their contribution to the concentration of radium to the Colorado River is shown in Appendix D to the report. Analysis of these records indicates that the mill is releasing concentrations of Radium-226 in their liquid effluent to the Colorado River, which are in excess of MPC. This constitutes noncompliance with 10 CFR 20.103(b), "Concentrations in effluents to unrestricted areas." According to results of effluent sampling by the Inspection Division, ID, URC is also releasing Thorium-230 in their liquid effluent (See Appendix F). The licensee had not determined concentrations of thorium in his liquid effluent, however. It should be stated that an approved procedure of analysis for thorium in liquid mill effluents had not been formulated prior to this inspection. Neither had the symposium concerning thorium and Radium-226 determinations been held by the Analysis Branch of the Health and Safety Division at the NRTS, nor had AEC thorium analyses of URC liquid effluent, previously mentioned, been completed at the time. Thus, URC, along with other uranium processing mills, was not fully aware at the time of this inspection of the thorium problems extant.
37. Before leaving the mill, following the inspection, the inspectors met with Mr. Hollis, the general manager of the mill, and discussed the items of noncompliance noted during the inspection with both he, B. B. Winn, and T. Izzo, Chief Metallurgist.

APPENDIX A

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Uranium Reduction Company
P. O. Box 488
Moab, Utah

July 13, 1959

Uranium Reduction Company
P. O. Box 488
Moab, Utah

Attention: Mr. Roy F. Hollis, General Manager

Gentlemen:

Based upon information obtained by the Commission during inspection of your mill at Moab, Utah on February 24 and 25, 1959, it appears that it is being operated in violation of the Commission's regulation, "Standards for Protection Against Radiation," Part 20, Title 10, Code of Federal Regulations, and the terms and conditions of Source Material License No. R-161, in that your company has:

1. In violation of Section 20.201(b) failed to conduct adequate surveys in mill areas which are occupied by employees to determine the concentrations of airborne radioactivity.
2. In violation of Section 20.201(b) failed to determine the concentrations of radioactive material, including radium, discharged in liquid effluents in the course of licensed activities.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the regulations in Parts 2, 20 and 40, Title 10, Code of Federal Regulations, you are hereby ordered to submit no later than August 15, 1959, to the Commission in writing a full and complete statement of the steps which will be taken in order to bring the operation of your mill into compliance with the Commission's regulations.

The information you submit to us should include:

1. A detailed description of your survey program, including sampling procedures, frequency of surveys, and methods of analysis to demonstrate compliance with 10 CFR 20.
2. Where your survey data indicate the need for corrective action to achieve compliance with 10 CFR 20, the steps you will take to achieve such compliance including:
 - (a) additions or modifications to present facilities and equipment to reduce dust loading in the air;
 - (b) action to clean up radioactive material on floors, equipment and other surfaces in areas of the mill in which employees are routinely working; and
 - (c) control measures which will be followed to assure that individuals are not exposed to airborne concentrations of radioactive material in excess

July 13, 1959

of those specified in Section 20.101, 10 CFR 20. (Such measures may include the use of respiratory equipment and/or limitation on work periods in areas where airborne radioactivity exists and instructions to personnel.)

3. The surveys you have made to determine whether or not personnel monitoring is necessary, and personnel monitoring devices and procedures which will be used if such are necessary to comply with Section 20.202, "Personnel monitoring." Preliminary results from your film badge program, as noted during the most recent inspection, indicates that personnel monitoring may be required.
4. A time schedule which specified the dates when each phase of the actions you propose to take to achieve compliance with 10 CFR 20 and license conditions will be completed.

You may request a formal hearing with respect to this order, or any part thereof, by filing a written request for hearing with the Office of the Secretary, United States Atomic Energy Commission, Washington 25, D. C., within fifteen days after the date of this order. Filing of a written request for hearing may also be accomplished in person either in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., or the Office of the Secretary, Germantown, Maryland.

Pursuant to Section 2.202(b) of the Commission's "Rules of Practice," 10 CFR 2, a timely filing of a request for formal hearing with respect to this order or any part thereof, shall stay the order, or such part of the order pending determination of the issues by the Commission.

FOR THE ATOMIC ENERGY COMMISSION

H. L. Price, Director
Division of Licensing and Regulation

Enclosures:

1. 10 CFR Part 2
2. 10 CFR Part 20
3. 10 CFR Part 40

CC: Division of Inspection, Wash.
Division of Inspection, IOO
Public Document Room
OGC (2)

UNITED STATES GOVERNMENT

Memorandum

TO : Lyall Johnson, Chief, Licensing Branch
Division of Licensing and Regulation

FROM : L. R. Rogers, Chief, Radiation Safety Branch
Division of Licensing and Regulation

SUBJECT: URANIUM REDUCTION COMPANY REQUEST
DATED FEBRUARY 25, 1960
FOR ONE YEAR EXTENSION OF EFFLUENT DISCHARGE
AND SAMPLING PROGRAM

DATE:

SYMBOL: DLR:CGW

The Uranium Reduction Company has recently modified its milling processes and has made improvements on mill effluent sample analysis procedures. The licensee indicates that these changes will greatly affect their effluent study results and requests a one year extension of their effluent discharge and sampling program.

We recommend that the request be granted on the basis of the following findings:

1. The licensee states that the radium and thorium content of mill effluents ^{may be} significantly reduced by changes in the mill processes. The changes consist of converting from an acid leach - RIP plant to a combined acid leach - alkaline leach - RIP plant.
2. The licensee is adopting a new method of analysis for radium. Their previous analytical procedure for radium gave erroneously high results for mill effluent and river water samples due to co-precipitation of thorium.
3. The licensee wishes to inaugurate a more extensive sampling program and extend it over the period of a full year for the purpose of obtaining complete information to cover large seasonal variations in river flow. This information to be submitted in support of proposed limits for radioactive material released in liquid effluents to unrestricted areas.
4. River water samples collected by IOO personnel indicate that concentrations of radium in the Colorado River, both above and below the mill site, may at times exceed the MPC level in Part 20. However, upstream and downstream samples collected by both the licensee and IOO personnel indicate that mill effluents may not contribute significantly to the concentration of radium and thorium in the Colorado River.

UNITED STATES GOVERNMENT

Memorandum

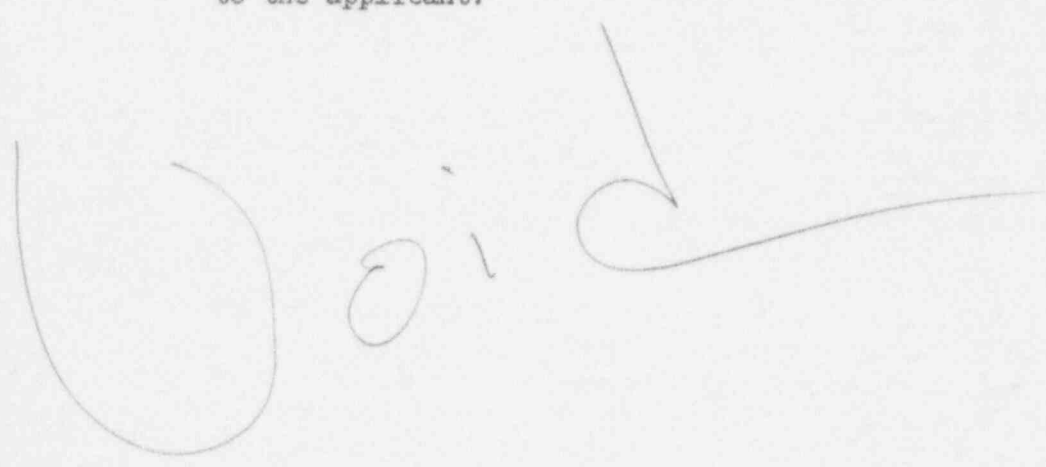
TO : Files
(THRU) J. C. Delaney, Chief, Nuclear Materials Section
Licensing Branch, Division of Licensing & Regulation

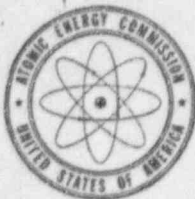
FROM : N. Doulos

DATE: March 24, 1960

SUBJECT: URANIUM REDUCTION COMPANY REQUEST DATED FEBRUARY 25, 1960, FOR
ONE YEAR EXTENSION OF SAMPLING AND TESTING PROGRAM

The subject company's request for a one year extension of their sampling and testing program with respect to the determination of concentrations of radioactive material discharged in liquid effluents to the Colorado River, is recommended for the following reasons:

1. Uranium Reduction Company is converting from an acid leach - RIP plant to a combined acid leach - alkaline leach - RIP plant which, the applicant states, has resulted in a substantial reduction in radium concentration in tailings effluent.
 2. The change in their analytical procedure for radium analysis - which previously indicated erroneously high results of radium in the tailings effluent - to correspond with procedures recommended by AEC personnel, according to the applicant.
- 



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

IN REPLY REFER TO:
40-3453

SOURCE MATERIAL LICENSE

Uranium Reduction Company
P. O. Box 488
Moab, Utah

License No. R-161
Amendment # 6

Dated:

Attention: Mr. R. F. Hollis

Gentlemen:

Pursuant to the Atomic Energy Act of 1954 and Section 40.21 of the Code of Federal Regulations, Title 10 - Atomic Energy, Chapter 1, Part 40 - Control of Source Material, you are hereby authorized, in accordance with the procedures described in your application for license and your letters of August 10, 1959 and February 25, 1960:

To receive possession of and title to raw source material from producers and distributors thereof licensed by the Atomic Energy Commission for processing at the Moab, Utah, facility.

To transfer raw source material from any location to your plant at Moab, Utah, for processing.

To receive, transfer, or deliver possession of or title to refined source material, in the form of uranium concentrates, to the Atomic Energy Commission and to persons appropriately licensed by the Commission.

The issuance of this license shall not be construed as constituting any determination by the AEC with respect to the right of the licensee to conduct mining operations on or to enter onto any property or location referred to herein.

As a condition of this license, you are required to maintain records of your inventories, receipts and transfers of refined source material.

This license is subject to all the provisions of the Atomic Energy Act of 1954 now or hereafter in effect and to all valid rules and regulations of the U. S. Atomic Energy Commission, including 10 CFR 20 "Standards for Protection Against Radiation", except that exemption is hereby granted from Sections 20.203(e)(2) and 20.203(f)(2) for areas and containers in the plant, provided that all entrances to the mill are posted in accordance with Section 20.203(e)(2) to indicate that all areas and containers in the plant may contain radioactive material.

VOID

Uranium Reduction Co.

- 2 -

Neither this license nor any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954.

This license shall expire December 31, 1966.

FOR THE ATOMIC ENERGY COMMISSION

Director
Division of Licensing & Regulation

Void