

L. D. Low, Director, Division of Compliance,  
AEC Headquarters

JUL 11 1960

Allan C. Johnson, Manager, Idaho Operations  
Office

FOLLOW-UP INSPECTION REPORT AND ADDENDUM - URANIUM REDUCTION COMPANY,  
MOAB, UTAH - SOURCE MATERIAL LICENSE NO. R-161

LI:RTK

Forwarded herewith are 4 copies each of the subject reports.

The main report lists the following items of noncompliance:

- 10 CFR 20.103 Concentrations in effluents to unrestricted areas
  - (b) Concentrations of Radium-226 in liquid effluent released to unrestricted areas are in excess of MPC.
- 10 CFR 20.203 Caution signs, labels and signals
  - (d)(1) Areas where concentrations of airborne uranium exceed 25 per cent of MPC were not posted.

In the addendum covering the supplementary follow-up inspection the second item of noncompliance was not listed since it had been corrected as mentioned in the main report. The other item was still found to prevail. No additional cases of noncompliance were discovered as a result of the last inspection.

While discussing the October inspection with Messrs. Hollis and Izzo, General Manager and Chief Metallurgist, respectively, it was determined that Mr. Hollis truly, in the opinion of the inspector, had a sincere desire to make URC a model uranium mill. The inspector believes that this not only can be done but is nearing this status at present. URC is, undoubtedly, the best mill this inspector has seen from both a compliance and a general safety and housekeeping standpoint. Not only have they accomplished all they have stated in Mr. Hollis' reply to orders, but they have also undertaken considerably more, as may be seen by perusal of the reports herewith.

It did appear, however, during the earlier of the two inspections reported here, that Mr. B. B. Winn, Plant Metallurgist and in charge of radiation safety under Mr. Izzo, was extremely reluctant to record results of air sampling when these results exceeded MPC. This should

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be enlarged upon so as not to give the wrong impression, however. Although Winn was hesitant to accept these findings, the ultimate result of his questioning their validity was to rectify a bad condition. A high concentration indicated in an area would prompt resampling to ascertain whether or not an error in analysis or calculation had been committed. In the event the latter was not the case, an immediate quest was instigated for the cause of the excessive concentration and the situation corrected. In either case, Winn was then able to report the atmosphere of the area as being less than MPC for uranium as evidenced by subsequent sampling.

Mr. Winn has, however, left the company as has Mr. Thomas Downard, his assistant in the Radiological Safety Program. The organizational reconstruction is discussed in the supplementary follow-up inspection report.

Although no overexposures are indicated by records compiled since Winn's departure, more samples exceeding MPC are on record. In the final analysis, the inspector believes the end results are the same. Although rectification of a bad condition is accomplished in either event, no samples are presently disregarded. It should be reiterated that this was the opinion of the inspector, based upon his intuitive feeling and indications made by the personnel conducting actual surveys at URC.

Information acquired through Mr. T. F. Izzo by telephone conversation subsequent to the inspection of May 12, 1960, indicates that a student employed by URC for the summer is now assisting in the survey program. His name is Norman Nelson, and he has had previous summer employment at URC.

Following the formal inspection of October 26-29, 1959, but prior to the May 12, 1960, inspection, the inspector had reason to suspect that the cleaning involved in the yellow cake area dust collection system baghouse was an extremely hazardous operation. Results of the investigation into this matter are reported in the latter report herewith. Basically, it might be said that it is truly a dusty and hazardous operation, but the operators wear respirators and are called upon to participate in the task very seldom. (It has been required only twice in nearly three years). Furthermore, cleaning was found to be an automatic process not involving men. Entry into the baghouse is only required for maintenance which is infrequent as just indicated.

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The item of noncompliance involving the posting of airborne radioactivity signs, as indicated in the earlier report herein, has been corrected. Only the release to unrestricted areas of radioactive materials in concentrations in excess of MPC in their liquid effluents remains as an item of noncompliance at URC presently. Mill personnel having been made aware of the Thorium-230 existent in liquid effluent, are concerned with the fact that no provision is made for MPC's of Thorium-230 in Appendix B to Part 20, Title 10 of the Code of Federal Regulations. This concern was undoubtedly prompted by AEC interest in the problem originally. A telephone conversation from Mr. Izzo, subsequent to the inspection of May 12, informed the inspector that analyses to determine Thorium-230 concentrations in liquid effluent had begun and a comparison of the results of a split sample was made (See Appendix A of the enclosed addendum). Izzo also stated that a Thorium-230 standard had been acquired from Oak Ridge. He further stated that URC had attained previous permission from DLR for its acquisition.

Results of URC liquid effluent analyses examined during both inspections indicated that relatively high radium concentrations occur upstream of the mill on the Colorado River. This, of course, has been construed by them to minimize the contribution of their effluent to stream pollution. This conclusion seems to be somewhat substantiated by analyses of AEC-collected river samples.

It might be well to restate, at this point, the fact that URC has received no reply to or acknowledgement of receipt by DLR of Mr. Hollis' letter requesting an extension of the sampling and testing program by which they hope to show cause why an exemption should be granted for releasing liquid effluent with concentrations of radioactive materials in excess of MPC. In the opinion of the inspector, the combined effects of the introduction of barium sulphate and the neutralization effect of the acid and alkaline plants on tailings liquor, should reduce the concentrations of Radium-226 and Thorium-230 to the point where the URC liquid effluent release to the Colorado River has a negligible impact upon the contamination of the river.

In consideration of the facts set forth in the enclosed reports, the following is recommended:

1. That the field and the licensee be informed at the earliest possible time, of the resolution of the situation whereby limits for Thorium-230 are not stipulated in Appendix B to 10 CFR 20.


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2. That the licensee be contacted through Mr. R. F. Hollis, General Manager, Uranium Reduction Company, P. O. Box 488, Moab, Utah, as soon as practical and be informed of the DLR decision on the request for extension of their sampling and testing program aimed at proving feasibility of obtaining an exemption for the discharge to the Colorado River of radioactive materials in liquid effluent. (If this course is not possible at an early date, acknowledgment of receipt of the URC request, immediately, is recommended since the licensee seems duly concerned over the possibility that DLR may not be in receipt of same).

The licensee will be scheduled for a reinspection, following completion of correspondence between DLR and themselves, in accordance with the policy set forth in the Inspection Guide.

## Enclosure:

Inspection Report (4 cys)   
Uranium Reduction Company

CC: W. B. Carlson, GJ w/1 cy rpt  
Frank K. Pittman, DRD w/o encl

