

RIO ALGOM CORPORATION

Lisbon Mine

LaSal Route
MOAB, UTAH 84532

Phone: (801) 259-5904

EA-80-53
Recd 11/3/80

October 28, 1980

Mr. Victor Stello, Jr., Director
Office of Inspection and Enforcement
United States Nuclear Regulatory
Commission
Washington, D.C. 20555

Re: License No. SUA-1119; EA-80-53; Response to
Notice of Violation to Rio Algom Corporation
Dated October 8, 1980

Dear Mr. Stello:

Enclosed are Responses to Notice of Violation for the license violations cited by your office in your October 8, 1980 letter to me. For convenience, we have numbered each of our responses with the same number used by you for each alleged violation. Each of our responses will admit or deny the alleged violation and, where admitted, will include a description of remedial action taken and mitigating factors, if any, that we believe merit a reduction in the amount of the proposed penalty. In addition, even in those cases where we have denied a violation of the terms of our license, we have provided a description of steps that have been taken to make it easier to audit our performance, both internally and externally, and to insure that full compliance is, in fact, occurring.

We would like to point out several statements in your October 8, 1980 letter which we feel are incorrect. The statements to which we object are these which appear in paragraphs one and two of your letter and which state that the 1980 inspection included three items of repeat noncompliance from 1979 and that the 1979 inspections also included several items of repeat noncompliance. We believe that a careful examination of those inspections shows that we have not been remiss in taking remedial action in past years and that only one possible item of repeat noncompliance is valid. To the extent these statements were the basis for recommending the number or amount of the proposed penalties, the proposed penalties should be reduced.

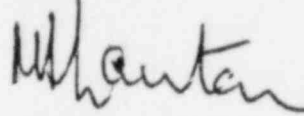
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Mr. Victor Stello, Jr.
October 28, 1980
Page Two

Also enclosed is a copy of our proposed Paycheck Memo No. 25. We will be distributing this memorandum to our employees in order to correct the inaccurate statements made in our Paycheck Memo No. 17 which were pointed out by you in your October 8, 1980 letter.

The enclosed responses were prepared by my staff and myself in conjunction with our attorneys, Parsons, Behle & Latimer of Salt Lake City, Utah. If you have any questions about these materials, please contact Stephen J. Hull of that firm at (801) 532-1234.

Very truly yours,

A handwritten signature in dark ink, appearing to read "M. Lawton", written over the typed name.

Mervyn D. Lawton
President and Mine Manager

MDL:cn
Enclosure
cc: J. Gordon Littlejohn
Stanley Kerr

INTER-OFFICE MEMORANDUM

File No. _____

To: All Employees
 From: J. T. Burnett, Radiation Safety Officer
 Subject: Paycheck Memo No. 25 - AIRBORNE RADIATION EXPOSURE

Date: October 17, 1980

There are two areas of the mill where one is more likely to encounter high exposures.

In the crusher area, we find dust with a grade approximately that of the ore being crushed and at the dryer, the dust may contain as much U_3O_8 as the average grade of the uranium concentrate.

If the dust level in the crusher was found to be as high as 44 milligrams per cubic meter, it could be bad in terms of airborne radioactivity and silica entering the lungs. Our measurements, however, show the level to be less than one tenth of 44. Even this quantity can be reduced if the provided respirator is used.

When the dust concentration in the dryer area gets above even one or two milligrams per cubic meter, it could be too high because of airborne uranium oxide particles.

It is essential that we are able to keep a steady check on the exposures that people receive in these areas. Evaluation of personal air samplers and the general air samples combined with the time spent in different areas is important.

It is essential to have a team effort, involving the men, management, and the NRC. It is our responsibility to see that these evaluations are made but we cannot make them if the designated men in these two areas don't wear their air samplers or don't book their times correctly. We can all make a mistake, but we must try to minimize these. If, perchance, the technician does not issue your air sampler, we want you to make a point of collecting one.

The NRC, too, has a part to play. They visit us each year and examine our operation with a fine-tooth comb and point out where we fall short of our commitments, or make mistakes.

A short while ago, they told us that our air samples at the dryer were too low in comparison to check samples that they had taken. We were confident that we were right and we gave a lot of erroneous information in Paycheck Memo 17 when we indicated that they were wrong. It was we who were wrong. This is the strength of the system of having the NRC checks and inspections. We must work together to improve our operations and should welcome them as part of the team.

The error we had made was in the calculation. When the calculation was corrected for all the period of time that the error had been made, it was seen that the exposures of the men in the area were still well below the prescribed limits. Our second error was to believe that we are always right and the other man wrong.

LET US MAKE SURE THAT WE LEARN FROM OUR MISTAKES!

RESPONSE TO NOTICE OF VIOLATIONS

Rio Algom Corporation

License No. SUA-1119

EA-80-53

1. a. Response: Denied.

b. Reason for Response: Rio Algom Corporation has performed the required evaluations. 10 CFR § 20.201 requires only that each licensee "make or cause to be made such surveys as may be necessary for him to comply with the regulations of this part." "Surveys" do not include a prescribed format but simply necessitate:

an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.

Rio Algom Corporation has had and continues to have a monitoring program in place which meets the standards of this provision and insures that no individuals exceed the exposure limits of 10 CFR § 20.103.

Rio Algom Corporation's program consists of measurements of airborne materials and personal monitoring which, when coupled with knowledge of the period of exposure of individuals to the various areas of operations, insures that permissible airborne exposure levels are not exceeded.

c. Mitigating Circumstances and Request for Reduction in Penalties: In the event Rio Algom Corporation's denial of this violation does not result in a dismissal of the violation, Rio Algom Corporation respectfully requests that this violation be

reduced from an infraction to a deficiency and that the proposed penalty be reduced accordingly. The violation involved in this instance is one of recordkeeping rather than of a threat to health or safety and, as such, should be classified as a deficiency rather than an infraction.

d. Corrective Measures: While Rio Algom Corporation denies that a violation occurred in this case, certain additional reporting and recordkeeping measures have been instituted to facilitate compliance monitoring and auditing. These measures were instituted on July 15, 1980, and include the requirement that all employees account for their in-plant time on an area-by-area basis so that documentation of exposure will be improved. Because each employee is paid on the basis of the time shown on these timecards, an accurate accounting of area-by-area exposure will be available which can be coupled with air monitoring evaluations to document worker exposure for response and audit purposes.

2. a. Response: Denied.

b. Reason for Response: Rio Algom Corporation has instituted the necessary controls. 10 CFR § 20.103(b) requires that:

(b)(1) The licensee shall, as a precautionary procedure, use process or other engineering controls to the extent practicable, to limit concentrations of radioactive materials in air to levels below those which delimit an airborne radioactivity area as defined in § 20.203(d)(1)(ii).

(2) When it is impracticable to apply process or other engineering controls to limit concentrations of radioactive material in air below those defined in § 20.203(d)(1)(ii), other precautionary procedures, such as increased surveillance, limitation of working times, or provision of respiratory protective equipment, shall be used to maintain intake of radioactive material by any individual within any period of seven consecutive days as far below that intake of radioactive material which would result from

inhalation of such material for 40 hours at the uniform concentrations specified in Appendix B, Table 1, Column 1 as is reasonably achievable. .

Rio Algom Corporation has a demonstrated history of continuing engineering improvements designed to limit the concentration of radioactive materials in the air in its only two airborne radioactivity areas. Engineering controls that have been implemented include:

(i) Crusher Building Controls:

- (A) Replacement of grate floors with steel sheet floors to reduce movement of dust and generation of airborne material;
- (B) Installation of an additional dust collector;
- (C) Installation of additional skirting around belts and transfer points;
- (D) Modification of the No. 2 dust collector from a shaker system to a pulse jet system;
- (E) Installation of a pan feeder system in place of an arc gate schute for feeding stockpiled ore into the system; and
- (F) Enclosure of the shaker screen.

(ii) Mill Building Controls:

- (A) Replacement of grate floors with steel sheet floors to reduce movement of dust and generation of airborne material;
- (B) Installation of a Hoffman dust collector system to permit the vacuuming of the structure rather than more dust generative types of cleaning; and
- (C) Investigating the feasibility of increasing air flow through the dryer enclosure exhaust system into the Sly dust collector (currently in progress).

In addition to these engineering controls, Rio Algom has instituted the following administrative controls:

(i) Crusher Building Controls:

(A) Washing down of areas prone to collection of dust at specified intervals;

(B) Limitation of working time in airborne radioactivity area; and

(C) Use of special respiratory equipment and special clothing for jobs, such as maintenance, for which limited exposure times are not practical.

(ii) Mill Building Controls:

(A) Washing down of areas prone to collection of dust at specified intervals;

(B) Use of a bell-warning system to evacuate the airborne radioactivity area whenever operation of dust collection facilities is interrupted; and

(C) Provision to each operator with responsibilities in the airborne radioactivity area of a personal Rascal positive ventilation respirator helmet.

c. Mitigating Circumstances and Request for Reduction of Penalties: In the event Rio Algom Corporation's denial of this violation does not result in dismissal of this violation, Rio Algom Corporation respectfully requests that the penalty be eliminated based upon the demonstration of implementation of engineering and administrative controls as outlined above. In addition, Rio Algom Corporation would like to point out that part of the basis for this violation is the assertion that "engineering controls had not been instituted or considered for airborne radioactivity areas . . . since January 1, 1979." The facts simply do not support this allegation. Several of the controls discussed above

have been implemented since that date. Indeed, at the time of the 1980 inspection, installation of the Hoffman dust collector system was actually in progress and the Sly dust collector engineering study was underway.

d. Corrective Measures: Rio Algom Corporation will continue to implement practicable engineering controls on an ongoing basis and will continue to exercise administrative control where engineering controls are not practicable or until practicable controls can be implemented.

3. a. Response: Admitted.

b. Reason for Response: Due to a reorganization of the corporation, the environmental personnel previously responsible for this audit became unavailable and the audit was not performed.

c. Mitigating Circumstances and Request for Reduction of Penalty: None.

d. Corrective Measures: Rio Algom Corporation is currently actively attempting to employ a new Radiation Safety Officer who will be stationed at the Lisbon Mine and Mill site and will be qualified to perform the required audits. Rio Algom Corporation has, as yet, been unable to employ a suitably qualified person and has even solicited recommendations for such a person from NRC personnel.

Until a new Radiation Safety Officer with adequate credentials can be employed to perform these audits, Rio Algom Corporation will employ a qualified consultant to perform this task. Dr. Noel Savignac of Albuquerque has been employed for this purpose and his initial audit will commence on October 30 or 31 of this year. The audit will be conducted at least semi-annually thereafter.

4. a. Response: Admitted.

b. Reason for Response: None.

c. Mitigating Factors and Request for Reduction in Penalties: While Rio Algom Corporation admits the violation, several mitigating factors are present that warrant a reduction in the amount of the proposed penalty. First, while Rio Algom Corporation's records indicate that personal air samplers were not worn on 22 days in a four month period, the 22 days were on isolated and random occasions. The deficiency was discovered internally and corrected and thus does not evidence a continuing pattern. The nature of the occurrence of this violation and the fact that other monitoring indicates that no particular potentially dangerous events occurred during this period leads to the conclusion that no threat to worker health or safety resulted from this violation. Second, while safety records cannot completely correlate the violations with plant operating records, on nine normal work days during this period the dryer did not operate and on 18 normal work days during this period the crusher did not operate. On those days, no personal air samplers were issued to affected personnel because operating conditions were not normal.

Dust control system discharge volumes were, in fact measured only on a monthly basis. These measurements show that the dust control system was operating normally throughout the period in questions and that the failure to make every other measurement did not result in increased worker exposure to airborne contamination.

d. Corrective Measures: An additional technician has been trained to provide back-up assurance for the personal air sampling program. The use of a second technician will improve day to day quality control for this program and insure that distribution of samplers is not missed because the technician is not at

work on a particular day. This was a weak point in the old system. In addition, each employee involved has been instructed that obtaining an air sampler is also the employee's personal responsibility and that the employee must not work in these designated areas without an air sampler. We have been in full compliance in this area since April 1980 and continue in full compliance.

The in-house calendar system for periodic inspections has been corrected to show that dust control discharge volumes are to be determined twice per month. The importance of performing a continuous audit of compliance with the inspection calendar has been re-emphasized with the mill superintendent.

All of these corrective measures have been implemented and are currently in effect. In addition, one of the primary responsibilities of our new Radiation Safety Officer will be to continuously monitor and audit all of these systems to insure full license compliance and eliminate these sorts of oversights.

5. a. Response: Admitted.

b. Reason for Response: None.

c. Mitigating Circumstances and Request for Reduction in Penalty: The failure to sample one area of the plant was an isolated incident which occurred in July 1979 when a back-up technician incorrectly interpreted the periodic inspection calendar. Other aspects of compliance monitoring, including the use of personal air samplers, showed that no extraordinary air contamination levels occurred during this period. The omission was discovered internally the following month by supervisory personnel. It was, of course, then impossible to correct the deficiency. Because of the isolated nature of this incident and the fact that procedures were corrected internally rather than as a result of an NRC audit, Rio Algom Corporation requests that the penalty for this deficiency be eliminated.

d. Corrective Action: Rio Algom Corporation has corrected this deficiency and been in full compliance with this condition since August 1979. In addition, the periodic inspection calendar has been revised and two additional technicians have been trained in this area to insure that similar oversights do not occur in the future.

6. a. Response: Admitted.

b. Reason for Response: None.

c. Mitigating Circumstances and Request for Reduction of Penalties: These various omissions with respect to environmental monitoring represent deficiencies which present no specific threat to human health or the environment because of the numerous back-up and cross-checks which occur in environmental monitoring and because of the nature of the omissions. For example, while NUREG-0046 requires an analysis for iron in the treatment plant discharge, EPA has recently dropped this analysis from those required under the corporation's NPDES permit.

Similarly, although the ventilation shaft discharge was not monitored for nitrates and total alpha activity, the treatment plant discharge, which includes ventilation shaft water, was measured for those constituents. At the time NUREG-0046 was prepared, ventilation shaft water was not sent to the treatment plant and independent analyses were, therefore, necessary. The ventilation shaft water now goes to the treatment plant rather than being discharged directly and, as a result, requires no independent environmental monitoring. Rio Algom Corporation requested an amendment to its license to reflect these changes and paid a \$3500 amendment fee in 1978 in order to obtain, among other things, relief from the redundant testing requirements. As of this date, NRC has not acted on the request.

d. Corrective Measures: The periodic inspection calendar has been revised to insure that all required analyses are performed on the designated schedule. In addition, personnel involved in these evaluations have been counselled as to the necessity of careful and complete compliance with every aspect of environmental monitoring until such time as NRC deletes a requirement or a license amendment is granted.

Compliance for the various deficiencies noted in this violation was obtained on different dates and full compliance in this area has been achieved as of October 1980.

7. a. Response: Admitted.

b. Reason for Response: Not Applicable.

c. Mitigating Factors and Request for Reduction of Penalty: The concentrate storage area is some distance from the mill. No workers spend an appreciable amount of time in the storage area, and certainly no workers spend enough time in the area to obtain an exposure of 100 milligrams in any five consecutive days. The measured perimeter dose in this area is 3 millirems/hour, which is well within the definitional limit of five millirems/hour maximum dosage. Although it is mathematically possible to be exposed to more than 100 millirems in five days at this level, a worker would have to spend more than six hours per day in the storage area in order to be so exposed, an extremely remote possibility. Rio Algom Corporation views this deficiency as being of a very technical nature and therefore requests that no penalty be assessed.

d. Corrective Measures: Full compliance with this license provision was achieved by July 15, 1980. Signs were posted and the concentrate storage area was redesigned so that drums cannot be placed within six feet of the perimeter fence.

The measured perimeter dose has been reduced from 3 millirems/hour to 0.5 millirems/hour as a result of this action.

8. a. Response: Admitted.
b. Reason for Response: None.
c. Mitigating Circumstances and Request for Reduction of Penalty: Contrary to the language used in the Notice of Violation, the airborne radiation areas in the Mill and Crusher Buildings were conspicuously posted. The deficiency was that three of the many entrances to these buildings did not have signs currently posted. Prior to the 1980 inspection, all entrances had been posted. Apparently, however, when certain of the doors to these buildings were replaced, new signs were not attached to the replacement doors. Rio Algom Corporation requests that the proposed penalty be eliminated.

d. Corrective Action: The unposted entrances were posted and all existing signs were inspected and cleaned as of July 15, 1980. In addition, we have revised the manner of posting so that all existing and all new signs will be posted next to entrances rather than on entrances so that replacement of a door will not result in having an unposted entrance.

A requirement that all signs be inspected and cleaned monthly has been added to the periodic inspection calendar.

9. a. Response: Denied.
b. Reason for Response: By letter dated September 1, 1977, NRC requested that Rio Algom Corporation report stack releases of radium-226 and thorium-230. Our license simply requires measurement and does not formally require reporting. Although the required measurements were made, they were not reported to NRC in a timely fashion. Rio Algom Corporation does not believe that this failure to honor NRC's request can be classed as a deficiency.

c. Mitigating Factors and Request for Reduction of Penalty: None.

d. Corrective Action: The periodic inspection calendar has been revised to show that these items must be reported to NRC semi-annually. All past data was reported to NRC in July 1980 and full compliance has now been achieved.

10. a. Response: Admitted.

b. Reason for Response: None.

c. Mitigating Circumstances and Request for Reduction of Penalty: Rio Algom Corporation has objected to the imposition of across-the-board annual whole body counts since inception of the requirement and continues to question the validity and benefit of this costly examination.

Reply No. 3 in the August 6, 1976 supplement requires only that in vivo analyses be performed on "affected" persons. Rio Algom Corporation has caused such analyses to be performed when factors suggest that a person may be "affected", i.e. when external factors indicate a need for such an analysis. The corporation has implemented a program whereby, in addition to area and personal air monitoring techniques, a urinalysis is performed on each dryer operator twice per month and on each other mill worker once per month. At any point a value of 15 ug/l is detected, resampling is performed. At any time a reading of 30 ug/l is obtained, the affected worker is removed from the job where exposure occurred and is required to undergo an in vivo bioassay. In the single case where a urinalysis of more than 30 ug/l has been found, the in vivo count proved negative.

On June 22, 1978, NRC notified Rio Algom Corporation of its intent to amend the corporation's license to formalize the bioassay requirement and to include new urinary and in vivo requirements.

Rio Algom responded to that notice with an alternative program which would limit use of the in vivo analysis. To date, no response has been made to Rio Algom Corporation's proposed alternative program and the amendments proposed by NRC are therefore not in effect. On the basis of these circumstances, Rio Algom Corporation requests that the penalty be eliminated.

d. Corrective Action: In order to alleviate any concerns surrounding the above described procedures, we have instituted an annual in vivo bioassay on all dryer workers whether or not circumstances indicate the employees are "affected" and an in vivo assay is indicated. The program has been implemented with the first group of workers being evaluated on October 20, 1980.

11. a. Response: Denied.

b. Reason for Response: License Condition 23 requires that:

The licensee shall minimize the dusting of dried tailings, as necessary, by the installation of a sprinkler system, chemical stabilization, covering with soil, or other equivalent means.

Rio Algom Corporation has implemented all of the engineering controls described in the license requirement with the exception of addition of a soil covering which is impractical on an active tailings pond. In addition, operating controls have been implemented to further prevent dusting.

Tailings pond water levels are monitored and kept at the maximum possible level so as to keep the maximum area of tailings wet. Beach areas are kept moist by depositing tailings slurry in an end-line discharge operation. The point of discharge is changed to keep moisture levels high in all exposed areas.

As was mentioned above, the techniques suggested in the license have been implemented. Sprinklers are used to wet beach

areas and dry areas of tailings are sprayed with Coherex, a stabilizing agent. Inspections by NRC in 1978 and 1979 showed that various of these control systems were in use and no inadequacies or deficiencies were reported by the inspectors.

In spite of these techniques, on the final day of the 1980 inspections, a very large "twister" developed about a quarter of a mile from the site and traversed the tailings pond. The twister intrained quantities of fine white sodium sulfate and sodium carbonate crystals that accumulate on the beach surface, resulting in the citation.

Rio Algom Corporation believes that it has taken reasonable measures to "minimize" the dusting of tailings. Vegetation sampling around the tailings areas has shown marked reduction in dusting following the implementation of control techniques. The license requirement does not read and cannot be read to mean that dusting must be controlled in every conceivable environmental circumstance, such as that encountered on the day of inspection.

Because all practical measures to control dusting have been taken and an effective program is in place, the violation is denied.

c. Mitigating Circumstances and Request for Reduction of Penalty: None.

d. Corrective Action: None.