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UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

In the Matter of

MINES DEVELOPMENT, INC.

) Source Material License No. R-174  
) Docket No. 40-1341  
)

BRIEF OF AEC STAFF IN REPLY TO EXCEPTIONS FILED  
BY THE LICENSEE TO THE INTERMEDIATE DECISION

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Dated: December 21, 1960

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DATED DECEMBER 16, 1960.

Introduction

1. This brief is submitted by the AEC staff in reply to the exceptions filed by Mines Development, Inc., hereinafter referred to as the licensee, to the Intermediate Decision of the Presiding Officer, Samuel W. Jensch, Esquire, issued on November 25, 1960. The hearing in this matter was conducted pursuant to a Notice of Hearing issued on November 30, 1960. The following issues were specified:

- (1). Whether the Respondent, in violation of Section 20.201 (b), 10 CFR 20 failed to conduct surveys in mill areas which are occupied by employees to determine the concentrations of airborne radioactivity.
- (2). Whether the Respondent, in violation of Section 20.201 (b), 10 CFR 20, failed to conduct adequate surveys in mill areas which are occupied by employees to determine the external radiation levels.
- (3). Whether the Order dated November 2, 1959, directing the Respondent to take certain action with respect to the operation of its mill should be sustained.

2. The licensee filed its answer with a letter dated December 8, 1959, which denied the allegations of fact and alleged affirmative defences. A hearing was held in the matter in Denver, Colorado on May 17-19, 1960.

I.

Counterstatement of the Case

3. The licensee is the holder of Source Material License No. R-174 issued by the Atomic Energy Commission pursuant to "Control of Source Material," 10 Code of Federal Regulations, Part 40 (10 CFR 40). The expiration date of the license is April 1, 1962. The license authorizes the licensee to receive possession of and title to raw and refined source material without limitation as to quantities, from producers, processors, and distributors, licensed by AEC for resale and for processing with raw source material from its own mining operations. The license further authorizes the licensee to transfer and deliver possession of and title to raw and refined source material to any person licensed by the Commission within the limits of his license. The license is made specifically subject to all of the provisions of the Atomic Energy Act of 1954, now or hereafter in effect, and to all rules and regulations of the Commission (Staff's Exhibit 1-6). The licensee operates a uranium mill at Edgemont, South Dakota, and maintains headquarters at 777 Grant Street, Denver, Colorado (S.E. 1-16).

4. The milling operations conducted by the licensee were first inspected by the Commission's Division of Inspection on February 6, 1958, at which time it was discovered that the licensee, inter alia, had made no surveys as required by Section 20.201 (b), "Standards For Protection Against Radiation," 10 CFR 20, to determine whether employees of the Edgemont mill were being exposed to airborne concentrations of uranium or to quantities of external radiation in excess of the limits prescribed by Part 20. Following the inspection these items of noncompliance were orally communicated to responsible officials of the licensee by Dr. Donald I. Walker, the inspector (TR. 135-136). Following the inspection a notice of alleged violation citing these items of noncompliance was sent to the licensee on June 11, 1958, (S.E. 1-10). The licensee replied to the notice of alleged violation by a letter dated June 16, 1958, from its president, Charles S. Leonard, which stated that the licensee was referring the notice to Mr. Allen D. Gray, the Executive Vice-President and General Manager, and asking him to take immediate steps to effect full compliance (S.E. 1-11). Thereafter two letters dated July 1, 1958, and July 7, 1958, respectively, which are otherwise identical, were received from Mr. Gray in response to the notice of alleged violation. These letters note that some sampling of the mill had been done by agencies of the Federal Government and of South Dakota and requested further information with respect to the requirements of Part 20 in uranium mills. In these letters (S.E. 1-12a, 12b.), however, Mr. Gray stated unequivocally that

"However, we do wish to advise of our concern and to state that we recognize our responsibility in connection with this matter and are making a continual effort to fully comply with all requirements." (Emphasis supplied.)

5. On April 13-14, 1959, Dr. Walker again conducted an inspection of the Edgemont mill. On this occasion he found that the licensee still had failed to make any survey to determine the concentrations of airborne uranium to which employees were exposed. He also found that the licensee had failed to make an adequate survey to determine exposure of employees to external radiation. In this area the licensee had only attempted to determine levels of external radiation in parts of the mill by use of survey instruments at three points and film badges during the period of a single week. (TR 137-139). Dr. Walker discussed his findings with responsible officials of the mill on this occasion (TR. 139).

6. Based upon the information obtained during this inspection the Commission issued an Order dated November 2, 1959, in which it cited Mines Development for the following:

- "1. In violation of Section 20.201(b), [the licensee] failed to conduct surveys in mill areas which are occupied by employees to determine the concentrations of airborne radioactivity.
- "2. In violation of Section 20.201(b), [the licensee] failed to conduct adequate surveys in areas which are occupied by employees to determine the external radiation levels." (S.E. 1-15)

7. The Order provided that the licensee must submit complete data concerning the operation of its mill to bring the mill into compliance with Part 20. The text of the Order is set forth in the Staff's Proposed Findings of Fact to which the Commission is respectfully referred. It also comprises Staff's Exhibit 1-15. During the hearing, the staff agreed that as interpreted by the licensee, the breadth of the Order in referring to "deficiencies" was too broad. Accordingly, in its Proposed Findings of Fact (paras. 33 and 34) the staff noted that the scope of the Order there proposed was drawn to limit the terms of the Order to the intended purpose.

8. Upon receipt of the Order of November 2, 1959, the licensee requested a hearing as provided for in the Order. Accordingly, on November 30, 1959, a Notice of Hearing was issued designating the "Specification of Issues" set forth above.

9. The licensee requested a pre-hearing conference which was held on December 28, 1959, (Transcript of Pre-hearing Conference 1-44). At the pre-hearing conference the staff noted that the licensee substantially admitted the facts as found at the time of the inspection of April 13-14, 1959, but that the licensee claimed that "since that April inspection, a very very thorough air sampling program has been undertaken..." (TR. PC 17) and that a film badge survey program "was undertaken in earnest in July of 1959" (TR. PC 18).

10. The staff noted that it was the purpose of the November 2, 1959, order to require the licensee to make proper surveys to determine whether or not employees were being exposed to airborne concentrations of uranium and to quantities of external radiation in excess of the limits prescribed by Part 20. It was stated that if the surveys Mines Development claimed to have conducted were adequate, there might well be no issue between the parties to litigate and that an order dismissing the case might be agreed upon. It was suggested that the survey data obtained by Mines Development be submitted for evaluation by the Division of Licensing and Regulation and that if the surveys were found to be adequate there would be no issue to litigate between the parties under the November 2, 1959, order. The licensee agreed to this course of action (TR. PC 5-9).

11. At the pre-hearing conference the staff pointed out that the orders issued to the licensee and to the operators of other uranium mills by the Commission to conduct the surveys required by the regulations were the initial step toward getting these mills into full compliance with the Commission's regulations to protect mill employees and the public from excessive exposure to airborne concentrations of radioactive material and external radiation. (TR. PC 30-33).

12. By a letter dated January 12, 1960, (S.E. 1-22) the licensee submitted data relating to airborne concentrations of uranium at the Edgemont mill, surveys for external radiation and urinalysis of selected



of selected employees (S.E. 3-1-7). These data were evaluated by the staff and a letter to the licensee was sent noting that the following additional information is necessary for a complete evaluation of the air sampling program:

- "1. A detailed description of your air sampling equipment and methods including the air pump and accessories, air filter type and size, standard procedures for drawing general and breathing zone samples, and methods of relating employee exposure for a 40-hour work week to sampling results from each job or operation performed.
- "2. A description of the step-by-step procedure for analyzing the uranium air samples. Also, indicate the sensitivity of both your fluorophotometer and your analytical procedure.
- "3. The outline of a continuing air sampling program for determining continued employee exposure. Included, should be information concerning the extent and frequency of air surveys and conditions which will require special surveys." (S.E. 1-24)

The letter also stated that

"It is noted that the data submitted did not provide information necessary to determine the average weekly exposure for those workers who occupy areas where levels exceed maximum permissible concentrations. It is also noted that air samples were not duplicated in respect to location and operation to give more representative information on air concentration. The general air samples were not of adequate duration to average out the extreme variations in air concentrations that normally occur in industrial operations." (S.E. 1-24)

13. In response to this letter the licensee submitted a letter containing additional data relating to its analytical procedures and air sampling equipment. However, the licensee stated an understanding that "nowhere in the pertinent regulations is a licensee required to determine a future program relating to employee exposure and in effect



to warrant its performance" (S.E. 1-24). The letter also stated that the "Edgemont office has just completed a most extensive further air sampling survey." In an effort to further assist the licensee, Mr. Richard E. Cunningham, of the Division of Licensing and Regulation, was sent to Denver early in February, 1960, to confer with Mr. H. L. Hazen and Mr. John Tippit, the licensee's technical consultant and counsel, respectively (TR. 226-227). After this conference, the licensee, in a letter dated February 19, 1960, took the position that it would not submit data relating to a further survey program for the Edgemont mill (S.E. 1-30).

14. By letter dated March 9, 1960, (S.E. 1-31) the staff advised the licensee that on the basis of the data submitted by the licensee and the data collected by the Commission in its inspections, the staff could only conclude that the samplings conducted by the licensee were in fact inadequate and that on the basis of available information the licensee might be exposing some of its employees to quantities of radiation in excess of the limits prescribed in Part 20. The letter pointed out that the licensee had advised orally that many equipment modifications had been made in the mill and that later surveys showed the mill to be in compliance. The staff noted that unless such data were submitted, together with plans for conducting surveys in the future, there was no alternative but to proceed to hearing. The letter

to the licensee's counsel states:

"As I now understand your position, you feel that irrespective of whether Mines Development, Inc., is in fact conducting adequate surveys to determine if employees of the Edgemont mill are being exposed to quantities of radiation in excess of the limits prescribed . . ., no issue is presented in the case if your company had in fact taken some air samples by November 2, 1959, the date of the issuance of the order." (Emphasis supplied).

When it became apparent that sufficient time for a hearing was not provided by the scheduled date of March 25, 1960, the hearing was continued by order of the Presiding Officer until May 17, 1960.

## II

### Applicable Statutory and Regulatory Provisions

15. The instant case involves the fundamental right of the Atomic Energy Commission to require its licensees to submit information concerning licensed activities. The primary objective of the Order of November 2, 1959, was to require the licensee to submit information from which the staff could ascertain if the issuance of an order to show cause or of license amendment was required. A licensee can be required to furnish such information solely to assist the Commission in determining whether or not amendments to pertinent regulations are needed.

Section 161 of the Atomic Energy Act of 1954, as amended, provides as pertinent:

"In the performance of its functions the Commission is authorized to--

"b. establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may

deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property;

"i. prescribe such regulations or orders as it may deem necessary . . . (3) to govern any activity authorized pursuant to this Act, including standards and restrictions governing the design, location, and operation of facilities used in the conduct of such activity, in order to protect health and to minimize danger to life or property;

"o. delegate to the General Manager or other officers of the Commission any of those functions assigned to it under this Act except those specified in sections 51, 57 a. (3); 81, 102 (with respect to the finding of practical value), 108, 123, 145 b. (with respect to the determination of those persons to whom the Commission may reveal Restricted Data in the national interest), 145 e., and 161 a.;

"p. require by rule, regulation, or order, such reports, and the keeping of such records with respect to, and to provide for such inspections of, activities and studies of types specified in section 31 and of activities under licenses issued pursuant to sections 53, 63, 81, 103, and 104, as may be necessary to effectuate the purposes of this Act, including section 105; and

In implementation of the provision of the Act requiring the submission of reports by licensees the regulation governing source material licenses, "Control of Source Material" (10 CFR 40), in Section 40.30 provides:

"40.30 Reports. Reports, in addition to those called for in licenses, may be required by the Commission from time to time, subject to approval by the Bureau of the Budget in certain cases, with respect to the ownership, possession, extraction, refining, shipment, or other handling of source material after removal from its place of deposit in nature, as the Commission may deem necessary.

The Commission's regulation, "Standards for Protection Against Radiation," 10 CFR 20, contains the following pertinent sections:

"20.101 Exposure of individuals in restricted areas--

"(a)" Exposure to radiation. (1) Except as provided in subparagraph (2) of this paragraph, no licensee shall possess, use, or transfer licensed material in such a manner as to cause any individual in a restricted area to receive in any period of seven consecutive days from radioactive material and other sources of radiation in the licensee's possession a dose in excess of the limits specified in Appendix A of this part.

(2) A licensee may permit an individual in a restricted area to receive a dose in excess of the limits established in subparagraph (1) of this paragraph: Provided, (i) That the dose during any period of 7 consecutive days does not exceed three times the limits specified in Appendix A of this part, and (ii) that the dose during any period of 13 consecutive weeks does not exceed 10 times the limits specified in Appendix A of this part.

(b) No licensee shall possess, use or transfer licensed material

in such a manner as to cause any individual in a restricted area to be exposed to airborne radioactive material possessed by the licensee in an average concentration in excess of the limits specified in Appendix B, Table I, of this part.

The limits given in Appendix B, Table I of this part, are based upon exposure to the concentrations specified for forty hours in any period of seven consecutive days. In any such period where the number of hours of exposure is less than forty, the limits specified in the table may be increased proportionately. In any such period, where the number of hours of exposure is greater than forty, the limits specified in the table shall be decreased proportionately. 1/

"20.103 Concentrations in effluents to unrestricted areas--

"(b)" Except as authorized by the Commission pursuant to §20.302 or paragraph (a) of this section, no licensee shall possess, use, or transfer licensed material in such a manner as to release into air or water in any unrestricted area any concentration of radioactive material in excess of the limits specified in Appendix B, Table II of this part. For purposes of this paragraph, concentrations may be averaged over periods not greater than one year.

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1/ Appendix B, Table I, provides that the permissible concentrations in air for natural uranium is  $5 \times 10^{-11}$  microcuries per milliliter (uc/ml).

"(c)" For purposes of this section, determinations as to the concentration of radioactive material shall be made with respect to the point where such material leaves the restricted area. Where the radioactive material leaves the restricted area in a stack, tube, or pipe, or similar conduit, the determination may be made with respect to the point where the material leaves such conduit. 2/

"20.201 Surveys-- (a) As used in the regulations in this part, "survey" means 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.

(b) Each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part.

"20.202 Personnel monitoring--(a) Each licensee shall supply appropriate personnel monitoring equipment to, and shall require the use of such equipment by:

(1) Each individual who enters a restricted area under such circumstances that he receives, or is likely to receive, a dose in excess of 25 percent of the limits specified in Appendix A of this part;" 3/

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2/ Appendix B, Table 2, provides that the permissible concentration in water for natural uranium is  $7 \times 10^{-6}$  uc/ml.

3/ Appendix A provides as applicable here that 25 percent of the permissible weekly dose is 75 millirem. (mr)

III

The Facts Relating to the Licensee's Violations of the  
Commission's Regulations in Failing to Conduct Surveys to  
Determine the Exposure of Employees to Airborne Concentrations  
Of Radioactive Material and External Radiation

16. The facts adduced at the hearing from both testimony and documentary evidence disclosed the history of the licensee's failure to comply with the requirements of the regulations with respect to conducting surveys to determine exposure of employees to airborne concentrations of radioactive material and external radiation.

17. Operations at the licensee's mill at Edgemont commenced in April, 1956 under license from the Commission. Shortly thereafter, the requirements of the Commission's regulation, "Standards for Protection Against Radiation" were published in Federal Register as a proposed rule and a copy sent to the licensee (S.E. 1-7). Mr. Gray, who as the licensee's executive vice-president and later president represented the licensee's responsible management from 1956 to the present, testified that the licensee recognized the importance of controlling exposure to airborne concentrations of radioactive material and external radiation at the mill in its earliest management and staff meetings (TR. 497, 518-519) (S.E. 1-12).

However, even after Part 20 became an effective regulation in February, 1957, the licensee made no effort to conduct surveys to determine the exposure of its employees to airborne concentrations of radioactive material and to external radiation as required by Sections 20.201, to CFR 20. The attitude of the licensee is expressed in Mr. Gray's words, "In those days we seemed to be less concerned with radiation than with silicosis" and "certainly at that time there were



far more pressing problems than radiation taking our attention and time." (TR. 519).

18. It may be noted that in 1956, representatives of the South Dakota State Department of Health, the Public Health Service, and the Atomic Energy Commission made a general study of dust conditions in the mill. The samples taken were only "grab samples" which "could only approximate simultaneous conditions." No attempt was made to relate the sample results to exposure of employees. However, the study provided the basis for 11 specific recommendations to the licensee for the modification of procedures and equipment to reduce dust badings. When Mr. Donald Kurvink of the South Dakota State Department of Health again looked into dust conditions at the mill in 1959, he found that the licensee had filed to make many of recommended modifications. No explanation for the failure to comply with the recommendations was offered by the licensee in the hearing.

19. On February 6, 1958, Dr. Donald I. Walker, conducted the first inspection of the Edgemont mill. He discovered that the licensee had made no surveys whatsoever to determine the exposure of employees to airborne concentration of radioactive material or to external radiation. He testified that at that time he discussed these violations, and others, with responsible management at the mill.

Thereafter the licensee was given an opportunity to achieve compliance by correcting these violations. On June 11, 1958, a

notice of violation pursuant to Section 2.201, 10 CFR 2, was sent to the licensee (S.E. 1-10). In the letters sent in reply to the notice, the licensee did express its own difficulty in interpreting Part 20. However, the licensee in these replies (S.E. 1-12a and 12b) stated that it "has been concerned with radioactivity and related problems for some time" and indicated it had undertaken programs to correct the violations. As noted above the letters specified:

"However, we do wish to advise of our concern and to state that we recognize our responsibility in connection with this matter and are making a continual effort to fully comply with all requirements."

In the light of these representations the Division of Licensing and Regulation notified the licensee that it appeared that appropriate action was being taken to correct the deficiencies.

20. However, with respect to surveying to determine exposures of employees to airborne concentrations of radioactive material and to external radiation, the statements in the letters as to survey programs which had been undertaken and as to the effort the licensee was making were not correct. On cross-examination, the licensee's witnesses Mr. Hazen and Mr. Gray testified that the licensee had no survey program in effect when these letters were written in July, 1958. The licensee did not even order an air sampling device until August, 1958, the month after the notice of violation was received.

Even after the device which the licensee had selected, a Gast air sampler, was received, it could not be put into working order by the licensee, although Mr. Hazen testified that it was a simple device and that he could have made an air sampling device himself.

The fact is that the licensee did not put any "survey program" to determine exposures to airborne concentrations of radioactive material into effect until August, 1959, over a year after the representations were made and subsequent to the second inspection. Not even test samples were made until April, 1959. The licensee's attitude toward compliance is further demonstrated by its attempt to dismiss the failure to take air samples with the Gast air sampler as "comedy". (TR. 607, 608).

21. With respect to surveys for external radiation exposure, the record shows that the licensee had no program in effect at the time the letters replying to the notice of violation were written and that prior to September, 1958, had made no attempt at one.

Dr. Walker returned to the Edgemont mill for a second inspection on April 13-14, 1959. At this time he found that the licensee had not conducted any survey whatsoever with respect to determining exposure to airborne concentrations of radioactive material and had made only a cursory attempt to survey for exposures to external radiation. Having given the licensee the opportunity to correct these violations as provided in Section 2.201, 10 CFR 2, the Order dated November 2, 1959, was issued. It directed the licensee to take prompt steps to bring the mill into compliance with the Commission's requirements for conducting surveys.

22. At the time of the pre-hearing conference, it was believed that the need for a hearing might be avoided because the licensee by that time claimed that it had established an adequate survey program. However, the evaluation of the data submitted pursuant to the pre-hearing conference agreement disclosed that the licensee's surveys were not adequate. The deficiencies in the survey data concerning exposure to airborne concentrations of radioactive material which were submitted prior to and during the hearing show that, considered in units or collectively, the data gathered by the licensee do not reflect an adequate survey to determine conditions in the mill regarding the exposure of employees.

23. The licensee's position throughout its brief with respect to airborne concentrations of radioactivity, rests on a false premise. It states, at page 4 of the brief, that since it made an adequate survey before the time of the hearing it had not violated Section 20.201 in failing to determine the exposure of employees to airborne concentrations of uranium. It concludes from this assumption that there is no basis for the order requested by the staff and granted in substance in the Intermediate Decision. The premise is false. The evidence adduced at the hearing proved, as the Presiding Officer found, that the licensee had never conducted an adequate survey with respect to airborne concentrations of uranium. It may be noted that the licensee's brief at page 40 is misleading as to the adequacy of the air samplings it had

conducted. It implies that Dr. Silverman agreed at page 453 of the transcript that the licensee had conducted an adequate survey. Actually, the quotation in the brief is taken out of context. Dr. Silverman was referring to licensee's Exhibit No. 4 which was a record of samples taken just prior to the hearing for a part of the month of April, 1960. Dr. Silverman went on to testify that this exhibit was not adequate because it did not relate the exposure of employees to quantities of airborne uranium in excess of mpc. In his testimony, Dr. Silverman gave other reasons why licensee's Exhibit 4 did not constitute an adequate survey for even the short period it covered. (TR. 453-458).

24. The licensee's brief also ignores the fact that the licensee's survey data contained in other exhibits were not accurate.

In view of the licensee's contention, the manner in which the licensee presented most of its survey data should be explained. The staff had requested the licensee to produce any data it had for evaluation prior to the hearing in addition to that contained in Staff's Exhibit 3 which had been submitted after the pre-hearing conference. As noted above, the licensee refused to do so "under compulsion of a hearing". At the hearing, however, the licensee began to introduce new data never before seen by the staff, thus requiring on-the-spot evaluation. At the close of the second day's hearing, the Staff again requested Mines to produce any additional data it intended to introduce to permit staff evaluation as to their adequacy, having noted that it would be necessary for Dr. Silverman to leave early on the third day. In response the licensee presented its "two remaining exhibits", Licensee's Exhibits

4 and 5. (TR 443-445). On the following day Dr. Silverman presented his evaluation of Licensee's Exhibit 4. Licensee's Exhibit 5 consisted of press clippings which were not received in evidence. Despite its representations of the previous day, the licensee on cross-examination presented Dr. Silverman with three new sets of data which had never been theretofore produced. (L.E. 6, 7 and 8). Even after Dr. Silverman's departure other data in possession by the licensee was introduced in evidence as Licensee Exhibit No. 9.

25. After examining Licensee's Exhibit 6, 7 and 8, Dr. Silverman stated his further review had revealed an additional deficiency in the survey represented by Exhibit No. 3. He stated that it was now clear that the "weighted exposures" contained in Exhibit 3 extended over as much as a five-month period and that, since no explanation was given to show that conditions were the same throughout that period, that such data did not reflect valid "weighted exposures" (TR. 487-488).

Licensee's Exhibits 6, 7 and 8 reflect that they are only general air samples taken respectively in yellow-cake enclosure, in the vicinity of the barrel jolter in the yellow-cake enclosure, and near the third deck filter press. Dr. Silverman noted that all samples called for an integration of results over a longer period than he would consider representative (TR. 491).

Finally, Dr. Silverman concluded that all of the data submitted by Mines Development, each in relation to the other which he had examined, did not comprise an adequate survey of the Edgemont mill



to determine existing conditions with respect to exposure of employees. (TR. 492). Licensee's Exhibit 9 was evaluated by Mr. Cunningham. It is an exhibit which provides data only with respect to levels of radioactive material in various areas of the mill and does not in any way relate such data to occupancy of employees. Mr. Cunningham noted that the exhibit did not relate exposure to people and stated that he had had no chance to reorganize these data or determine whether or not they were repeated in the same location to lend some statistical reliability to the results. He noted that some data contained in Licensee's Exhibit 9 were used to derive the "weighted exposures" contained in Licensee's Exhibit 3. However, he observed that some samples above mpc listed in Licensee's Exhibit No. 9 were not included in the tabulation of data to show the exposure to which the three men were exposed in Licensee's Exhibit 3. He pointed out that there was no explanation as to why such samples were not included (TR. 696-697).

In consideration of the licensee's statement that the data contained in Licensee's Exhibit 3 reflected surveys of the only areas in the mill above mpc, Mr. Cunningham noted that several samples above mpc were obtained in areas of the mill other than those in the three areas represented by Licensee's Exhibit 3. (TR. 698).

26. Further information relating to the errors in the licensee's survey procedures noted by Mr. Cunningham in connection with Licensee's Exhibits 3 and 9 were the subject of cross-examination of Mr. Hazen. Mr. Hazen testified that Licensee's Exhibit 3 was supposed to represent surveys of the only areas of the mill which were above mpc. These



areas were the sample preparation room, crusher plant, and the yellow-cake area (TR. 637). He stated that the selection of these three areas was based on data contained in Licensee's Exhibit 9. On cross-examination Mr. Hazen admitted that several samples contained in Licensee's Exhibit 9, which were obtained in other areas of the mill than the three specified, exceeded mpc. Hence, the licensee's claim that only the sample room, crusher plant, and yellow-cake area were above mpc is not established. (TR. 634, 644).

Mr. Hazen also admitted that some of the samples which exceeded mpc contained in Licensee's Exhibit 9 should have been included in the "weighted exposure" contained in Licensee's Exhibit No. 3, but were not. He also stated that he could not tell from Licensee's Exhibit 3 or 9 whether or not some other samples should have been included in the "weighted exposures" or not (TR. 644-647). Hence, it must be concluded that the accuracy of Licensee's Exhibit 3 was not established. Complete discussion of the deficiencies in the licensee's survey data is contained in the "Staff's Proposed Findings of Fact and Conclusions of Law" at pages 26-33, to which the Commission is respectfully referred.

27. It is submitted that with respect to complying with the requirements to determine the exposure of people to airborne concentrations of radioactive material the Presiding Officer properly found that:

"It is concluded, therefore, that all of the data of air

sampling submitted by Mines did not comprise an adequate survey of the Edgemont mill to determine existing conditions with respect to exposure of employees. None of the data compiled by Mines with respect to airborne concentrations of radioactive materials to which Mines' employees have been exposed constitute an adequate survey of conditions required by Part 20 of the Commission regulations." (Intermediate Decision - p. 19).

It may also be noted that during the hearing Mr. Gray attempted to suggest that the report containing "survey data" concerning weighted exposures represented by Licensee's Exhibit 3 was "typical" of others prepared by the licensee. (TR. 408). On cross-examination, Mr. Hazen stated that Mr. Gray was wrong and that no other occupancy studies had been made, although another such study had been ordered (TR. 689).

28. In referring to the evidence concerning the exposure of employees to external radiation the licensee's brief at pages 9 and 10 is misleading. The brief implies that the testimony of Dr. Walker shows that no men were overexposed and hence no future surveys need be made. This is not correct. The licensee's brief overlooks the fact that two exhibits are involved on this point. The exhibit which was the subject of Dr. Walker's testimony at page 295 of the transcript relates to a limited study of the mill conducted by the AEC. (TR. 290 et seq). The evidence which shows that two of the licensee's employees received more than 75 mr per week comes from the licensee's own data. (S.E. 3-6). As was brought out during the cross-examination of the licensee's witness, Mr. Hazen, the film badge reports on the licensee's

employees, Gilke and McKnight, reflect that they had received in excess of 75 mr per week. (TR. 673, 683). Mr. Cunningham testified for the staff on this point. (TR 223-224). Pursuant to Section 20.202, 10 CFR 20, these men and others engaged in the same work would be required to continue wearing film badges.

The licensee's brief also ignores the testimony of the staff's experts who testified that the results of the three month film badge program conducted by the licensee do not permit the licensee could cease making surveys for external radiation. He noted that radiation conditions in uranium mills are not static and that as conditions change the exposure of people must necessarily be re-evaluated by further surveys. (TR. 224).

29. Cross-examination of the licensee's President shows that the licensee between 1956 and 1959 may have frequently considered taking action to conduct surveys to determine the exposure of employees to airborne concentrations of radioactivity, but was indifferent to actually beginning work. As the Presiding Officer, succinctly found in the Intermediate Decision at page 15:

"Mines' President stated that the problem of exposure of people to airborne concentrations of uranium at the Edgemont mill was discussed at nearly every meeting of the Company's management group, beginning in 1956 when the Edgemont mill went into operation. In addition, certain Mines' staff meetings considered the problem from 1957

and thereafter at some 30 occasions. Despite these discussions and considerations, no comprehensive survey program was initiated until 1959, which bespeaks little for either Company initiative or responsibility in this regard."

30. In addition to the indifference of the licensee toward actually complying with the regulations, a major factor in the licensee's failure to conduct adequate surveys appears to have resulted from lack of technical competence to survey and control airborne concentrations of radioactive material. None of the licensee's employees at the Edgemont mill understood the workings of the Gast air sampler. Mr. Gray, who complained at length that he did not understand Part 20, was shown to have no technical background in the field of industrial hygiene. He did not purport to be technically qualified in the field of radiation safety. (TR. 495-496, 578).

While Mr. Hazen might be qualified as a metallurgical engineer, he did not appear expert in the field of industrial hygiene and ventilation. He testified that he had designed another uranium mill which used a "dust suppression system" as a means of controlling dust. When asked if this system had been more effective in suppressing dust than the system at the Edgemont mill, he replied, "It was terrible." (TR. 694). He testified that he personally had never conducted a survey to determine airborne concentrations of uranium (TR. 654,662). He testified he did not consider himself an expert with respect to effect on the health of employees exposed to airborne concentrations of radioactivity. (TR. 656).

Finally, as shown above, the survey data compiled by the licensee contained errors both in the failure to include relevant samples above mpc in occupancy study data and in determining which areas of the mill were below mpc (L.E. 3,9).

31. It was shown by the testimony of the staff's witnesses that the procedures for determining airborne concentration of dust to which individuals are exposed has become standardized over the ~~past~~ 25 years. It seems clear from the record that the licensee could have instituted an adequate survey program at any time it chose, simply by obtaining the services of a qualified consultant in industrial hygiene. Moreover, the Commission sponsored publications "Winchester 114" (S.E.2) and "HASL-40" (L.E.2) detail procedures for conducting such surveys. These volumes were obtained by the licensee early in 1959.

It seems clear that the licensee should have acquired the technical competence to set up an adequate survey program and should have done so years ago. From the evidence adduced at the hearing it seems apparent that the licensee does not have individuals on its staff who are qualified to develop and carry out an adequate radiation safety program with respect to the Edgemont mill. The staff assumes that if the Commission sustains the Intermediate Decision, the licensee will retain the services of appropriately qualified individuals either as regular employees or as consultants who are capable of assisting the licensee to carry out the provisions of the Order set forth in the Intermediate Decision. However, if the information required to be submitted under the provisions of that Order does not demonstrate that the licensee possesses the necessary technical competence, the Staff

may move, pursuant to paragraph "II" of the Order for a further Order from the Hearing Examiner to the licensee requiring, as a condition of further operation, that it obtain the services of individuals who are qualified to carry out an adequate radiation safety program.

IV

The Proposed Order

32. The purpose of the requirements contained in Section I.A. 1 of the proposed order is readily apparent. It is necessary that the AEC be advised of the procedures the licensee has instituted and will institute to determine (1) whether or not employees are exposed to excessive concentrations of airborne radioactivity and external radiation, and (2) whether or not the licensee is discharging airborne and liquid effluents to unrestricted areas in excess of the permissible limits in Part 20. The proposed findings present complete details concerning the licensee's failure to comply with the survey requirements of Part 20 to determine the exposure of employees to airborne concentrations of radioactive materials. The data collected by the licensee, between the beginning of its "survey program" in August, 1959, and through the date of the hearing, was shown by the expert testimony of the staff's witnesses to be inadequate and in some instances erroneous. With respect to surveying for exposure to external radiation, the film badge program instituted by the licensee was adequate to determine the exposure of employees for the particular period of time it was conducted. However, two reasons were presented at the hearing which demonstrate that the licensee



must continue surveying to determine exposures of employees to external radiation. First, it was shown that radiation levels in uranium mills do not remain static. Accordingly, the survey program must be continued to assure that changing conditions do not result in increased exposure of personnel. Secondly, it was shown from the licensee's own survey data that two employees received exposures to external radiation in excess of 75 mr per week. Pursuant to Section 20.202, 10 CFR 20, these individuals and any other employees whose occupations indicate that they are likely to receive such exposure, must continue to wear film badges.

33. In view of the errors made by the licensee in compiling the data presented at the hearing and in drawing conclusions therefrom, the staff is fully justified in requiring the licensee to detail its procedures concerning future "surveys" to determine whether or not liquid effluents discharged from the mill do not exceed the permissible limits specified in Part 20. It also appears that the licensee has never made surveys to determine whether or not airborne effluents from the mill released to unrestricted areas exceed the permissible limits of Part 20.

34. The purpose of the requirement (Section I.A.2) relating to the instruction program for employees again is obvious. Protective equipment or devices in the plant would be of no value unless the

employees understood their purpose and used them. It is also necessary that the employees be instructed in good housekeeping procedures in order to minimize dust loadings.

35. Equally important is the establishment of an effective supervisory program (Section I.A.3), to assure that radiation safety procedures at the Edgemont mill are followed, and that safety equipment at the mill performs satisfactorily under all conditions.

36. The purpose of the requirement of the proposed order (Section I.B.1) to submit data relating to the responsible management of the licensee and as to the technical qualifications of the licensee's employees at the Edgemont mill who are responsible for radiation safety was the subject of testimony by Mr. Cunningham. The staff's purpose is to determine whether or not the licensee has established a program whereby management will see to it that radiation safety is in fact practiced in the mill. An additional purpose is to obtain the identities of the officers in the licensee's organization who are directly responsible for enforcing radiation safety at each level of operation.

37. Requiring the submission of data (Section I.B.2) as to the technical qualifications of individuals at the mill who are directly responsible for carrying out and enforcing safety is obvious. It must be shown that the licensee employes personnel at the Edgemont

mill who understand how to make surveys and correctly analyze the results and have sufficient capabilities to understand problems in radiation safety which may arise in uranium milling operations.

38. The importance of the requirement that the Commission be advised of the licensee's program for conducting surveys in the future (Section I.C.) also is obvious. Section 20.201, 10 CFR 20, of the Commission's regulations require that surveys necessary to determine compliance with the regulations be made. The record amply demonstrates the need for conducting continuing surveys in order to determine the effect the seasonal, meteorological, and ore quality changes on dust loadings in uranium mills. In the instant case the need for an adequate and continuing survey program is even more patent. The licensee has demonstrated that as of the date of the hearing it still was unable to conduct an adequate survey to determine the exposure of employees to airborne concentrations of radioactivity. This fact, together with the licensee's history of failure to comply with the Commission's regulations respecting surveys, demand that the licensee provide the AEC with a clear statement of the radiation safety program which will govern its future operations.

39. Section I.C. of the Order contained in the Intermediate Decision requires the licensee to submit a report of the data developed or disclosed by the program instituted by the licensee pursuant to Section I.A., which shall include an identification of areas of the mill or its environs for which surveys were conducted. The first report is to be submitted within sixty days after the Order becomes effective and subsequent reports are to be filed monthly thereafter until the license is terminated or upon application of the licensee the Order is modified or rescinded.

40. In its proposed "Findings of Fact and Conclusions of Law" the staff requested a more comprehensive order in Section I.C. The staff's proposed order would require the licensee to submit with its reports the following additional information:

- "a. Identification of each area of the mill or its environs where it appears that employees may be exposed to airborne concentrations of radioactive material or to external radiation in excess of the limits specified in Part 20 or where airborne or liquid effluents are discharged in concentrations in excess of the limits of Part 20. Such monthly reports shall be filed not later than the 10th day

of each subsequent month. Such monthly reports shall be filed until the license is terminated or until, upon application of the licensee to the Commission, this Order is modified or rescinded.

- b. A detailed description of plans to correct conditions identified in Item 2.
- c. A statement of the effectiveness of planned corrections set forth in previous reports."

41. In the Intermediate Decision the Presiding Officer stated that he would not grant this portion of the Order because

"A licensee can be required to present all data available to it concerned with its operations and required by Commission regulations, but such data is primarily limited to existing facts. A future program of operation respecting radiation control and procedures can likewise be required as an indication of permitted, when approved, operations under the existing license, but a licensee cannot be compelled to classify its conduct as derelictions or deficiencies. The Commission may determine that deficiencies do exist, based upon data supplied to it by the licensee or the Commission's Staff, but this licensee's performance respecting past operations is limited to a statement of facts. The authorities cited by Mines in its argument amply support its contention that proof of a violation in one regard cannot be made the basis of a direction to a licensee to classify any of its conduct, nor to submit a general agreement to forever comply with all provisions of regulations under penalty for future violations."

42. The staff believes that the AEC has full authority to require the licensee to submit the information as would have been required by the staff's proposed order. Certainly the licensee must comply with the requirements of the regulations.

The staff's proposed order would simply have required the licensee to identify the areas of the mill where the airborne concentrations of radioactive material or external radiation exceed the limits prescribed in Part 20 and where the effluent discharge exceeds permissible limits. The licensee's plans for reducing the levels or for assuring that persons who are not exposed to such excessive limits would be reported. Subsequently, the licensee would report upon the effectiveness of such plans after they had been carried out. It is stressed that this portion of the staff's proposed order would have imposed nothing upon the licensee not already required by the Commission regulations, other than reporting the matters directly to the AEC.

43. The Presiding Officer's ruling has the effect of requiring the staff to determine from the data submitted whether an additional notice or order should be issued to the licensee if it appears that the licensee's program is not bringing the mill operations into compliance with the Commission's regulations. Inasmuch as the occupancy studies which the licensee must necessarily make in any area

above mpc with respect to airborne concentrations of radioactive material, we believe that the procedure would not be unworkable in this particular case. However, the procedure may cause some delay in achieving necessary corrective action since the licensee will not be required to submit its plans for such action with the report indicating possible overexposure.

44. Section 2 of the order provides for the reopening of the hearing in the event the parties disagree as to the adequacy of the licensee's program.

It is the staff's purpose to bring the operations of the Edgemont mill into full compliance with the Commission's regulations within the shortest reasonable time. In the event the licensee obtains services of an expert in industrial hygiene, it seems clear that a satisfactory program can be quickly prepared and put into effect in which case it would seem unlikely that many major disagreements would exist. However, it must be considered that the licensee may present an inadequate program and contend that it meets all requirements. Accordingly, the staff believes that the order issued in this case should contain provisions for the speedy reopening of the case to determine whether the actions taken by the licensee are reasonable in the circumstances.

45. In its brief the licensee contends that the staff seeks



an order merely "to confirm that licensees can be forced by a governmental agency to do that which they were willing to do voluntarily" (p. 18; emphasis supplied).

This argument ignores two basic points. In seeking the privilege of an AEC license to operate its uranium mill, the licensee accepted the responsibility of complying with the Commission's regulations. It is indeed generous of the licensee now to agree to observe the regulations to which it has been subject for several years.

Secondly, the licensee's history of failing to comply with the Commission's regulations, as detailed above, fully supports the need for the Order in this case.

Furthermore, the Order would require the licensee to report information to the Commission as specifically authorized by Section 161 o. of the Act and Section 40.29, 10 CFR 40. It is submitted that under Section 161 o. of the Act the Commission may require a licensee to report data relating to activities under its license whether or not predicated upon any violation, if the information is reasonably needed by the Commission to carry out its regulatory responsibilities. The Commission has authority to require its licensees to submit information to assist it in deciding whether additions or modifications are needed in regulations or in

particular licenses. It is the function of the Commission to prevent hazards to health and safety and, accordingly, it must have authority to compel the submission of such information prior to the occurrence of some accident or violation by a licensee.

V.

Sufficiency Of Notice To the Licensee

46. The licensee contends that the licensee was not given adequate notice of the issues in the instant proceeding. In substance its argument rests on the two points with respect to airborne concentrations of radioactive material that (1) the term "survey" as used in the Notice of Hearing is not clear and (2) the violations alleged in the Notice of Hearing were limited to whether or not the licensee had failed "to determine the concentrations of airborne radioactivity".

47. The Notice of Hearing uses the word "survey" exactly as it is used in the regulations. Section 20.201(a) clearly defines the meaning of "survey". It provides:

"20.201 Surveys--(a) As used in the regulations in this part, "survey" means 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."

Section 20.201(b) then sets forth the requirement of what surveys

must be made "(b) Each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part".

With respect to surveying for airborne concentrations of radioactive material in restricted areas, Section 20.101(b) sets forth the licensee's responsibility. It provides:

"(b) No licensee shall possess, use or transfer licensed material in such a manner as to cause any individual in a restricted area to be exposed to airborne radioactive material possessed by the licensee in an average concentration in excess of the limits specified in Appendix B, Table I, of this part.

"The limits given in Appendix B, Table I of this part, are based upon exposure to the concentrations specified for forty hours in any period of seven consecutive days. In any such period where the number of hours of exposure is less than forty, the limits specified in the table may be increased proportionately. In any such period, where the number of hours of exposure is greater than forty, the limits specified in the table shall be decreased proportionately." <sup>1/</sup>

It is submitted that these regulations clearly define the licensee's responsibility for conducting such surveys.

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<sup>1/</sup> Appendix B, Table 1, provides that the permissible concentrations in air for natural uranium is  $5 \times 10^{-11}$  microcuries per milliliter (uc/ml).

48. Moreover it should be noted that the record reveals that any person "of ordinary intelligence" operating a uranium mill should have understood how to survey to determine airborne concentrations of radioactive material. From the evidence introduced by the staff, the Presiding Officer found that:

"The witness testified that the techniques for surveying to determine the concentrations of hazardous materials in air in milling operations have become fairly standardized over the past 25 years.

He stated that it is now a common practice in the milling industry to make continuing surveys to determine exposure of personnel to airborne concentrations of dust. A third witness, a member of the Licensing staff, testified that there are accepted air sampling procedures which are common knowledge in the field of industrial hygiene". (Intermediate Decision, pp. 7-8).

The Presiding Officer also found that the licensee in fact understood how a survey for airborne concentrations of uranium should be conducted. In referring to Mines' failure to renew the motion made at the hearing for dismissal on the grounds that the Commission's regulations were void for lack of definiteness with respect to "surveys", he stated,

"The evidence by Mines, through its consultant, showed a familiarity with the scope, character and frequency of the requirements of a survey, and apparently thereby resolved the problem for Mines". (Intermediate Decision, p.6).

49. The licensee claims inadequate notice because it conceives the violations alleged in the Notice of Hearing as limited to whether or not the licensee had failed "to determine the concentrations of

airborne radioactivity". The licensee apparently contends that the issue does not relate to its failure to ascertain whether or not employees had been exposed to concentrations of airborne radioactivity in excess of the maximum permissible limits specified in Part 20.

An examination of the complete wording of this issue in the Notice of Hearing reveals the fallacy of the licensee's contention. It reads:

"1. Whether the Respondent, in violation of Section 20.201(b), 10 CFR 20 failed to conduct surveys in mill areas which are occupied by employees to determine the concentrations of airborne radioactivity." (Emphasis supplied)

The reference to Section 20.201(b) clearly sets forth the issue that the licensee had failed to evaluate the exposure of personnel to airborne uranium dust in the mill.

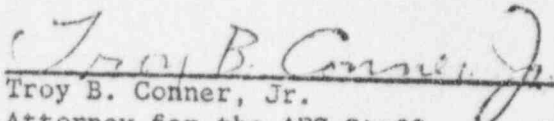
50. Assuming arguendo that the allegation was defective on this point it clearly was cured by the subsequent events in the proceeding. The pre-hearing conference, and the correspondence following it (S.E. 1-22,23,24,25,26,30 and 31) fully notified the licensee of the issues in this case and did so very specifically with respect to the requirement that the exposure of personnel to concentrations of airborne radioactivity in excess of mpc must be evaluated. As the Presiding Officer held, "reliable authority has held that such specification or evaluation of the issues in the pre-hearing conference overcomes any indefiniteness in the statement of issues". (Intermediate Decision, p. 5, n.6).

In any event the licensee, at the hearing after discussion of procedures in the case, agreed that the licensee was prepared to go forward with the proceeding and thus waived any irregularity which may have existed in the Notice of Hearing. (TR. 46-47).

Conclusion

For the foregoing reasons the Intermediate Decision of the Presiding Officer should be sustained.

Respectfully submitted,

  
Troy B. Conner, Jr.  
Attorney for the AEC Staff

Dated at Germantown, Maryland  
this 21st day of December, 1960

CERTIFICATE OF SERVICE

I hereby certify that two copies of the staff's "Brief of AEC Staff In Reply to Exceptions Filed by the Licensee To The Intermediate Decision" in the matter of Mines Development, Inc., Docket No. 40-1341, were mailed by me to John Tippit, Esquire, Denver Club Building, Denver 2, Colorado, this 21st day of December, 1960.

/s/ Troy B. Conner, Jr.  
Troy B. Conner, Jr.  
Attorney for the AEC Staff