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JUL 1 8 1976

Mr. Cleon B. Feight, Director Division of Oil, Gas, and Mining Department of Natural Resources 1588 West North Temple Salt Lake City, Utah 84116

Dear Mr. Feight:

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This refers to your letter of June 28, 1976 to Mr. Ross Scarano of my staff regarding the Atlas Corporation uranium mill at Moab, Utah. Your letter concerned requirements for eventual reclamation of the site and mill tailings and subsequent monitoring and maintenance.

We had been made aware of the discussions between your division and the Atlas Corporation by a recent letter from a Mr. Dolan, counsel representing the firm, who described the proposed arrangement essentially as you have in your letter. Your copy of our response to Mr. Dolan is enclosed. As indicated in our letter to Mr. Dolan, we find the reclamation plan acceptable with certain noted conditions.

As also noted in our letter to Nr. Dolan, the Nuclear Regulatory Commission (NRC) is initiating the preparation of a generic environmental impact statement (GEIS) on uranium milling. It is anticipated that completion of this effort will require approximately two years. We will, of course, be in contact with your Division as we progress in preparation of the GEIS to obtain your comments and recommendations. As stated in the letter to Mr. Dolan, NRC renewal licensing actions during this period will be subject to express conditions that waste generating processes and mill tailings management practices may be subject to revision as a result of the GEIS and any related rule making.

We understand that you also have been in contact with Rio Algom Corporation regarding its Humeca Uranium Mill. An agreement with your Division on the surety bond, as described in our Final Environmental Impact Statement which you have reviewed, would enable us to complete the licensing action for the 'Ho Algom mill. Accordingly, we have requested management of Rio Algom to proceed with the neostiations.with your Division as rapidly as possible. If we can be of any further assistance in this regard, please let us know.

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We are prepared to work closely with the State of Utah through your Division in these matters regarding reclamation plans and related requirements for these uranium milling operations. Please contact me if you have any questions. My telephone number is 301-492-7427.

Sincerely,

L. C. Rouse, Chief Fuel Processing & Fabrication Branch Division of Fuel Cycle and Material Safety

Enclosure: As stated

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UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555 JUL 1 5 1976

Davis, Graham & Stubbs ATTN: Mr. Brian T. Dolan Colorado National Building 950 Seventeenth Street Denver, Colorado 80202

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Dear Mr. Dolan:

Thank you for your letter of June 3, 1976, regarding a proposed agreement between the Division of Oil, Gas and Mining, State of Utah and Atlas Corporation.

It is our opinion that such an agreement dealing with mill tailings stabilization and maintenance is very appropriate. Our approval would be subject to our acceptance of the stabilization plan and the reservation noted below. An acceptable stabilization plan would be Alternative III, as described in the August 15, 1975 report by Dames and Moore, with the following conditions (also see enclosed letter, Energy Research and Development Administration to the Nuclear Regulatory Commission, dated November 11, 1975):

- Burial of 4 to 5 feet of coarse beach material may not be enough to provide a firm surface for the cover material. The depth of soft slime in the Atlas tailings pond should be measured, and tests made to determine the quantity of sands that must be mixed with it to provide a firm material which will support a surface cover.
- A demonstration program should be performed during the operating lifetime of the plant to develop a suitable revegetation method utilizing some of the existing berm areas.

As you are probably aware, a notice was published in the Federal Register on June 3, 1976 (41 FR 22430, copy enclosed) that the Nuclear Regulatory Commission (NRC) will prepare a generic environmental impact statement (GEIS) on uranium milling operations. This notice states that any renewal licensing action, such as for the Atlas mill, will be subject to express conditions that mill tailings management practices may be subject to revision in accordance with the conclusions of the final GEIS and any related rule making. As also stated in the FR notice, a full environmental impact statement (EIS) will be prepared by NRC for each renewal licensing action during the period that the GEIS is being prepared. In this regard, we will be in contact with Atlas Minerals as we proceed with the environmental statement for the Atlas mill. However, an early agreement between Atlas and the Division of Oil, Gas and Mining, State of Utah, would resolve one of the important aspects of the EIS for the Atlas mill renewal. Please keep us informed of progress in this area.

Sincerely,

A.C. Kouse

L. C. Rouse, Chief Fuel Processing & Fabrication Branch Division of Fuel Cycle and Material Safety

Enclosures: As stated

cc: William P. Badger General Superintendent Atlas Minerals Corp.

> Cleon B. Feight, Director V Division of Oil, Gas & Mining State of Utah



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UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION WASHINGTON, D.C. 20545

NOV 1 1 1975

Richard B. Chitwood, Chief Fuel Cycle Environmental Projects Branch Division of Fuel Cycle and Material Safety Nuclear Regulatory Commission Washington, D.C. 20555

Dear Mr. Chitwood:

RECEIVED NOVIS 975

This refers to your letter of October 28, 1975, Docket No. <u>40-3453</u>, requesting comments on a supplemental environmental report by Atlas Corporation on plans for the stabilization of the mill tailings pile at Moab, Utah, when the mill is eventually decommissioned.

In the joint ERDA-EPA study of inactive mill sites in the Western States, we are finding it necessary to address several problems in addition to the surface stabilization of the tailings pile itself. As part of the development of a plan, it is necessary to determine the extent to which lands in the vicinity of the mill have been contaminated over the years by blown ore and tailings dust. In all cases we have found substantial contamination of the ground surface, some of it on land controlled by the mill operator, and some on land he does not own or control. Provisions should be made to decontaminate these areas to as low as practicable levels. A copy of the criteria being used in the Phase II Engineering Study is enclosed. This set of criteria calls for cleanup in the event residual gamma levels exceed 10 µR/hr above background. However, it may be modified in the future depending on Phase II findings. A gamma mapping of the general area of the mill should be performed in connection with the application for license renewal to determine the area of contamination and probable cost of cleanup. The affected area probably will not change very much during the remaining life of the operation.

The mill site itself is a source of future radiation problems. Ground contamination in ore stockpiling areas from ore residues and in the vicinity of the ore processing buildings from mill solutions may be extensive, and limit future use of the site. Past experience has been that the mill sites are attractive locations for other activities, particularly if any structures remain. The ground may be radio-



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Richard B. Chitwood

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actively contaminated to a considerable depth, and consequently may result in unacceptable levels of radon daughters in any structures remaining or subsequently built on the site.

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A study of the hydrology of the entire site should be made to determine the potential for ground water contamination from Ra-226 or any other pollutants leaching from the tailings or contaminated areas. EPA has just published guidelines and standards which will require uranium mills to impound all process water. This may require Atlas to build additional solution ponds in which radioactive sludges will accumulate. How are these ponds to be handled in decommissioning the mill?

In the description of the tailings the report contains the statement in the Second Supplement, Section 2 that the tailings area now contains about 7 million tons, and 4.5-5 million will be added. In the Third Supplement, Section 2 it is stated that the tailings area contains 3 million tons of tailings, and about 4 million tons will be added. The discrepancy could have an effect on the calculation of the cost of stabilization. The Grand Junction Office advises me that just over 7 million tons of ore have been processed to date.

On page 3-4 of the Second Supplement it is stated that about 45 acres are occupied by the evaporation pond, underlain by fines and will require burial by 4 to 5 feet of coarse beach material. Our own experience at Monticello was that this pond section remained quite fluid, and the cover material sank into it. Consequently 4 or 5 feet of cover were required over about 18 feet of slimes in the pond to provide a firm surface. The depth of soft slime in the Atlas tailings pond should be measured, and tests made to determine the quantity of sands that must be mixed | with it to provide a firm material which will support a surface cover of whatever type is decided upon. Since the final height of the Atlas tailings dam is to be around 100 feet compared to 18 at Monticello, the proposed amount of cover may not be adequate.

Atlas Corporation originally employed an acid leach process at this mill, and a substantial amount of ore was acid processed. Subsequently, a carbonate leach flowsheet was adopted which was better suited to the high-limestone content of ores then being treated. Very recently the company has been converting the plant back to an acid leach (see Second Supplement, page 3-8). Richard B. Chitwood



The change in process may be expected to alter completely the nature of the surface of the tailings with respect to soluble salts, and most of the analyses that have been made of tailings surface samples to determine requirements for treatment before revegetation probably are not applicable.

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Dames and Moore recommends against continued irrigation to establish vegetation (Ibid, page 3-8), then states it would be required (Ibid, page 3-13). In view of the many uncertainties in the process of revegetation, and its uncertainties as found by others, it would be reasonable to ask Atlas to undertake a demonstration program on some of the berm areas aimed at developing a suitable revegetation method.

No description is given of the cover material which it is proposed to use over the pile, or of its suitability to prevent surface erosion, or provide a suitable soil for establishing vegetation. One mention is made (Ibid page 3-4) that it is highly basic.

The ground water sample analyses (Third Supplement, Table 2.3) indicate substantial levels of Ra-226, above drinking water standards.

Dames and Moore state that gypsum formation from the acid leach is expected to seal the tailings retention system from ground seepage (Ibid pages 2-3 and 3-1). The mill originally operated on an acid leach process, and Table 2.3 provides evidence of ground water contamination. Recent findings of EPA of Ra-226 in ground water in the Ambrosia Lake, New Mexico, area near tailings piles from both acid and alkaline leach operations indicate that little reliance can be placed on gypsum formation to seal off the tailings.

In view of the segregation of sands from slimes that occurs in the tailings deposition process, the proposed redistribution of sands in the stabilization plans, lack of information on cover materials, etc., the tailings are not a homogeneous material. Therefore, the theoretical calculation of radon emanation rate is of very questionable practical use. At Salt Lake City, radon levels above background are detectable to about 1/2 mile from the mill site with continuous samplers. Therefore, unless a permanent exclusior area can be provided extending a half mile from the tailings, there is reason to consider stabilization methods which will reduce radon emanation rates. ERDA is planning to undertake studies aimed at developing surface coverings or tailing: treatments which will minimize the rate of radon diffusion to the atmosphere. We

Richard B. Chitwood

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want to find an effective cover which is economically practicable to apply. Theoretical calculations indicate that the application of ordinary fill is not effective, and it would take over 20 feet of cover to reduce radon emanation by 95 percent.

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Since there is no practicable radon emanation suppression method known at present, it is important to make provision in licensing actions to be able to require their use if and when they are developed. Atlas has another 15 years of production before the final stabilization work must be carried out. In this time it is to be expected that better methods will be found. Therefore, NRC should make provisions to require the best practicable control technology available at the time to be used.

Of the five alternatives listed for stabilization (Second Supplement page 3-2), Alternative IV must be considered unacceptable as there is no chemical sealant presently known which will provide more than a temporary cover. Alternative I might be an acceptable temporary procedure provided the cover will prevent erosion and the berms are stable. A site visit would be necessary to determine existing slope condition. Alternatives II, III and V provide in creasing likelihood of pile stability. The chemical sealant use in Alternative V would only have merit if it is required to establish vegetation. This should be determined on experimental plots in advance.

The cost of continuing maintenance is given as greater in cost than the original stabilization, and this could well be true. However, no provision is made for inflation over 50 years. This does not appear reasonable.

Since you requested comments by November 14, 1975, I am submitting comments now. However, I have requested the Grand Junction Office to review the reports also, and the Grand Junction staff may have additional comments to make.

I hope the foregoing comments will prove helpful to you.

Sincerely,

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Richard H. Kennedy Technical Assistant to the Assistant Director for Health Protection Division of Operational Safety

Enclosure: As stated

cc: F. E. McGinley, GJO, w/encl.



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(FRM 40-21)

URANIUM MILLING

Intent to Prepare a Generic Environmental Impact Statement

On May 14, 1975, the Nuclear Regulatory Commission (NRC) published in the FEDERAL REGISTER (40 FR 20083) a notice thist a petition for rule making had been filed with the Commission by the Natural Resources Defense Council, Inc.

The petitioners requested the Commission to issue regulations that would (a) require uranitum mill operators licensed by the Commission to post a performance bond that would cover the cost of

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 stabilization and ultimate disposal of uranium mill tailings, and (b) require each Agreement State to require uranium ndll operators licensed by the Agree- ment State to post a similar perform-auce bond.

The petitioners also requested the Commission to proceed immediately with the preparation of a draft programmatic environmental impact statement on the the Commission's uranium milling regulatory program, including that part of the mill licensing program administered by Agreement States, Further, the petitioners requested the Commission to issue or renew no licenses during the time the environmental impact statement is being prepared that would permit a licensee to escape any new regulations promulgated as a result of the requested environmental impact statement.

Interested persons were invited to submit comments on the petition by July 14, 1975. In view of the Interest which was shown in the subject matter of the petition, the comment period was extended to August 28, 1975. Thirty-one responses from varying sources were received within the comment period. (Copies are on file at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C.)

After giving due consideration to the petition, the comments received, and the history of uranium mill tallings management practices, the Commission believes that, from the standpoint of longer range policy, this matter can be profitably examined in a programmatic context. It views the preparation of a generic environmental statement as a suitable vehicle for such an examination.

Accordingly, notice is hereby given that the Nuclear Regulatory Commission (NRC) will prepare a generic environmental impact statement (GEIS) on uranium nulling operations. The purpose of the GEIS will be to assess the environmental impact of uranium milling operations, including the management of uranium mill tailings, and to provide an opportunity for public participation in decisions concerning any proposed changes in NRC regulations or regulatory authority based on this assessment. Information pertinent to the environmental impact from uranium mill operations in both Agreement and non-Agreement States will be included. It is anticlpated that the draft GEIS will be published in approximately two years.

The Commission also has given careful consideration to petitioners' request that licensing actions involving renewal of licenses for existing uranhum mills and the hymnice of licenses for any new mills should be deferred pending completion of the generic environmental impact statement. In considering this matter, the Commission noted that most of the presently operating manium mills licensed by the NRC are subject to renewal licensing action during the contemplated Interim period. The production capacity of the existing uranium mills in both Agreement States and non-Agreement States slightly exceeds the fuel requirements of operating numberr power reactors. However, the full capacity of the existing mills will be required to survey presently operating nuclear power reactors and those expected to begin operation in 1977. Additional uranium milling capacity will be required to support nuclear power reactors now under construction with operational dates of 1978 and beyond. Since approximately two years is required to complete the construction of a mill, new mills expected to begin production in 1978 will require NRC IIcensing action in 1976 and 1977 if a uranium mill short-fall is to be avoided. However, the number of new mills expected during this interim period is small.

In light of the above, a deferral of liconsing actions on new mills or suspension of present milling activities during the interim prior to completion of the GEIS would result in substantial shortnges of necessary domestic uranium fuel for operating nuclear power reactors. The Commission has concluded that there should be no such general deferral during the period required for preparation of the generic statement, and that licensing actions may continue during the interim period subject to certain conditions. In reaching this conclusion, the Commission considered the following specific factors:

(1) It is likely that each individual licensing action of this type would have a utility that is independent of the utility of other licensing actions of this type:

(2) It is not likely that the taking of any particular licensing action of this type during the time frame under consideration would constitute a commitment of resources that would tend to significantly foreclose the alternatives available with respect to any other individual licensing action of this type:

(3) It is likely that any environmental impacts associated with any individual licensing action of this type would be such that they could adequately be addressed within the context of the individual license application without overlooking any cumulative environmental impacts;

(4) It is likely that any technical issues that may arise in the course of a review of an individual license application can be resolved within that context; and

(5) A deferral on licensing actions of this type would result in substantial harm to the public interest as indicated above because of uranhum fuel requirements of operating reactors and reactors now under construction.

During preparation of the GELS, the Commission will continue to review applications for renewal of existing licenses for manium milling and for new unanium milling licenses on a case-by-case basis. These licensing actions during the interim period will be accompanied by individual environmental impact statements tailored to the facts of the case. Since the Commission's general conclusions with respect to the five factors, as set forth above, may not fit the factual circumstances of particular licensing actions, the five factors will be applied. weighed and balanced within the context of these statements in reaching licensing determinations. The NRC will continue its program of assuring that adequate financial security arrangements, through bonding or other feasible methods, are made for the reclamation and stabilization of mill tailings. Any licensing actions that are taken will be subject to express conditions that approved waste generating processes and mill tailings management practices may be subject to revision in accordance with the conclusions of the final OEIS and any related rule making.

The determinations to prepare a generic environmental impact statement and to continue processing related applications in the interim subject to specified criteria are a partial response to the petition of the Natural Resources Defense Council, Inc. Other aspects of the petition, such as regulations covering financial responsibility for uranium mill waste management over the long-term, have not been decided at this time. It is the intention of the Commission that proposed rules be published for public comment no later than the time of publication of the final GEIS. The content of these rules will be developed out of the information derived from the preparation of the GEIS and the conclusions resulting from the assessment of alternatives

Dated at Washington, D.C., this 1st day of June 1976.

For the U.S. Nuclear Regulatory Commission.

SAMUEL J. CHILK, Secretary of the Commission. [FR Doc.76-10287 Filed 6-2-76,9:24 an]