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ACT/037/023

October 15, 1982

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DIVISION OF
OIL, GAS & MINING

Ms. Susan C. Linner
Reclamation Biologist
Division of Oil, Gas & Mining
Department of Natural Resources & Energy
4241 State Office Building
Salt Lake City, Utah 84114

Re: Reclamation/Revegetation Methodology.

Dear Ms. Linner:

Please find enclosed one (1) copy of the document entitled, "Methodology for Reclamation/Revegetation of Uranium Mined Lands in Utah and Colorado", prepared for Atlas Minerals by Morrison-Knudsen Company, Inc. (M-K).

The document presents the results of an extensive and thorough literature and research review conducted by the Environmental/Hydrological Services Department of the Mining Group of M-K. In addition to reviewing and analyzing the available information relevant to Atlas Minerals' mined land reclamation needs, the professionals at M-K have included a proposed categorization of the mine sites, proposed generalized reclamation/revegetation methods with associated cost estimates, and proposed monitoring methods.

This document is being submitted as partial fulfillment of the 'Alternative Revegetation Approach' presented in my May 25, 1982 letter to Mr. James W. Smith, Jr. The document should not be considered as a revision to any existing reclamation plan, but rather as a substitute for results which may have been developed from test plot research. Viewing it in this manner will allow the Division to accept the document as a valuable aid to Atlas Minerals which will assist us in further refining our site-specific reclamation plans in a cooperative manner with the Division.

We are submitting the report with the stipulation presented above because of a conclusion presented by the authors on page 36 which reads, "No apparent correlation was found between chemistry and geologic formation from

which the spoil materials were taken. The tremendous diversity of geologic materials makes it seem unlikely that a particular formation would have uniform properties affecting revegetation".

Assuming the above conclusion to be true and correct, Atlas Minerals is prepared to establish small-scale demonstrations of a few combinations of the suggested methods at one or two mine sites in a manner satisfactory to the Division to be developed with you at your convenience. These demonstrations will allow us to determine if a greater or lesser level of effort will successfully achieve revegetation under field conditions. Further, they will allow us to refine certain points in the suggested methodology and perhaps realize substantial cost savings when we commence implementation of the methodology on numerous sites.

Another factor in our qualified submittal of the enclosed document is that, as you well know, the report is merely M-K's best professional opinion of what it will take to successfully reclaim/revegetate our sites, and not a demonstrated site-specific methodology. There are certain elements of M-K's proposal which we strongly endorse, and there are certain other elements which we question. This may also be the case with the Division after your review.

Some of the areas we think need special consideration are:

- Use of mulch and fertilizer.
- Cost estimates.
- Soil samples.
- Transplanting.
- Steep slopes.
- Seed mixture.

With regard to mulch and fertilizer, we are of the opinion that these methods are not required unless soil and climatic conditions, considered together, truly warrant such costly applications. This opinion appears to be confirmed by existing Atlas Minerals Reclamation Plans previously approved by the Division, and our experience with reclamation success in our exploration program. Additional experience, vis-a-vis the demonstration sites, should provide additional support for this contention.

The cost estimates included in the report, as stated therein, "are based on M-K's experience, however, many factors such as local costs and available labor may vary these estimates substantially". Atlas' experience with local contractors bears this out. Generally, local costs are lower. Therefore, we suggest that these cost estimates be considered, in a very general way, for rough comparisons only.

With regard to soil sampling, Atlas is not in complete agreement with the proposed M-K technique and would like to discuss this further with the Division.

Because of our unfamiliarity with the transplanting technique, we would suggest limiting application of this method to those critical areas mutually agreed upon by Atlas and the Division.

With regard to steep slopes, it should be understood that some angle of repose slopes will not be feasible to recontour. This could even be the preferred angle if the surrounding area is devoid of vegetation. Just as M-K listed those mines (p. 49) which, because of aridity, lack of topsoil, and hot climate, should receive only minimal reclamation efforts, we believe it is reasonable to propose that certain mines, i.e., Cane Creek, Standard II, etc., should be listed as not being feasible to successfully reclaim due to the slope steepness and associated soil conditions. This is alluded to on page 25 of the report.

Finally, with regard to seed mixtures, you are undoubtedly aware that not all the species identified in the seed lists will be available every year. Also, some years certain seeds will be priced unusually high. Additionally, the Division has accepted less diverse seed mixtures on our previously approved reclamation plans. Therefore, we suggest that a substantial degree of flexibility be premitted in developing the various seed mixtures each planting season.

As I have discussed with Mr. Tetting, there is some uncertainty at this time as to which mines may be permanently closed because of the uncertain market conditions. In order to avoid performing reclamation activities at a site which would be redisturbed at a later date, we propose developing the demonstration site on just a portion of a mine site. We have tentatively selected two mines which could be used for this purpose but would prefer to establish the detailed demonstration site with your cooperation after you have reviewed this submittal.

In conclusion, we trust the general guidance presented in the document along with the statements presented above are sufficient to allow the Division to accept our proposal for a generalized and flexible reclamation/vegetation approach which can be applied at each mine on a site-specific basis. Further, we look forward to working closely with you on the demonstrations and whenever there may be uncertainties with regard to specifics at any of the permitted mines being reclaimed.

Lastly, let me assure you once again that Atlas Minerals will fulfill its mandated obligation in this matter. We believe the rules are sufficiently clear and provide reasonable guidelines for satisfying the

reclamation/revegetation requirements. It should not go unsaid, however, that we believe every effort should be made to balance risks and costs in order to arrive at reasonable regulatory requirements and subsequent cost-effectiveness of compliance activities.

Yours Very Truly,

Richard E. Blubaugh

Richard E. Blubaugh
Regulatory Affairs Manager

ENCLOSURE:

CC:
R. R. Weaver w/o
M. A. Drozd w/o
T. L. Wilson w/o
R. J. Broschat w/o
T. N. Tetting, DOG/M w/o

REB/rm