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EXXON COAL AND MINERALS COMPANY

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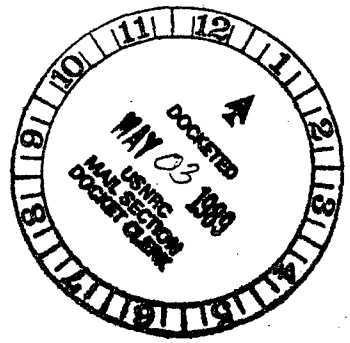
Environmental and Regulatory Affairs Division

JAMES D. PATTON
Manager

May 1, 1989



U.S. Nuclear Regulatory Commission
Region IV
Uranium Recovery Field Office
P. O. Box 25325
Denver, Colorado 80225

Attention: Mr. Edward F. Hawkins

Re: Source Material License SUA-1139 Amendment No. 27, Condition 33

Dear Sir:

This submittal is in response to the requirements of License Condition 33C in Amendment No. 27, and contains our proposed corrective action program. We have analized a wide variety of potentially practicable corrective action programs on a site specific basis. These analyses are described in supporting documents, prepared by Water, Waste & Land, Inc. (WWL), which are being submitted under separate cover.

This work has led to the conclusion that no additional, practicable corrective actions can be recommended for this site which would result in significant additional protection of human health or the environment. Our recommendation is that we continue with the remedial action plan contained in our tailings reclamation program, and that several modifications to our license conditions be made which will serve to increase the protection of human health from any potential hazard discerned.

Our analysis has caused us to revisit, with new perspective, the criteria established in Appendix A to 10 CFR Part 40. We have reviewed the definitions therein, the history of regulatory development, and the Highland Mill licensing history. The built-in flexibility, directed to achieving optimum programs on a site specific, cost considered basis, has encouraged us to propose license amendments which optimally address site specific, potential risks to human health and the environment.

A summary of relevant history seems appropriate. Highland Uranium Operation began milling ore in October 1972. Atomic Energy Commission (AEC) license No. SUA-1139 issued October 5, 1972, authorized this activity. An Environmental Impact Statement (EIS) was issued in 1973. It addressed the expected seepage impacts. Operations were approved with the understanding that seepage would occur, but the impacts would be limited in areal extent in a location with an extremely low population density. The AEC and later the Nuclear Regulatory Commission (NRC) were given regular reports on seepage monitoring results. These were thoroughly reviewed before the NRC renewed the source material license on February 10, 1982. At that time seepage impacts were similar to those now being experienced.

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NRC regulation 10 CFR Part 40 places waste produced by the extraction of uranium from any ore under the definition of By-product Material. EPA Regulation 40 CFR 192, effective December 6, 1983, which was later incorporated by NRC in Appendix A to 10 CFR Part 40 addressed hazardous constituents in groundwater.

In August 1986, the NRC collected samples of tailings fluid and analyzed these for organic and inorganic constituents. License Amendment No. 12 to SUA-1139 issued November 17, 1986, directed Exxon to implement a seepage detection program. The results of this program were submitted to the NRC January 29, 1988. License Amendment No 23 to SUA-1139, issued on June 15, 1988, directed Exxon to implement a detection program for hazardous and non-hazardous seepage constituents. The program results were submitted to NRC December 29, 1988. On February 8, 1989, the NRC issued Amendment No. 27 to SUA-1139 instructing Exxon to implement a compliance monitoring program. This amendment also required Exxon to submit a corrective action program. The program was to return groundwater concentrations of listed materials to concentrations set by the NRC in the license amendment. These were based on background concentrations at one well and Environmental Protection Agency (EPA) drinking water standards (MCLs).

The regulations, designed to apply a zero discharge standard to new licensing situations, call for flexible application to adjust to site specific conditions at older facilities licensed with an acceptable discharge component. Since the original license for Highland was issued after consideration of environmental impacts in a full NEPA review, including issuance of an Environmental Impact Statement by the NRC, it is clear that Highland is the type of site for which this flexibility is intended. In fact, flexibility is required with respect to the Highland site and its license conditions.

The NRC rules changed after by-product material in the form of, or carried by, seepage had already entered an area outside the boundary of the solid tailings within the basin. A wide variety of alternative mitigation plans have been examined. We have concluded they provide no benefit, or very little benefit, for significant costs compared to reclaiming the surface as already planned and allowing geochemical and hydrologic processes to mitigate the seepage impacts. Detailed analysis has found the existing situation will not unfavorably affect any probable point of exposure and the natural processes will fully mitigate the adverse effects of seepage at the current points of compliance and elsewhere. Having considered many possible practicable corrective actions, we carried out a full investigation of alternate concentration limits (ACLs) and other possible routes to satisfy the current law and regulations.

Hydrological and geochemical analysis of the Highland site under multiple corrective scenarios has lead to the conclusion that changing the present plan (which is isolation of tailings and geochemical process treatment to attenuate the hazardous constituents in the seepage impacted groundwater) is neither practicable (as defined in Appendix A) nor beneficial. Review of the Highland site's water quality under past, present and reasonably

expected future conditions, in light of the hazards posed by such water qualities, reveal no substantial present or potential future hazard to human health or the environment. This is not to say that listed hazardous constituents are not present, but that the incremental hazard does not pose a present or future substantial hazard under the Highland site conditions.

It is appropriate to re-emphasize that by-product material was deposited in the tailings basin under a license that recognized the basin would seep. The basin did seep, the by-product material was thus deposited in accord with license conditions outside the lateral extent of the solid tailings in the basin by the time the new regulations calling for groundwater protection from hazardous constituents and calling for government ownership of by-product material as "essential to ensure long standing stability of such disposal site" were made effective. (See Figure 1.1 (WWL, May 1989). The points of compliance should, therefore, be established to conform with the regulatory definitions of a by-product material disposal area at its 1983 boundary rather than at the boundary of the surface reclamation for the tailings basin.

In light of the above summary as supported in the Water, Waste & Land submittal of May 1989 (WWL, 1989), the following are proposed for Commission consideration.

1. It would be appropriate for the Commission to exclude the detected groundwater constituents listed in the license from the set of hazardous constituents for the Highland site on the grounds that, at this site, the listed constituents do not pose a substantial hazard to human health or the environment. (10 CFR Part 40, Appendix A Criterion 5B(3))

2. Alternately, it is proposed that the Commission approve the following ACLs for the Highland site at appropriate points of compliance. Exxon has presented consideration of possible practicable corrective actions illustrating that the present reclamation plan will result in concentrations as low as reasonably achievable and will pose no substantial hazard to human health or the environment at or near the Highland site as summarized in the following table which lists Health and Environmental Limits (HEL), concentrations as low as reasonably achievable (ALARA), and proposed Alternate Concentration Limits (ACL).

Constituent	HEL	ALARA	ACL
Inorganics (units are mg/l)			
Cadmium (Cd)	0.043	0.03	0.03
Chromium (Cr)	1.4	1	1
Lead (Pb)	0.42	0.3	0.3
Nickel (Ni)	1	1.2	1
Selenium (Se)	0.144	0.5	0.144

Constituent	HEL	ALARA	ACL
Radionuclides (units are pCi/l)			
Radium (Ra226)	7.5	8.4	7.5
Radium (Ra228)	7.5	15	7.5
Radium (Ra226/228)	15	23	15
Thorium (Th230)	500	2	2
Uranium (Unat)	2,300	100	100

3. The points of compliance were initially proposed by Exxon based on a faulty perspective of the Disposal Area as defined in 10 CFR Part 40. The regulations adopted in 1983 contemplated new construction of non-seeping tailings basins. Consistent with that objective, it would be logical to set points of compliance at the edge of a new basin in order to detect waste excursions as early as practicable at the down gradient edge of the Disposal Area. Adopting the new site logic, compliance wells were established at Highland near the edge of reclamation of the tailings basin. However, Exxon's early license contemplated leakage and natural attenuation of any contaminates in the TDSS outside the basin. The new rules actually require the entire area used for this by-product disposal to be considered "Disposal Area" rather than just the tailings basin. It is estimated that the seepage plume of by-product material had extended to the line shown on Figure 1.1 of WWL, May 1989, by 1983. On this basis, the current compliance wells are actually inside the perimeter of the Disposal Area. The Commission is requested to set a compliance point at a reasonable point in advance of the seepage front shown in the figure for the application of any compliance standards established above.

4. In light of the above perspective of the actual Disposal Area, it appears appropriate for the Commission to apply Criterion 11 of Appendix A to 10 CFR Part 40 to require isolation of by-product material through government ownership. The proposed boundary shown at Figure 1.1 of WWL, May 1989, is based on our view of the land essential to ensure long term stability of the by-product material disposal site.

5. Based on the small amount of Ra228 in the tailings solids and liquids compared to Ra226 as described in Section 2 of WWL, May 1989, Exxon proposes that Ra228 be removed from the hazardous constituents list.

6. Based on the review of background water quality in Section 2 of WWL, May 1989, Exxon proposes that the background standards in Condition 33(B) of Amendment No. 27 for selenium, uranium, thorium 230 and radium 226 be changed as follows:

Selenium (Se)	0.04 mg/l
Uranium (Unat)	15 pCi/l
Thorium (Th230)	1.3 pCi/l
Radium	
Ra226	8.4 pCi/l
Ra228	3.4 pCi/l
Ra226/228	12 pCi/l

A check in the amount of $150 is attached to cover the license amendment fee. Please feel free to call David M. Range of my staff at (307) 265-7600 if you wish to discuss this submittal.

Sincerely,

JDP/an
Attachment
7265R

c: D. M. Range, Highland
J. A. Rodgers
Water, Waste & Land, Inc.