Uranium Watch

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via electronic mail

November 6, 2020

Ty L. Howard, Director
Division of Waste Management and Radiation Control
Department of Environmental Quality
195 North 1950 West
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RE: Sur-Reply Comments — License Amendment to Radioactive Materials License No. UT 1900479; Amendment of the Groundwater Quality Discharge Permit No. UGW370004; Energy Fuels Resources (USA), Inc., White Mesa Uranium Mill, San Juan County, Utah.

Dear Mr. Howard:

Below please find comments by Uranium Watch (UW) responsive to the Utah Division of Waste Management and Radiation Control (DWMRC, or Division) October 14, 2020, "Notice Regarding Submission of Sur-Reply Comments," related to License Amendment 10 to Radioactive Materials License No. UT 1900479; Energy Fuels Resources (USA), Inc., White Mesa Uranium Mill, San Juan County, Utah.

The Sur-Reply Comments are responsive to Energy Fuels Resources (USA) Inc. (Energy Fuels) September 25, 2020, "Response to Public Comments on the White Mesa Mill Groundwater Discharge Permit and Radioactive Materials License."[1] UW's Comments were submitted to the DWMRC on July 6, 2020.

The Sur-Reply comments include appendices:

Appendix A — Definition of Ore (page 16)
Appendix B — Statutory and Regulatory Background (pages 17-30)

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[1] https://documents.deq.utah.gov/waste-management-and-radiation-control/facilities/energy-fuels-white-mesa/DRC-2020-016684.pdf

In accordance with the DWMRC October 14 Notice, UW will address Energy Fuels' Comments on Uranium Watch Comments 1.2, 1.5, Section 2, and Section 3.4.

1. EFRI Response 3.1 to Uranium Watch General Comment 1.2.

1.1. EFRI Comment (page 72):

> The commenter in incorrect in stating that "The Division is not legally bound by the NRC Guidance7 that Energy Fuels and the Division state is the governing document for the processing of wastes from other mineral processing operations." DWMRC is bound to follow federal law on these questions, which have long been resolved beyond legal dispute. The Division uses the definition of ore developed by the NRC for the regulation of alternate feed materials and for alternate feed guidance documents. See the discussion in Section 1.3 above for a more detailed discussion.

UW Response:

EFRI is responding to UW's claim that "The Division is not legally bound by the NRC Guidance that Energy Fuels and the Division state is the governing document for the processing of wastes from other mineral processing operations" is incorrect. EFRI assumes that the Nuclear Regulatory Commission (NRC) Interim Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores (NRC Guidance)[2] has legal force and effect, which it does not. The NRC Guidance is just guidance. It is not a statute. It is not a federal regulation. Neither the NRC, nor the State of Utah adopted it into their regulations. There were no federal or state rulemaking proceedings. The public did not have an opportunity to provide public comment or challenge the adoption of such a regulation. The NRC has not adopted regulations applicable to "alternate feed materials." There is no Atomic Energy Act of 1954, as amended, statutory or NRC regulatory definition of "alternate feed materials."

The NRC has stated on numerous occasions that NRC guidance documents do not have the legal force and effect of NRC regulation or statute.

EFRI claims that the DWMRC is bound to follow federal law. UW agrees with that statement. The Division does not have the authority to to amend or make fundamental changes to the Atomic Energy Act (AEA) and NRC and Environmental Protection Agency (EPA) regulations applicable to uranium mills and the waste produced by those mills, known as 11e.(2) byproduct material.

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[2] NRC Interim Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores; November 30, 2000. https://www.nrc.gov/reading-rm/doc-collections/gen-comm/reg-issues/2000/ri00023.html

The AEA, as amended by the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), does not sanction the processing of feed materials other than natural ores and the disposal of wastes from such processing at licensed uranium and thorium processing facilities and does give the NRC the broad authority to authorize the processing of feed materials other than natural ores as "ore" and the disposal of wastes from such processing at licensed uranium and thorium processing facilities as "11e.(2) byproduct material."

The Guidance Document creates a retroactive definition of the term "ore." It defines ore as "any other matter from which source material is extracted in a licensed uranium or thorium mill." The "alternate feed" only becomes "ore" after it has been processed in a licensed uranium mill. Prior to that time, most "alternate feed" is licensed by the NRC or an NRC Agreement State, because the uranium and/or thorium content of the feed material fits the AEA and NRC first definition of "source material":

> "*Source Material* means: (1) Uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof. [10 C.F.R. § 40.4.]

If the feed material were a uranium and/or thorium bearing "ore" fitting the second definition of "source material," the material would not have to be licensed under NRC or Agreement State regulations prior to shipment to the White Mesa Mill. The NRC and NRC Agreement States do not regulate "ore" under the AEA. The NRC has never claimed that the new Guidance amended the definition of "source material."

Therefore, the Guidance has created confusion between the definitions of "source material," and created an arbitrary and capricious new definition of a term that has a long history of accepted use and definition.[3]

1.2. EFRI Comment (page 72):

> The commenter is also incorrect in stating that "There is no evidence that the regulations adopted by the NRC governing uranium mills in any manner considered the processing of materials other than natural ores and disposing of the wastes in a uranium mill tailings impoundment when they promulgated the regulations at 10 C.F.R. Part 40,9 specifically Appendix A."
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> In 10 CFR 40 Appendix A, Section V Criterion 13, NRC identifies a full list of constituents from 40 CFR 192 "for which standards must be set and complied with if the constituent is reasonably expected to be in or derived

[3] See Appendix A.

> from the byproduct material and the constituent is material and has been detected in groundwater." In other words, the list demonstrates that NRC groundwater protection regulations applicable to uranium mills contemplated the processing of and disposal of materials containing (per the 40 CFR 192 list):

UW Response:

The Regulations promulgated by the NRC governing uranium mills were promulgated in response to UMTRCA, an amendment to the AEA of 1954, which amended the AEA of 1946. Therefore, consideration of the AEA and the intent of Congress is of primary significance.

> *See*, also, Appendix B.

1.3. EFRI Comment (page 72):

> In 10 CFR 40 Appendix A, Section V Criterion 13, NRC identifies a full list of constituents from 40 CFR 192 "for which standards must be set and complied with if the constituent is reasonably expected to be in or derived from the byproduct material and the constituent is material and has been detected in groundwater." In other words, the list demonstrates that NRC groundwater protection regulations applicable to uranium mills contemplated the processing of and disposal of materials containing (per the 40 CFR 192 list):

UW Response:

EFRI refers to EPA's hazardous constituent list, as adopted by the NRC. However, as fully discussed in Appendix B hereto, when compiling that list and incorporating that list into 40 C.F.R. Part 192, the EPA did not in any manner contemplate the processing of wastes from other mineral extraction operations at the mills for which they were establishing standards. The EPA did not address in any manner effluents that might result from the processing of feed materials other mineral extraction facilities.

In the various EPA and NRC rulemaking proceedings that have taken place in the establishment of the EPA standards, the public was given no opportunity to consider or comment on the possibility that the EPA standards would also apply to the processing of wastes from other mineral processing operations (including commingled soils and waste materials from other sources) at uranium and thorium mills.

It is true that the EPA and the NRC, in establishing their regulatory programs, contemplated the processing of ores at uranium and thorium mills. However, as shown in the discussion in Appendix B hereto, the processing of wastes mineral processing operations at uranium and thorium mills is beyond the scope of the regulatory programs established by the NRC and the EPA in response to UMTRCA.

> Furthermore, 10 C.F.R. Part 40, Appendix A, Criterion 8, states in part:
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> Uranium and thorium byproduct materials must be managed so as to conform to the applicable provisions of Title 40 of the Code of Federal Regulations, Part 440, "Ore Mining and Dressing Point Source Category: Effluent Limitations Guidelines and New Source Performance Standards, Subpart C, Uranium, Radium, and Vanadium Ores Subcategory," as codified on January 1, 1983.

There is no indication that Appendix A and 40 C.F.R. Part 440 have in any manner been amended or altered by subsequent NRC policy guidance, or the use of NRC guidance by the State of Utah. Therefore, any shift in the usage of the word "ore" would conflict with these statutory and regulatory authority with respect to 10 C.F.R. Part 40 and 40 C.F.R. Part 440.

1.4. EFRI Comment (page 73):

> One of the purposes of each alternate feed license amendment is for the DWMRC to evaluate the feed material to ensure that receiving and processing the materials and permanently disposing of the tailings as 11e. (2) byproduct material in the Mill's tailings impoundment does not result in any incremental public health, safety or environmental impacts over and above previously licensed activities. Rather than attempting to perform a generic environmental analysis of alternate feed materials as a category of materials, the alternate feed program more conservatively requires an environmental evaluation applicable to each specific feed material.

UW Response:

There have been several alternate feed license amendment approvals that did not involve an environmental analysis. Further, there has been no analysis of the cumulative impacts associated with the processing and disposal of feed materials that were different both radiologically and chemically from uranium ore on the Colorado Plateau. The mill has been allowed to receive, process, and dispose of materials that normally would have been considered mixed radioactive and hazardous waste. It has washed down large pieces of concrete and asphalt, collected the wash water, and run the wash water—which may or may not have contained any uranium—in the mill circuit. Some of the license amendments authorizing the processing of other mineral processing wastes have been open ended. The amendments do not identify or limit the total amount of materials that will be delivered to the Mill over time.

1.5. EFRI Comment (page 73):

> The commenter is also incorrect in attempting to assign regulatory authority over the definition and management of uranium mill tailings to EPA. Under UMTRCA, the NRC is the implementing Agency relating to

> uranium mills, and as a result its interpretation and application of the term "ore" in the definition of 11e.(2) byproduct material is governing. When reviewing an agency's interpretation of an ambiguous provision in its organic Act, a court will defer to the agency's construction if it is reasonable (Chevron U.S.A. Inc. v. Natural Resources Defense Council, 467 U.S. 837). The EPA is not implementing agency for these purposes, so any definition of ore the EPA may have is not determinative. EPA has no authority to determine what is or is not 11e.(2) byproduct and what can be transferred to uranium tailings impoundments.

UW Response:

The EPA set standards applicable to uranium mills and mill tailings. The applicability of those regulations to materials disposed of in those tailings impoundments is important. There is no legal basis for applying EPA standards in Part 192 to the tailings and wastes from the processing of feed material other than natural ores.

EFRI claims: "When reviewing an agency's interpretation of an ambiguous provision in its organic Act, a court will defer to the agency's construction if it is reasonable." However the definition of "11e.(2) byproduct material in the AEA and NRC and EPA regulation is not at all "ambiguous." The definition clearly states what 11e.(2) byproduct means: "*Byproduct Material* means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes." As discussed in Appendices A and B hereto, "ore," like "water" is a term of common usage, and the Atomic Energy Commission, Nuclear Regulatory Commission, and Environmental Protection Agency have relied on the common usage of that term for decades. "Any ore," means any type of ore, it does not mean anything that EFRI or the State of Utah wants to call "ore." There are many types of uranium and/or thorium ore, with different physical, radiological, and chemical characteristics.

The State of Utah does not have the authority to use a guidance document to fundamentally amend the Atomic Energy Act and NRC and EPA regulatory definitions.

1.6. EFRI Comment (page 74):

> EPA has however had an opportunity to comment on the Alternate Feed Guidance during its development (first draft guidance published on May 13, 1992, final guidance published on September 22, 1995 and current guidance published on November 30, 2000), and has not objected to the application of the Alternate Feed Guidance since its promulgation. EPA's authority with respect to the tailings impoundments pursuant to 40 C.F.R.

UW Response:

This comment is irrelevant. The fact is that the standards developed by the EPA

in 40 C.F.R. Part 192 do not apply to uranium mills that process feed materials other than natural ore. The EPA has never adopted any change to its regulations that apply Part 192 to licensed uranium mill processing operations that receive and process materials other than natural ores. There is no statutory or regulatory basis for applying the EPA standards for licensed uranium mills to the White Mesa Mill processing and disposal of "alternate feed."

1.7. EFRI Comment (page 74)

> Part 61 Subpart W is limited to regulation of radon emissions from tailings impoundments, by requiring compliance with either design criteria or monitoring, depending on the age of the impoundment. As mentioned above, EPA had the opportunity to object to the Alternate Feed Guidance, and therefore the introduction of residuals from alternate feed materials into tailings, but has not objected in 28 years.

UW Response:

EFRI states that 40 CFR Part 61 Subpart W,[4] National Emission Standards for Radon Emissions From Operating Mill Tailings, is limited to regulation of radon emissions from tailings impoundments. Subpart W is broader than that. Subpart W includes a radon emission standard for impoundments constructed prior to December 1989 and requirements for non-conventional impoundments that store liquid effluents. Subpart W also includes tailings impoundment design and operational standards, limits the number of operating impoundments, monitoring and inspection requirements, and record keeping and reporting requirements.

Subpart W, Section 61.250, Designation of facilities, states: "The provisions of this subpart apply to owners or operators of facilities licensed to manage uranium byproduct materials during and following the processing of uranium ores, commonly referred to as uranium mills and their associated tailings." The EPA has never stated that these "uranium ores" include any matter that is processed in a licensed uranium mill for its uranium and/or thorium content. Therefore, this important regulation only applies to mills that process "ore," and does not apply to mills that process feed material other than natural ore.

2. EFRI Response 3.2. to Uranium Watch General Comment 1.5

2.1. EFRI states (page 74):

> The Silmet Materials are not wastes.

UW Response:

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[4] https://www.ecfr.gov/cgi-bin/text-idx?SID=35198746ecf187a73d9498c2a409f7f3&mc=true&node=sp40.10.61.w&rgn=div6

NRC regulations at 10 C.F.R. Part110 apply to the Export and Import of Nuclear Equipment and Material.[5] The Silmet Materials must be imported to the United States if they are to be processed at the White Mesa Mill. Section 110.9a provides a list of nuclear equipment and material under NRC licensing authority.[6] UW believes that the Siilmet Material meets the definition of "radioactive waste" in Section 110.2.[7] The material is a waste product from a mineral processing operation in Estonia. The Silmet company must get rid of this material to comply with applicable Estonian regulations, and there is no appropriate disposal site in Estonia.

Further, under United States regulations, the material meets the first definition of "source material;" that is, "(1) Uranium or thorium, or any combination thereof, in any physical or chemical form." As the material sits in Estonia, it does not meet the second U.S. definition of "source material": "(2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof." The only way to magically transform the Estonian Silmet material into "ore" meeting the second U.S. definition of "source material" would be to import it to the U.S., transport it to the White Mesa Mill, store it at the Mill, and then process it at the Mill. Only after processing to remove the uranium, would the Silmet material, according to NRC guidance, retroactively be transformed into "ore."

3. EFRI Response 3.3., Uranium Watch Comment 2: Modification of License Condition 10.5.

3.1. EFRI states (page 75):

> Cell 3 has enough capacity remaining for several more years of ISR waste disposal at current annual rates. Once all capacity in Cell 3 is used up, the Mill will switch over to disposing of ISR waste in Cell 4A. At that time a request will be submitted to the State of Utah to begin ISR waste disposal into Cell 4A.

UW Response:

EFRI claims: "Once all capacity in Cell 3 is used up, the Mill will switch over to disposing of ISR waste in Cell 4A." However, once all the capacity of Cell 3 is used up, there is no guarantee that Cell 4A will be filled with sufficient solid tailings to provide a stable base for the disposal of in-situ leach (ISL) wastes.

3.2. EFRI provides additional comments on the Modification of License Condition 10.5.

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[5] https://www.nrc.gov/reading-rm/doc-collections/cfr/part110/

[6] https://www.nrc.gov/reading-rm/doc-collections/cfr/part110/part110-0009a.html

[7] https://www.nrc.gov/reading-rm/doc-collections/cfr/part110/part110-0002.html

UW Response:
The other UW Comments regarding Modification of License Condition 10.5 stand as provided in UW July 2020 comments.

4. EFRI Response 3.14., Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.1.

4.1. EFRI states (page 84):

> As stated in the response to multiple comments above, the commenter is incorrect in attempting to assign regulatory authority over the definition and management of uranium mill tailings to EPA. Under UMTRCA, the NRC is the implementing Agency relating to uranium mills, and as a result its interpretation and application of the term "ore" in the definition of 1 le.(2) byproduct material is governing. The EPA is not implementing agency for these purposes, so any definition of ore the EPA may have is not determinative. EPA has no authority to determine what is or is not 1 le.(2) byproduct material and what can be transferred to uranium tailings impoundments.

UW Response:

EFRI errs in asserting that the EPA has no authority over the definition and management of uranium mill tailings. The EPA established "the health and environmental standards to govern stabilization and control of byproduct materials [primarily mill tailings] at licensed commercial uranium and thorium processing sites.[8] According to the EPA Proposed Rule, "These standards were developed pursuant to Section 275 of the Atomic Energy Act (42 U.S.C. 2022) as added by Section 206 of the Uranium Mill Tailings Radiation Control Act of 1978 (Pub. L 95-604)."

The Proposed Rule discusses The Uranium Industry: "The major deposits of high-grade uranium ores in the United States are located in the Colorado Plateau, the Wyoming Basins, and the Gulf Coast Plain of Texas. Most ore is mined by either underground or open-pit methods." The Proposed Rule includes extensive discussion the "Hazards Associated with Uranium Byproduct Materials," Environmental Standards and Guidance Now Applicable to Uranium Tailings," "Risks from Tailings," "Methods for Control of Hazards From Tailings," "Scope of the Proposed Standards," "Proposed Standards for Operations," "Protection of Groundwater," "Proposed Standards," "Solicitation of Comments, and "Regulatory Impact Analysis."

There is nothing in this Propose Rule that would indicate that the Proposed EPA Standards would apply to the wastes produced from any material other than natural ores. The EPA Background Documents (Docket A-82-26) include an "Environmental Study of

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[8] Environmental Protection Agency. 40 C.F.R. Part 192. Environmental Standards for Uranium and Thorium Mill Tailings at Licensed Commercial Processing Sites: Invitation to Comment. Proposed Rule. 48 Fed. Reg, 19584, 19584-19603; April 28, 1983.

Uranium Mills," "Draft Environmental Impact Statement for Standards for the Control of Byproduct Materials from Uranium Ore Processing" (EPA 520/1-82-022), various other reports, and over 169 public comments on the Proposed Rule. It includes the "Final Environmental Impact Statement or Standards for the Control of Byproduct Materials from Uranium Ore Processing," Volumes I (EPA 520/1-83-008-1) and II (EPA 520/1-83-008-1), and the "Regulatory Impact Analysis of Final Environmental Standards for Uranium Mill Tailings at Active Sites" (EPA 520/1-83-010). The EPA and the uranium industry took the establishment of these standards very seriously.

If there had been confusion in regard interpretation and application of the term "ore" in the definition of 11e.(2) byproduct material surely it would have been addressed when the EPA Standards were established. If the EPA intended the Standards to apply to tailings impoundments that received waste from the processing of materials other than natural uranium or thorium ores or the radiological and non-radiological constituents of wastes from other mineral processing operations (which can be quite different than those of natural ores), the EPA would have discussed that in the Rulemaking, and the public would have had an opportunity to comment.

4.2. EFRI states (page 84):

> EPA's authority with respect to the tailings impoundments pursuant to 40 C.F.R. Part 61 Subpart W is limited to regulation of radon emissions from tailings impoundments, by requiring compliance with either design criteria or monitoring, depending on the age of the impoundment.

UW Response:

See UW Response at Section 1.7, above.

4.3. EFRI states (page 84):

> As mentioned above, EPA has had an opportunity to comment on the Alternate Feed Guidance, and therefore the introduction of residuals from alternate feed materials into tailings, both during its development (first draft guidance published on May 13, 1992, final guidance published on September 22, 1995 and current guidance published on November 30, 2000). EPA has not objected to the application of the Alternate Feed Guidance since its promulgation.

UW Response:

See UW Response at Section 1.6, above.

4.4. EFRI states (page 85):

> DWMRC is bound to follow federal law on the definition of what is ore, and therefore what is 11e.(2) byproduct, which have long been resolved

beyond legal dispute. DWMRC uses the definition of ore, and by extension 1 le.(2) byproduct, as developed by NRC. There is nothing in the foregoing provisions that limits "ore" to "natural ore".

NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative. See the discussion in Section 1.3 above.

UW Response:

The History of federal law, in the Atomic Energy Act of 1946 and 1954, and the Uranium Mill Tailings Radiation Control Act of 1978, clearly demonstrate that "ore" is a natural, native material as that term has traditionally been used in the mining industry for centuries and federal statutes and regulations since 1946. There is no such thing as "ore" that is not "natural ore." It is disingenuous and misleading to call a material "ore"when that material that has different physical, chemical, and radiological characteristics from natural ore and has a whole different kind processing history and comes under different applicable federal (and foreign) regulatory programs.

Natural ore, which has been mined and transported to the White Mesa Mill for processing is "ore" when it is in the ground, it is ore when it is being transported to the Mill, is "ore" when it is being stored on the "ore pad" at the Mill, and "ore" when it goes into crushers to be processed. After processing, it is not "ore;" it is 11e.(2) byproduct material, under the AEA definition. However, the alternate feed that EFRI processes is not mined from the ground; it is not "ore" prior to being transported to the Mill; it is not "ore" when it is being transported to the Mill; it is not "ore" when it is being stored at the Mill; it is not "ore" when processing commences.

The wastes from the processing of alternate feed material does not become 11e.(2) byproduct material, under the AEA definition or NRC or EPA regulatory definitions. The alternate feed material, according to NRC Guidance, only becomes "ore" retroactively—after it has been processed at the Mill. And, now that the material has retroactively become "ore." the wastes can be called 11e.(2) byproduct material, but not in accordance with the AEA or NRC regulation, only in accordance with an NRC guidance document, which has no legal force and effect.

See, also, UW Response in Section 1.1 above, and Appendix A and Appendix B, below.

5. EFRI Response 3.15. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.2.

5.1. EFRI states (page 85):

See the response to Section 3.14, Uranium Watch Comment 3.4: EPA

> Regulations: Comment 3.4.1, above. There is nothing in the foregoing provisions that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections 1.1 and 3.4, above, and Appendix A and Appendix B, below.

6. EFRI Response 3.16. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3.

6.1. EFRI States (page 86):

> Once again, the commenter is incorrect in attempting to assign regulatory authority over the definition and management of uranium mill tailings to EPA. Under UMTRCA, the NRC is the implementing Agency relating to uranium mills, and as a result its interpretation and application of the term "ore" in the definition of 11e.(2) byproduct material is governing. The EPA is not implementing agency for these purposes, so any definition of ore the EPA may have is not determinative. EPA has no authority to determine what is or is not 11e.(2) byproduct and what can be transferred to uranium tailings impoundments.
>
> DWMRC is bound to follow federal law on the definition of what is ore, and therefore what is 1 le.(2) byproduct, which have long been resolved beyond legal dispute. DWMRC uses the definition of ore, and by extension 11e.(2) byproduct, as developed by NRC. The technical and legal issues presented in the case of Silmet alternate feed, and the three alternate feed materials approved by DWMRC were analogous to those addressed by NRC and the federal courts in the Kerr-McGee decision and the Ashland 2 decision, as discussed in DWMRC's TEEA and Statement of Basis for the Silmet material. The issues raised by the commenter are an attempt to re-litigate issues already resolved by NRC and the courts and binding on DWMRC.
>
> There is nothing in the foregoing Fact Sheet that purports to limit "ore" to "natural ore". NRC and the Court in Kerr-McGhee [sic] have interpreted "ore" to be broader than "natural ore," which is determinative. See Section 1.3 above for a more detailed discussion.

UW Response:

The result of retroactively defining any matter that is processed in a licensed uranium or thorium mill for its uranium and/or thorium content as "ore" began a whole new regulatory program. Yet, the NRC did not adopt new regulations, or regulatory definitions for uranium mills in 10 C.F.R. Part 40, even though these materials had different physical, chemical, and radiological characteristics from "ore." Additionally, the EPA, did not propose amendments to its Part 192 Subpart D standards. This was a gross oversight. However, since any new proposed 10 C.F.R. Part 40 and 40 C.F.R. Part 192 regulations would have to face the fact that the new NRC Guidance definition of 11e.(2) byproduct material would not square with the definition of 11e.(2) byproduct material in the AEA, it is not surprising that the NRC and EPA did not—could not—amend their regulations without amending the AEA.

If the NRC and the Court in Kerr-McGee interpreted "ore" to be broader than "natural ore," why does the alternate feed material to be processed at the White Mesa Mill only become "ore," as that term is used in the definition of 11e.(2) byproduct material, until after it is processed at the White Mesa Mill. Why do alternate feed materials have a different regulatory definition and come under different regulatory programs under the AEA or a foreign government's laws and regulations prior to delivery at the White Mesa Mill? If the materials were, in fact, "ore." they would not be regulated under the AEA prior to delivery at the Mill. If the materials are "ore," why is it necessary for a uranium mill licensee to request a specific license amendment to receive and process these materials? The White Mesa Mill is not required to seek a license amendment to receive "ore" from a new uranium mine. If these materials are, in fact, "ore," as that term is used in the AEA and NRC definition of 11e.(2) byproduct material, there would be no need for specific license amendments to receive and process the materials.

See, also, UW Response in Sections 1.1, 4.1, and 4.4, above, and Appendix A and Appendix B, below.

7. EFRI Response 3.17. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.4.

7.1. EFRI states (page 87):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above. There is nothing in the foregoing provisions that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

8. EFRI Response 3.18. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.5.

8.1. EFRI States (page 87):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above. There is nothing in the foregoing provisions that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

9. EFRI Response 3.19. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.6.

9.1. EFRI states (page 88):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above. There is nothing in the foregoing provisions that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

10. EFRI Response 3.20. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.7.

10.1. EFRI states (page 89):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above. There is nothing in the foregoing regulations that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

11. EFRI Response 3.21. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.8

11.1. EFRI states (page 89):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above. There is nothing in the foregoing regulations that limits "ore" to "natural ore". NRC and the Court in Kerr-McGhee have interpreted "ore" to be broader than "natural ore," which is determinative.

UW Response:

See UW Response in Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

12. EFRI Response 3.22. Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.9

12.1. EFRI states (page 89):

> See the response to Section 3.16, Uranium Watch Comment 3.4: EPA Regulations: Comment 3.4.3, above.

UW Response:

See UW Response in Sections 1.1, 4.1, 4.4, and 5.1, above, and Appendix A and Appendix B, below.

Thank you for providing this opportunity for additional comment on the White Mesa Uranium Mill, License Amendment 10.

Sincerely,

/s/

Sarah Fields
sarah@uraniumwatch.org

Enclosures: Appendix A and Appendix B

URANIUM WATCH
SUR-REPLY

APPENDIX A
DEFINITION OF ORE

The word, or term, "ore," as defined in several sources:

- Ore—a naturally occurring solid material from which metal or other valuable minerals may be extracted. [Illustrated Oxford Dictionary, DK Pub. 1998.]

- Ore—A native mineral containing a precious or useful metal in such quantity and in such chemical combination as to make its extraction profitable. Also applied to minerals mined for their content of non-metals. [The Compact Oxford English Dictionary, Second Edition, Oxford University Press, 2000, p. 1224:915-916.]

- Ore—a. A natural mineral compound of the elements of which one at least is a metal. Applied more loosely to all metaliferous rock, though it contains the metal in a free state, and occasionally to the compounds of nonmetallic substances, as sulfur ore. . . . *Fay*

  b. A mineral of sufficient value as to quality and quantity that may be mined for profit. *Fay*. [A Dictionary of Mining, Mineral, and Related Terms, compiled and edited by Paul W. Thrush and Staff of the Bureau of Mines, U.S. Dept. of Interior, 1968.]

- The Oxford English Dictionary points out that the current usage of the word "ore" goes back several hundred years.

- A Dictionary of Mining, Mineral, and Related Terms lists over 65 compound words using the word "ore;" for example, ore bin, ore body, ore deposit, ore district, ore geology, ore grader, ore mineral, ore reserve, and ore zone. All of these terms incorporate the word "ore" as it relates to the mining of a native mineral. The term "ore," without explanation, has for many years been used in thousands, if not millions, of instances in thousands of mining, milling, geological, mineralogical, radiochemical, engineering, environmental, statutory, and regulatory publications. "Ore" like the word "water," is a word of common and extensive usage with a clear and accepted meaning. The use of the word “ore,” or “any ore,” is not ambiguous or subject to interpretation.

URANIUM WATCH
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APPENDIX B
STATUTORY AND REGULATORY BACKGROUND

A. Statutory Background.
1. Uranium Mill Tailings Radiation Control Act of 1978.

1.1. The Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) (Public Law 95-604, 92 Stat. 3033 *et seq*.), that amended the Atomic Energy Act (AEA) of 1954 (Public Law 83-703, 68 Stat. 919 *et.seq*.). The AEA of 1954 was an amendment to the Atomic Energy Act of 1946 (Public Law 79-385, 60 Stat. 755 *et seq*.).

As will be shown below, the AEA, as amended by UMTRCA, does not sanction the processing of feed materials other than natural ores[1] and the disposal of wastes from such processing at licensed uranium and thorium processing facilities and does not give the Nuclear Regulatory Commission (NRC) and the State of Utah Agreement State Program administered by the Division of Waste Management and Radiation Control (DWMRC) the broad authority to authorize the processing of feed materials other than natural ores as "ore" and the disposal of wastes from such processing at licensed uranium and thorium processing facilities as "11e.(2) byproduct material.

1.2. The regulatory history of UMTRCA, found in the two Congressional reports, provides information with respect "uranium mill tailings" and "ore." The Congressional Reports clearly state what was contemplated by Congress (i.e., the intent of Congress) when Congress established a program for the control of "uranium mill tailings" from the processing of "uranium ore" at inactive (Title I of UMTRCA) and active (Title II of UMTRCA) uranium and thorium processing facilities. *See* House Report (Interior and Insular Affairs Committee) No. 95-1480 (I), August 11, 1978, and House Report (Interstate and Foreign Commerce Committee) No. 95-1480 (II), September 30, 1978.

Under "Background and Need," HR No. 95-1480 (I) states:

> Uranium mill tailings are the sandy waste produced by the uranium ore milling process. Because only 1 to 5 pounds of useable uranium is extracted from each 2,000 pounds of ore, tremendous quantities of waste are produced as a result of milling operations. These tailings contain many naturally-occurring hazardous substances, both radioactive and nonradioactive. . . . As a result of being for all practical purposes, a perpetual hazard, uranium mill tailings present the major threat of the nuclear fuel cycle.

> In its early years, the uranium milling industry was under the dominant control of the Federal Government. At that time, uranium was being produced under Federal Contracts for the Government's Manhattan Engineering District and Atomic Energy Commission program. . . .
>
> The Atomic Energy Commission and its successor, the Nuclear Regulatory Commission, have retained authority for licensing uranium mills under the Atomic Energy Act since 1954. [HR No. 95-1480 (1) at 11.]

The second House Report, under "Need for a Remedial Action Program" states:

> Uranium mills are a part of the nuclear fuel cycle. They extract uranium from ore for eventual use in nuclear weapons and power-plants, leaving radioactive sand-like waste—commonly called uranium mill tailings—in generally unattended piles. [HR No. 95-1480 (2) at 25.]

2. Atomic Energy Commission and the AEA of 1946.

2.1. As indicated above, the domestic uranium mining and milling industry was established at the behest of the Manhattan Engineer District and the Atomic Energy Commission (AEC). The AEC regulated uranium mines and uranium processing facilities, established ore buying stations, and bought ore. Under the AEA of 1946 there was no commercial uranium mining and milling industry. The mining and milling of uranium was done under contract to the AEC. After the AEA of 1954 there was both a government and commercial uranium mining and milling industry. AEC purchased uranium ore under the Domestic Uranium Program. Regulations related to that uranium procurement program were set forth in 10 C.F.R. Part 60. Part 60 was deleted from 10 C.F.R. on March 3, 1975, after the establishment of the NRC.

2.2. The AEC published a number of circulars related to their Domestic Uranium Program. The Domestic Uranium Program—Circular No. 3—Guaranteed Three Year Minimum Price—Uranium-Bearing Carnotite-Type or Roscoelite-Type Ores of the Colorado Plateau Area" (April 9, 1948), an amendment to 10 C.F.R. Part 60, states:

> § 60.3 *Guaranteed three years minimum price for uranium-bearing carnotite-type or roscoelite-type ores of the Colorado Plateau—(a) Guarantee*. To stimulate domestic production of uranium-bearing ores of the Colorado Plateau area, commonly known as carnotite-type or roscoelite-type ores, and in the interest of the common defense and security the United States Atomic Energy Commission hereby establishes the guaranteed minimum prices specified in Schedule 1 of this section, for the delivery of such ores to the Commission, at Monticello, Utah, and Durango, Colorado, in accordance with the terms of this section during the three calendar years following its effective date.

> *Note:* In §§ 60.1 and 60.2 (Domestic Uranium Program, Circulars No. 1 and 2), the Commission has established guaranteed prices for other domestic uranium-bearing ores, and mechanical concentrates, and refined uranium products.
>
> *Note*: The term "domestic" in this section, referring to uranium, uranium-bearing ores and mechanical concentrates, means such uranium, ores, and concentrates produced from deposits within the United States, its territories, possessions and the Canal Zone.

10 C.F.R. Part 60—Domestic Uranium Program at § 60.5(c) states:

> Definitions. As used in this section and in § 60.5(a), the term "buyer' refers to the U.S. Atomic Energy Commission, or its authorized purchasing agent. The term "ore" does not include mill tailings or other mill products. . . . [Emphasis added.] [Circular 5, 14 Fed. Reg. 731 (February 18, 1949).]

It is clear that the AEC was the primary mover in the domestic uranium mining and milling program. It is clear that under the Atomic Energy Act of 1946 and 1954, the AEC regulated uranium mining and milling and had an established a uranium ore-buying program. It is clear that from the 1940's to 1975, the regulations in 10 C.F.R. Part 60 clearly indicted that "ore" does not include mill tailings or other mill products.

3. Statutory Definition of Source Material.

The AEA of 1946, under "Control of Materials," Sec. 5 (b), "Source Materials," (1), "Definition," provides the definition of "source material." Section 5(b)(1) states:

> Definition. — As used in this Act, the term "source material" means uranium, thorium, or any other material which is determined by the Commission, with the approval of the President, to be peculiarly essential to the production of fissionable materials; but includes ores only if they contain one or more of the foregoing materials in such concentration as the Commission may by regulation determine from time to time.

The AEA of 1954, Chapter 2, Section 11, "Definitions", sets forth the current statutory definition of "source material" at Sec. 11(s):

> The term "source material" means (1) uranium, thorium, or any other material which is determined by the Commission pursuant to the provisions of section 61 to be source material; or (2) ores containing one or more of the foregoing materials, in such concentrations as the Commission may by regulation determine from time to time. [42 U.S.C. Sec. 2014(z).]

Responsive to this statutory definition, in 1961 the AEC established the following

regulatory definition at 10 C.F.R. § 40.4:

> Source Material means: (1) Uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof. Source material does not include special nuclear material. [26 Fed. Reg. 284 (Jan. 14, 1961).]

Therefore, the AEC made a determination, in accordance with the mandate of the AEA of 1954, that ores containing 0.05% thorium and/or uranium would meet the statutory definition of source material. At the same time that they made that determination, the AEC had a regulation that clearly stated that "ore" does not include mill tailings or other mill products. Surely, the AEC, as the administrator of a uranium ore procurement program and the developer of the uranium mining and milling industry knew what they were talking about when they used the term "ore."

Additionally, the AEC set forth certain exemptions to the regulations in 10 C.F.R. Part 40. The proposed rule that was later finalized in January 1961 states, in pertinent part:

> The following proposed amendment to Part 40 constitutes an overall revision of 10 CFR Part 40, "Control of Source Material."
>
> With certain specified exceptions, the proposed amendment requires a license for the receipt of title to, and the receipt, possession, use, transfer, import, or export of source material. . . .
>
> Under the proposed amendment, the definition of the term "source material": is revised to bring it into closer conformance with that contained in the Atomic Energy Act of 1954.
>
> "Source Material" is defined as (1) uranium or thorium, or any combination thereof, in any physical or chemical form, but does not include special nuclear material, or (2) ores which contain by weight one-twentieth of one percent (0.05 percent) or more of (a) uranium, (b) thorium or (c) any combination thereof. The amendment would exempt from the licensing requirements chemical mixtures, compounds, solutions or alloys containing less than 0.05 percent source material by weight. As a result of this exemption, the change in the definition of source material is not expected to have any effect on the licensing program. . . .
>
> Section 62 of the Act prohibits the conduct of certain activities relating to source material "after removal from its place of deposit in nature" unless such activities are authorized by license issued by the Atomic Energy Commission. The Act does not, however, require a license for the mining of source material, and the proposed regulations, as in the case of the current regulations, do not require a license for the conduct of mining activities. Under the present regulation, miners are required to have a license to transfer the source material after it is mined. Under the

> proposed regulation below, the possession and transfer of unrefined and unprocessed ores containing source material would be exempted. [47 Fed. Reg. 8619 (September 7, 1960).]

Therefore, the AEC established, via a rulemaking, exemptions for source material as defined in Sec. 2014(z)(1) related to mixtures, compounds, solutions, or alloys containing uranium and/or thorium:

> (a) Any person is exempt from the regulations in this part and from the requirements for a license set forth in section 62 of the Act to the extent that such person receives, possesses, uses, transfers or delivers source material in any chemical mixture, compound, solution, or alloy in which the source material is by weight less than one-twentieth of 1 percent (0.05 percent) of the mixture, compound, solution or alloy. The exemption contained in this paragraph does not include byproduct material as defined in this part. [10 C.F.R. § 40.13(a), 26 Fed. Reg. 284 (Jan. 14, 1961).]

The AEC also established, via a rulemaking, exemptions for source material as defined in Sec. 2014(z)(2) related to "ore":

> b) Any person is exempt from the regulations in this part and from the requirements for a license set forth in section 62 of the act to the extent that such person receives, possesses, uses, or transfers unrefined and unprocessed ore containing source material; provided, that, except as authorized in a specific license, such person shall not refine or process such ore. [10 C.F.R. 40.13(b), 26 Fed. Reg. 284 (Jan. 14, 1961).]

The definition of "source material" and the exemptions that are related to those definitions stand today, almost sixty years later. These regulatory definitions and exemptions did not change when the NRC was established in 1975 and took on the regulatory responsibility for "source material." These regulatory definitions and exemptions did not change when the AEA was amended by UMTRCA in 1978. These regulations and definitions did not change when the NRC developed their policy guidances related to the processing of wastes from various mineral processing operations (including the commingled soils and wastes from other sources) at licensed uranium recovery operations.

4. Definition of 11e.(2) byproduct material.

UMTRCA, among other things, amended the AEA of 1954 by adding a new definition, the definition of 11e.(2) byproduct material:

> Sec. 201. Section 11e. of the Atomic Energy Act of 1954, is amended to read as follows:
>
> "e. The term 'byproduct material' means (1) any radioactive material (except special nuclear material) yielded in or made radioactive

> by exposure to the radiation incident to the process of producing or utilizing special nuclear material, and (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." [42 U.S.C. Sec. 2014 (e).]

There is no evidence in the regulatory history of UMTRCA that Congress, in defining "11e.(2) byproduct material" intended to also amend the statutory definition of "source material." There is no evidence in the regulatory history of UMTRCA that the term "any ore" does not mean "any type of uranium ore" (e.g., ore containing **less than** .05% uranium and/or thorium and the numerous types of natural uranium-bearing minerals that were mined at uranium mines and purchased by the AEC under their domestic uranium ore procurement program or under the commercial "uranium milling" program). There is no evidence in the regulatory history of UMTRCA that Congress intended the term "any ore" to mean anything that the NRC, DWMRC, or EFRI wants it to mean (e.g., the wastes from mineral processing operations).

B. Regulatory Background

1. Introduction.

Although both the Environmental Protection Agency (EPA) and the NRC established a regulatory program for uranium milling and the processing of ores, as will shown below, neither the EPA nor the NRC contemplated the processing of materials that were not "ore." Neither the EPA nor the NRC considered wastes from other mineral processing operations (including contaminated soils and wastes from other sources) in their concept of "ore," and they did not address in any manner the processing of such wastes when promulgating their regulatory regimes for active uranium processing facilities. Further, during the various rulemaking proceedings, the public was never informed that wastes from other mineral processing operations, no matter how they were defined, would be processed at licensed uranium or thorium mills. Therefore the public was given no reasonable opportunity to comment on such processing activities at uranium mills.

2. NRC Regulatory Program, 10 C.F.R. Part 40.

Responsive to UMTRCA, the NRC incorporated the UMTRCA definition of 11e.(2) byproduct material (with clarification) into their regulations at 10 C.F.R. § 40.4:

> "Byproduct Material" means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition. [44 Fed. Reg. 50012-50014 (August 24, 1979).]

The NRC also explained the need for the new definition:

> Section 40.4 of 10 CFR Part 40 is amended to include a new definition of "byproduct material." This amendment, which included uranium and thorium mill tailings as byproduct material licensable by the Commission, is required by the recently enacted Uranium Mill Tailings Radiation Control Act. [44 Fed. Reg. 50012-50014 (August 24, 1979).]

The NRC promulgated further regulations amending Part 40 in 1980. In the summary, the NRC states:

> The U.S. Nuclear Regulatory Commission is amending its regulations to specify licensing requirements for uranium and thorium milling activities, including tailings and wastes generated from these activities. The amendments to parts 40 and 150 take into account the conclusions reached in a final generic environmental impact statement on uranium milling and the requirements mandated in the Uranium Mill Tailings Radiation Control Act of 1978, as amended, public comments received on a draft generic environmental impact statement on uranium milling, and public comments received on proposed rules published in the Federal Register. [Footnotes omitted.] [45 Fed. Reg. 65521-65538 (October 3, 1980).]

There is no statement in any of the NRC regulations in 10 C.F.R. Part 40, or in any of rulemaking proceedings promulgating those regulations, that wastes from other mineral processing operations was "ore," under any circumstances, or that, under any circumstances, such wastes would be processed at licensed uranium or thorium mills and the tailings or wastes would be disposed of as 11e.(2) byproduct material in the mill tailings impoundments.

The regulations promulgated by the NRC and the EPA did not contemplate this kind of activity. The National Environmental Policy Act (NEPA) document in support of the promulgation of the NRC regulatory program for uranium mills did not contemplate this kind of activity. Also, in the rulemaking proceedings and NEPA proceeding, the public did not have an opportunity to contemplate and comment on this kind of activity.

3. The Final Generic Environmental Impact Statement on Uranium Milling.

The NRC Final Generic Environmental Impact Statement on Uranium Milling ("GEIS"), NUREG-0706,[9] September 1980, formed a basis for the NRC Part 40

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[9] NUREG-0706, Vol. I: https://www.nrc.gov/docs/ML0327/ML032751663.pdf
NUREG-0706, Vol. II: https://www.nrc.gov/docs/ML0327/ML032751667.pdf
NUREG-0706, Vol. III: https://www.nrc.gov/docs/ML0327/ML032751669.pdf

Rulemaking. The GEIS makes a clear statement regarding the scope of the GEIS and its understanding of what uranium milling entails:

> As stated in the NRC Federal Register Notice (42 FR 13874) on the proposed scope and outline for this study, conventional uranium milling operations in both Agreement and Non-Agreement States, are evaluated up to the year 2000. Conventional uranium milling as used herein refers to the milling of ore mined primarily for the recovery of uranium. It involves the processes of crushing, grinding, and leaching of the ore, followed by chemical separation and concentration of uranium. Nonconventional recovery processes include in situ extraction or ore bodies, leaching of uranium-rich tailings piles, and extraction of uranium from mine water and wet-process phosphoric acid. These processes are described to a limited extent, for completeness. [GEIS, Volume I, at 3.]

Section 3.3 of the GEIS is entitled "Prospects for Unconventional Methods of Uranium Production." GEIS at 3-8. In the discussion of unconventional methods of uranium production, there is no discussion of the non-radiological hazards associated with uranium milling and mill tailings impoundments. The processing of the types of materials that have been processed at the White Mesa Mill as "alternate feed materials" is not mentioned and discussed as one of the types of "unconventional methods of uranium production."

Section 4.6 of the GEIS is a discussion of "Mineral Resources and Use" and does not discuss non-radiological hazards. GEIS at 4-6 to 4-7.

Sections 6.2.1 and 6.3.1 of the GEIS, both entitled "On Air Quality," provide brief information related to three air-borne effluents from "model mills." The processing of wastes from mineral processing operations (i.e., the processing of feed material other than ore, as the term "ore" is used in the GEIS), are not included within the scope of the GEIS.

The GEIS is very clear about what it considers "ore" to be and gives no indication whatsoever that materials other than ore, such as the tailings or wastes from mineral processing operations. are considered to be "ore."

The GEIS includes a discussion of "Past Production Methods." That discussion makes reference to "ore," "ore exploration," "pitchblende ore," "crude ore milling processes," "lower-grade ores," "uranium-bearing gold ores," "high-grade ores," "ore-buying stations," and "ore reserves." GEIS, Volume I, Chapter 2, at 2-1 to 2-2.

There is a lengthy discussion of "Uranium Mining and Milling Operations" that provides a description of the commonly and less-commonly "used methods of mining uranium ores." GEIS, Volume II, at B-1 to B-2. Appendix 1.

In Chapter 6, "Environmental Impacts," there is a discussion of "Exposure to Uranium Ore Dust," which states, in part:

> Uranium ore dust in crushing and grinding areas of mills contains natural uranium (U-238, U-235, thorium-230, radium-226, lead-210, and polonium-210) as the important radionuclides. [GEIS, Volume I, at 6-41.]

There is also a table giving the "Average Occupational Internal Dose due to Inhalation of Ore Dust." GEIS at 6-41, Table 6.16. Further, the GEIS discusses "Shipment of Ore to the Mill" (GEIS at 7-11); "Sprinkling or Wetting of Ore Stockpile" (GEIS at 8-2); "Ore Storage" and "Ore Crushing and Grinding" (GEIS at 8-6); "Ore Pad and Grinding" (GEIS, Vol. 3, at G-2); "Ore Warehouse (GEIS, Vol. 3, at K-3); and "Alternatives to Control Dust from Ore Handling, Crushing, and Grinding Operations (GEIS, Vol. III, at K-3 to K-3). In the NRC responses to comments there are discussions of "Average Ore Grade, Uranium Recovery" (GEIS, Vol. II, at A-12 to A-13).

The GEIS did not consider the processing of uranium-bearing wastes from mineral processing operations at uranium or thorium mills. The GEIS gives no indication whatsoever that such wastes are "ore," even if they were processed at a uranium or thorium recovery facility for their "source material content." Clearly, the GEIS did not consider that the wastes from the processing of such wastes would meet the definition of 11e.(2) byproduct material.

Therefore, the GEIS did not evaluate, and the public did not have an opportunity to comment upon, any of the possible health, safety, and environmental impacts of the processing of other mineral processing wastes at uranium or thorium processing facilities. They did not evaluate the issues related to the transportation of such wastes, nor were reasonable alternatives to the transportation, receipt, processing, and disposal of such wastes at uranium or thorium mills ever evaluated.

4. Environmental Protection Agency (EPA) Standards.

4.1. UMTRCA directed the EPA to establish standards for uranium mill tailings and directed the NRC to implement those standards. That statute, as codified in 42 U.S.C. 2022, states in pertinent part:

> Sec. 2022. Health and environmental standards for uranium mill tailings
> ***
> (b) Promulgation and revision of rules for protection from hazards at processing or disposal site.
> (1) As soon as practicable, but not later than October 31, 1982, the Administrator shall, by rule, propose, and within 11 months thereafter promulgate in final form, standards of general application for the protection of the public health, safety, and the environment from

> radiological and nonradiological hazards associated with the processing and with the possession, transfer, and disposal of byproduct material, as defined in section 2014(e)(2) of this title, at sites at which ores are processed primarily for their source material content or which are used for the disposal of such byproduct material. If the Administrator fails to promulgate standards in final form under this subsection by October 1, 1983, the authority of the Administrator to promulgate such standards shall terminate, and the Commission may take actions under this chapter without regard to any provision of this chapter requiring such actions to comply with, or be taken in accordance with, standards promulgated by the Administrator. In any such case, the Commission shall promulgate, and from time to time revise, any such standards of general application, which the Commission deems necessary to carry out its responsibilities in the conduct of its licensing activities under this chapter. [Emphasis added.]
>
> Requirements established by the Commission under this chapter with respect to byproduct material as defined in section 2014(e)(2) of this title shall conform to such standards. Any requirements adopted by the Commission respecting such byproduct material before promulgation by the Commission of such standards shall be amended as the Commission deems necessary to conform to such standards in the same manner as provided in subsection (f)(3) of this section. Nothing in this subsection shall be construed to prohibit or suspend the implementation or enforcement by the Commission of any requirement of the Commission respecting byproduct material as defined in section 2014(e)(2) of this title pending promulgation by the Commission of any such standard of general application. In establishing such standards, the Administrator shall consider the risk to the public health, safety, and the environment, the environmental and economic costs of applying such standards, and such other factors as the Administrator determines to be appropriate.
> * * *
> (d) Federal and State implementation and enforcement of the standards promulgated pursuant to subsection (b) of this section shall be the responsibility of the Commission in the conduct of its licensing activities under this chapter. States exercising authority pursuant to section 2021(b)(2) of this title shall implement and enforce such standards in accordance with subsection (o) of such section. [42 U.S.C. 2022(b) and (d).]

Congress directed the EPA only to establish standards for "sites at which ores are processed primarily for their source material." The EPA, as mandated by UMTRCA, finalized the "Environmental Standards for Uranium and Thorium Mill Tailings at Licensed Commercial Processing Sites" in 1983. 48 Fed. Reg. 45925-45947, October 7, 1983. In the "Summary of Background Information" the EPA provides a discussion of "The Uranium Industry" (i.e., the industry and the type of sites that the regulations apply to):

> The major deposits of high-grade uranium ores in the United States are located in the Colorado Plateau, the Wyoming Basins, and the Gulf Coast Plain of Texas. Most ore is mined by either underground or open-pit methods. At the mill the ore is first crushed, blended, and ground to proper size for the leaching process which extracts uranium. . . . After uranium is leached from the ore it is concentrated . . . . The depleted ore, in the form of tailings, is pumped to a tailings pile as a slurry mixed with water.
>
> Since the uranium content of ore averages only about 0.15 percent, essentially all the bulk or ore mined and processed is contained in the tailings. [48 Fed. Reg. 45925, 45927, October 7,1983.]

4.2. Clearly, when the EPA developed its standards for uranium and thorium mills, they stated, with specificity and particularity, what uranium ore was, what uranium milling consisted of, and what uranium mill tailings consisted of. The EPA clearly stated that the standards applied to the processing of uranium and thorium ores at uranium and thorium mills. There is no reasonable evidence that would indicate that the standards promulgated by the EPA applied to the processing of wastes from other mineral processing operations at uranium and thorium mills.

Additionally, the EPA incorporated the 42 U.S.C. 2014(z) definition of 11e.(2) byproduct material, as clarified by the NRC in 10 C.F.R. 40.4, into their standards at 40 C.F.R. Subpart D, § 192.31(b). Since that time the EPA has not amended their definition of 11e.(2) byproduct material in a rulemaking proceeding, nor have they amended their definition via policy guidance. The EPA has not, in any manner, widened the use of the words "any ore" to include “alternate feed,” or the waste products from other mineral processing operations. As will be discussed below, the EPA did not sanction the NRC's policy guidance with respect new definitions of "ore" and 11e.(2) byproduct material.

Clearly, the EPA, as directed by Congress, has not in any manner contemplated the processing of wastes from other mineral extraction operations at uranium or thorium mills when establishing the "Environmental Standards for Uranium and Thorium Mill Tailings at Licensed Commercial Processing Sites."

5. Regulatory History of NRC’s Alternate Feed Guidance

5.1. In the late 1980's the NRC was faced with a few requests to process material other than ore. At that time and today, there are two statutes or regulations (implementing those statues) that are pertinent. First is the statutory definition of "source material" established in 1954 by the AEA, found at 42 U.S.C. Sec. 2014(z), and in the NRC regulatory definition of "source material" (established in 1961 pursuant Sec. 2014(z)), found at 10 C.F.R. 40.4:

> Source Material means: (1) Uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof. Source material does not include special nuclear material.

The second is the definition of "byproduct material" in Section 11(e)(2) of the Atomic Energy Act of 1954, as amended, (42 U.S. C Sec. 2014(e)(2)) and the regulatory definition of "byproduct material" found in 10 C.F.R. 40.4:

> Byproduct Material means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition.

The NRC had several options, one of which would have been to go to Congress and request that Congress change the definition of 11e.(2) byproduct material to read "the tailings or wastes produced by the extraction or concentration of any ~~ore~~ material processed primarily for its source material content." NRC Staff made a determination that they would not go to Congress to seek an amendment to the AEA of 1954.

Instead, what the NRC did was to manipulate the use of the word "ore" as it is used in the definition of 11e.(2) byproduct material. NRC proposed that a policy guidance be established for the purpose of interpreting the term "ore," as it is used in the definition of 11e.(2) byproduct material. Although the NRC provided an opportunity for public comment, the NRC did not institute a rulemaking proceeding to amend 10 C.F.R. Part 40.

To the best of my knowledge only two (2) members of the public submitted comments. There were no public comments from any tribe or citizen of San Juan County. There were no public meetings in the vicinity of the White Mesa Mill to explain the proposed guidance and to explain the implications of a simple tweak of the definition of 11e.(2) byproduct material. The National Mining Association was aware of the proposed changes, but not anyone who lived near a uranium mill.

Based on the new use of the term "ore" as put forth in the proposed guidance, not only would the definition of 11e.(2) byproduct material apply to "any ore processed primarily for its source material content" in a licensed uranium or thorium mill, but the definition of 11e.(2) byproduct material would also apply to **any material** (particularly wastes from various mineral extraction operations and various commingled wastes and materials) processed primarily for its source material content in a licensed uranium or thorium mill. In other words, NRC altered the accepted meaning of the word "ore" as the word “ore” was used in a statutory definition.

5.2. On May 14, 1992, NRC Staff, sent a letter to the Environmental Protection Agency, enclosing a copy of the May 13 proposed rules and requested EPA comment on two proposed guidance documents and their associated staff analyses. Letter from Robert M. Bernero, Director, Office of Nuclear Material Safety and Safeguards, NRC, to Sylvia K. Lowrance, Director, Office of Solid Waste, EPA, May 14, 1992.

The EPA did not submit comments on the proposed policy guidances. The only documentation of EPA's response to that request for comment is quoted below and is found in the Commission Paper that forwarded the finalized guidances to the Commission for their approval:

> There was an issue that delayed finalization of the guidance documents. In an October 1992, mixed waste meeting between the NRC, the EPA, and DOE staff, EPA identified potential inconsistencies in NRC's interpretation of the definition of source material in conjunction with the exclusion of source material from the definition of solid waste in the Resource Conservation and Recovery Act (RCRA). In making its point, EPA cited the May 13, 1992, Federal Register notice on the disposal of non-11e.(2) byproduct material. The staff had delayed finalization of the uranium recovery policy guidance documents, pending resolution of the source material definition issue. However, the staff has now decided that these two policy guidance documents can be finalized, independent of the source material issue, because the guidance is not dependent on the interpretation of the definition of source material.

5.3. "Final 'Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments' and Final 'Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores,'" SECY-95-221, August 15, 1995.

The Revised Position and Guidance and the Final Position and Guidance gave no indication that the NRC was amending, interpreting, or in any manner adjusting the accepted meaning of the term "ore" as that word is used in the statutory and regulatory definition of "source material." Nor was there any discussion in the various guidances related to the processing of material other than natural ore (i.e. material that is not ore at all) of how the exemptions set forth in 10 C.F.R. §40.13(a) and (b) would be impacted by guidance's new definition of "ore"

There is no indication that the "source material definition issue" has ever been appropriately addressed or resolved. It is an issue that has lain in some pretty murky regulatory waters for quite some time.

6. Conclusion.

The applicability of various environmental regulations to a great degree depends upon definitions. Congress, in their legislative function, often specifically defines words or phrases related to the application of a statute to a particular material or circumstances

—when there are new terminology or a need for explanation. However, when using words or terms with a common and accepted meaning, such as groundwater, mill, tailings, or "ore," no explanation or definition is necessary.

The NRC is not authorized to shift these accepted definitions at will as an expression of their "regulatory flexibility." This is especially so when such shifts result in direct conflicts with NRC's own enabling statutes and regulations, as is the case with the use of the newly defined term "ore." Additionally, NRC is not authorized to shift definitions at will when such shifts directly conflict with the statutory authority of another federal agency, in this case, the EPA.

The State of Utah is not authorized to shift federal regulatory definitions in the Atomic Energy Act or NRC regulations, either.