Uranium Watch

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July 31, 2017

via electronic mail

Scott Anderson
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RE: Energy Fuels Resources (USA) Inc., White Mesa Mill, License No. UT1900479. December 15, 2011, License Amendment Request to Process Material from Sequoyah Fuels Corporation, Gore, Oklahoma.

Dear Mr. Anderson:

Below please find comments on the Energy Fuels Resources (USA) Inc. December 15, 2011, request to receive and process 11e.(2) byproduct material from Sequoyah Fuels Corporation, Gore, Oklahoma, site at the White Mesa Uranium Mill, San Juan County, Utah. The request is to amend Radioactive Materials License No. UT1900479 by adding License Condition 10.8. These comments are submitted by Uranium Watch and on behalf of Living Rivers and the Utah Chapter of the Sierra Club.

1. GENERAL COMMENTS

1.1. The Utah Division of Waste Management and Radiation Control (DWMRC, or Division) should not have included the license amendment request to process Sequoyah Fuels Corporation (SFC) waste at the White Mesa Mill in the License Renewal Process. The renewal of the White Mesa Mill License and the approval of the request to process 11e.(2) byproduct material originating at the Sequoyah Fuels Corporation, Gore, Oklahoma, facility, were two separate proposed licensing actions. The two proposed licensing actions should have not been included in one notice and comment opportunity, one hearing held at Blanding, Utah, and one hearing and opportunity for cross examination held in Salt Lake City. Combining two important but separate licensing actions, along with a third action to approve the White Mesa Mill Reclamation Plan Rev. 5, in one process was onerous for the public and, most likely, for Division staff.

It made it difficult to focus the questions provided to the Division for the June 8, 2017, hearing in Salt Lake City. It made it difficult to present comments at the June 15 hearing in Blanding. Combining 3 licensing actions in one notice and comment process will likely delay the review and final decisions on these licensing actions.

1.2. The application to process the waste from the SFC Gore facility was submitted to the Division on December 15, 2011. On December 12, 2012, the Division responded with a request for additional information. These 2 documents are on the Division webpage for the White Mesa Mill, under Sequoyah Fuels Corporation: Alternate Feed Request.[1] However, the Division did not post the Licensee's response to the request for additional information and other documents associated with the "Alternate Feed Request" on that webpage. There were additional submittals in August and October 2013 that are references in the *Safety Evaluation Report*, discussed below. However, the Division failed to post them on the Alternate Feed Request webpage. The SER references, for the most part, do not include links to the documents or information on where to access the various referenced materials, including Sequoyah Fuels Gore Facility licensing documents.

1.3. The failure to make all of the pertinent application documents readily available for public review is reason enough to deny the Amendment Request.

2. SAFETY EVALUATION REPORT (DRC-2017-002764)

The "Safety Evaluation Report, Amendment Request to Process an Alternate Feed Material (the SFC Uranium Material) at White Mesa Mill from Sequoyah Fuels Corporation, Gore, Oklahoma, is "in Consideration of an Amendment to Radioactive Materials License No. UT1900479 to Authorize Receipt and Processing of the SFC Uranium Material as an Alternate Feed Material Primarily for the Recovery of Uranium and Disposal of the Resulting Residuals in the Mill's Uranium Tailings Impoundments as 11e.(2) Byproduct Material." The Safety Evaluation Report (SER) was developed by URS Professional Solutions, LLC, for the Utah Department of Environmental Quality, DWMRC, dated May 1, 2015.

2.1. The SER, Section 1.1, states that the SER "has been prepared to evaluate the environmental impacts of the proposal for the White Mesa Uranium Mill to receive and process alternate feed material from the Sequoyah Fuels Corporation, Inc. (SFC) Facility Conversion Plant located near Gore, Oklahoma (the "Gore Facility")." According to the SER, the "Uranium Material consists of dewatered raffinate sludges resulting from purification and conversion of natural uranium concentrates (yellowcake) at the former Gore Facility" and contains "residual amounts of thorium, uranium, certain non-radioactive metals (arsenic, beryllium, and lead), and barium at concentrations that are

[1] https://deq.utah.gov/businesses/E/energyfuels/requests/sequoyahfuels.htm

higher than present in typical uranium mill tailings and typical uranium ores processed at the White Mesa Mill.

COMMENT

2.1.1. The SFC 11e.(2) byproduct material contains radiological and non-radiological materials that are not found in ore that has been processed at the White Mesa Mill since the Mill commenced operation. The Mill and the tailings impoundments were not designed to dispose of the wastes from the processing of such material. The statutory and regulatory programs that are applicable to the operation of the Mill never contemplated the processing, disposal, and long-term presence of such material at the Mill. For these and other reasons outlined below, Division should deny the proposed amendment to process 11e.(2) byproduct material from the Sequoyah Fuels site at the White Mesa Mill.

2.2. SER, Section 1.2, Classification of the SFC Uranium Material as Alternate Feed Material. The SER, with respect a determination of whether the feed material is an ore (and, therefore, the wastes from the processing of the SFC Uranium Material at the Mill can be defined as 11e.(2) byproduct material), quotes from the Nuclear Regulatory Commission (NRC) Guidance (SECY 95-211, SECY-99-012, and NRC Regulatory Issue Summary 2000-23):

> *For the tailings and wastes from the proposed processing to qualify as 11e.(2) byproduct material, the feed material must qualify as "ore." In determining whether the feed material is ore, the following definition of ore will be used:* ***Ore is*** *a natural or native matter that may be mined and treated for the extraction of any of its constituents* ***or any other matter from which source material is extracted in a licensed uranium or thorium mill.*** [Emphasis added.]

The SER then states, "The NRC declared this 'front end waste' to be 11e.(2) byproduct material (See SECY-02-0095, July 25, 2002)." The SER then concludes, "Based on the above considerations, the [Utah Division of Radiation Control] UDRC has determined that the SFC Uranium Material meets this criterion."

COMMENT

2.2.1. Apparently, the Division, believes the SFC Uranium Material meets the definition of "ore" because it is "any other matter from which source material is extracted in a licensed uranium or thorium mill" and, therefore, the wastes from the processing of the Uranium Material would "qualify as 11e.(2) byproduct material." In support of that determination, the SER states states that the NRC made a determination with respect the definition of the Uranium Material. The SER states, "The NRC declared this "front end waste" to be 11e.(2) byproduct material (See SECY-02-0095, July 25, 2002)." In other words, the the Uranium Material would be defined as 11e.(2) byproduct material both

before and after processing.

These statements and conclusions are confusing and erroneous. If the NRC determined that the Uranium Material is 11e.(2) byproduct material, it does not follow that the waste from the processing of the Uranium Material at the White Mesa Mill is also 11e.(2) byproduct material. The NRC Guidance referenced by the SER states that, for the wastes from the processing of the Uranium Material to be defined as 11e.(2) byproduct material, the material must be defined as "ore." It is hard to see how the Uranium Material can be both 11e.(2) byproduct material and "ore." The SER fails to explain how this 11e.(2) byproduct material somehow reverts back to "ore," so that the wastes from the processing of the Uranium Material can also be defined as 11e.(2) byproduct material. The SER fails to explain this magical transformation, how it takes place, and when (in a specific time and place) the transformation takes place.

2.2.2. The NRC determination that the SFC Uranium Material is 11e.(2) byproduct material is based on statutory and regulatory definitions. However, the Licensee's determination that the SFC Uranium Material somehow becomes "ore" once it is processed has no basis in the Atomic Energy Act (AEA) or NRC or Environmental Protection Agency (EPA) regulations applicable to uranium mills and the regulation of 11e.(2) byproduct material. Therefore, any determination that the Uranium Material is "ore" and the waste from the processing of that Material is 11e.(2) byproduct material has no basis in any applicable federal statute or regulation. The State of Utah has no authority to amend the AEA or NRC or EPA regulations to create or make use of new definitions in licensing actions. The Division has no authority to redefine 11e.(2) byproduct material, define any material that is not "ore" as "ore," or to define the wastes from the processing of 11e.(2) byproduct material as "11e.(2) byproduct material."

2.3. The SER, Section 3. Determination of whether the feed material contains hazardous waste. In this section, the DWMRC concludes, "The NRC (2002) classified the SFC Uranium Material as 11e.(2) byproduct material. Under 40 CFR 261.4(b)(7), solid wastes from the extraction, beneficiation, and processing of ores and minerals are not hazardous wastes."

COMMENT

2.3.1. Here, the SER claims that the SFC Material is a waste from the processing of ores to address the question of whether the feed material contains hazardous waste under EPA regulation. They conclude that, since the Uranium Material is a solid waste from the extraction, beneficiation, and processing of ores, it is not a hazardous waste. The SER does not mention that 11e.(2) byproduct material is exempted from the definition of a solid waste and, thereby, the definition of a hazardous waste, pursuant to 40 C.F.R. § 261.4(a)(4). Section 261.4(a)(4) states:

40 C.F.R. § 261.4 Exclusions.

> (a) Materials which are not solid wastes. The following materials are not solid wastes for the purpose of this part:
> (4) Source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq.

The SER does not claim that the SFC Material is exempt from the definition of a solid waste because it is a source material under the AEA. The definition of source material includes "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."[2] The SER and the Division do not claim that the SFC Material is either source material (where only the uranium and/or thorium content would be exempt) or that the SFC Material is "ore," and thereby exempt. That is because there would be no legal basis for defining the SFC Material as "ore," within the definition of "source material."

2.3.2. The SER makes no mention of or explain how the solid and hazard waste exemptions apply if and when the Uranium Material is defined as "ore." How the Uranium Material is both a "solid wastes from the extraction, beneficiation, and processing of ores,"[3] so it can be exempt from the definitions of hazardous waste, and also an "ore" (prior to extraction, beneficiation, and processing) is not explained by the Division.

In sum, the Division is manipulating the definitions to reach a desired outcome, however conflicting those definitions and outcomes are. Clearly, the Uranium Material cannot be both a solid waste from "the extraction, beneficiation, and processing of ores," to suit one outcome, and "ore," to suit another.

2.4. The SER (page 9) provides information about the Environmental Analysis Review Scope. The scope of the review includes the items that are required under the AEA for the scope of an Environmental Analysis of a licensing action.[4] The Scope also includes a review of other environmental impacts.

COMMENT

2.4.1. The Scope of the Review of the Environmental Analysis demonstrates that the Division is aware of the AEA requirements for an Environmental Analysis and that

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[2] "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." 10 C.F.R. 40.4.

[3] 40 C.F.R." 261.4(b)(7)

[4] 42 U.S.C. § 2021(o)(3)(C).

such an analysis need not be limited by, but must include, those aspects required in the AEA.

2.4.2. It is apparent that the SER and SER Environmental Analysis are guided by the Division's desire to approve the license amendment request to process the SFC 11e.(2) byproduct material. All of the conclusions serve to minimize any concerns—whether legal, technical, health and safety, or environmental—and demonstrate that there will be no problems or significant impacts, including cumulative impacts, if the SFC 11e.(2) byproduct material is shipped, received, stored, processed, and waste disposed of at the White Mesa Mill. The Division analysis is not an independent, balanced analysis.

2.5. SER, Section 4.1.1. Radiological Impacts, Tables 5 and 6 (page 13). Tables 5 and 6 provide data on radiological concentrations of the SFC 11e.(2) product material, based on samples from 2003 and 2005.

COMMENT

2.5.1. There is no information that demonstrates that those samples are representative of all of the SFC 11e.(2) product material that is proposed to be processed at the Mill. Nor is there data on the total volume and weight of the listed radionuclides.

2.6. SER, Section 4.1.1. Radiological Impacts, Table 8. Comparison of Radionuclide Activity Concentrations in SFC Uranium Material and Previously Approved Alternate Feed Materials (page 15). Table 8 compares various radionuclide concentrations of the SFC 11e.(2) byproduct material to uranium-bearing waste materials that have already been approved for processing at the White Mesa Mill. These include the materials from W.R. Grace facility and the Maywood, New Jersey, Formerly Utilized Sites Remedial Action Project (FUSRAP) site.

COMMENT

2.6.1. The White Mesa Mill never received and processed materials from the W.R. Grace facility or the Maywood FUSRAP site. The Division has proposed removing the license conditions that authorize the processing of those materials from the White Mesa Mill License. Therefore, any information in the SER that refers to those feed materials should be deleted and not taken into consideration, because it is irrelevant.

2.6.2. The Table should have included a comparison of the total mass of the material received and the mass of the various radiological constituents, not just the concentrations. The comparison of concentrations of radiological constituents is affected by the total amount of material and total amounts of specific radionuclides.

2.7. SER, Section 4.1.1.1 Gamma and Radon Emissions (page 16). Section 4.1.1.1 discusses the radon emissions from the uranium and thorium decay chains and states: "Ra-226 concentrations in the SFC Uranium Material are in disequilibrium and much lower than typical low-grade Colorado Plateau-derived uranium ores." And, "Given the

lower average Ra-226 concentrations in the SFC Uranium Material than in uranium ores typically processed at the mill (Table 7), Rn-222 emissions (from the uranium decay series) in the SFC Uranium Material are expected to be lower than those for the uranium ores processed at the mill."

COMMENT

2.7.1 It is quite possible that the measurements of radium-226 in the SFC 11e.(2) product material is not accurate or is not representative of all of the material. Unless the Division can demonstrate that the measurements of R-226 are accurate and representative of all of the material, the Division cannot assume that the radon-222 emissions from SFC 11e.(2) product material will be less than those from Colorado Plateau and Arizona Strip ores over the life of the Mill and thousands of years into the future. The data on the thorium-228 concentration may also be questionable. Eventually all of the thorium-232 in the material will decay to thorium-228 and thorium-228 progeny.

2.8. The SER, Section 4.1.1.1. Gamma and Radon Emissions (page 16). Section 4.1.1.1 also states, "The lower gamma field emanating from the U-nat chain decay in the SFC Uranium Material will be offset to a degree by higher gamma fields derived from the Th-232 chain decay associated with the SFC Uranium Material."

COMMENT

2.8.1. The SER fails to mention that, since the processing wastes will be disposed of in tailings Cell 4A (and possibly 4B) there is no requirement to measure and report the radon emissions annually, pursuant to 40 C.F.R. Part 61 Subpart W. Therefore, there is currently way to know what the radon-222 emissions will be during and after the disposal of the wastes from the processing of the 11e.(2) byproduct material from Sequoyah Fuels. There will be no way of knowing if the radon-222 emissions are above the generally established standard of 20 pico Curies per square meter per second (20 pCi/m^2-sec) and if mitigative measures should be taken to reduce the emissions (usually by placement of clean soil on the tailings).

2.8.2. Therefore, the Division must amend the White Mesa Mill License to include a requirement to monitor and report the radon emissions from Cells 4A and 4B solid tailings at least annually, but preferably twice annually, as is currently required for Cell 2, which is under closure and no longer subject to the Subpart W numerical radon emission standard for older ("existing") tailings impoundments. The Division has the authority to include this important requirement as a license condition. This proposed action is needed regardless of any approval or denial of the Energy Fuels license amendment. Radon monitoring from Cells 4A and 4B must include measurements of radon-220 emissions.

2.8.3. It is apparent from the data provided in the SER, that there are significant amounts of thorium-232 and thorium-232 progeny in the SFC 11e.(2) byproduct material. The SER fails to mention that the radon-220 (from the decay of thorium-232) and the

other thorium-232 progeny have not been included in the MILDOS-AREA Model. The White Mesa Uranium Mill license and groundwater permit renewal, "Technical Evaluation and Environmental Assessment" (TEEA) and MILDOS-AREA Model do not provide any information about the doses or impacts from the radioactive particulates and radon-220 emissions from the materials that contain thorium-232 and progeny that have been disposed of at the Mill, may be disposed of in future, based on current License conditions, and are being proposed for disposal.

2.8.4. The SER fails to provide information regarding the radium content of the liquid effluents in Cells 1, 4A, and 4B that will be impacted by the placement of the processing effluents or tailings after the processing of the SFC 11e.(2) byproduct material. The EPA[5] and Energy Fuels have determined that the radon emissions from liquid effluents at conventional uranium mills are not ZERO. The Division must require the periodic testing (at least monthly) of the liquid effluents in Cells 1, 4A, and 4B and determine the radon emissions from those effluents, based upon an agreed upon formula. The testing and the formula must include the radium from both the uranium and thorium-232 decay chains.

2.9. SER, Section 4.1.1.3 Packaging, Transportation, and Handling Procedures (page 20 - 21). Section 4.1.1.3 discusses the transportation of the SFC 11e.(2) byproduct material.

COMMENT

2.9.1. The Section 4.1.1.3. discussion of transportation of the SFC 11e.(2) byproduct material describes the route that the trucks carrying the Sequoyah Fuels waste will travel. However, the exact route from Interstate 40 in New Mexico to the Mill is not delineated. The SER mentions the use of Utah State Highway (SH) 262 to SH 191, leading to the Mill. The distance from I-40 to the Mill is approximately 186 miles. The distance on SH 262 and SH 191 to the Mill is about 30 miles, so there are over 150 miles between I-40 and Utah SH 262. The roads between Gallup on I-40 and Montezuma Creek, where SH 292 begins, crosses through the Navajo Nation and the Ute Mt. Ute Nation lands. Yet, there is no mentions of that fact in the SER.

2.9.2. The SER must provide a full description of the route from the Sequoyah Fuels facility in Gore, Oklahoma, to the Mill.

2.9.3. The SER must discuss the fact that the route to the Mill from New Mexico crosses tribal lands belonging to the Navajo Nation and Ute Mt. Ute Nation. The SER must assess the impacts to the tribal communities and discuss how Energy Fuels will inform the tribal governments of the transport routes and individual truck shipments. The

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[5] Risk Assessment Revision for 40 C.F.R. Part 61 Subpart W — Radon Emissions from Operating Mill Tailings; Task 5 — Radon Emission from Evaporation Ponds. Environmental Protection Agency, Office of Radiation and Indoor Air. November 9, 2010. https://www.epa.gov/sites/production/files/2015-05/documents/riskassessmentrevision.pdf

SER must discuss how the transport company and Energy Fuels will work with the tribal governments in the event of an accident or other possible exposure scenario. The Division and Energy Fuels cannot ignore the fact that the transportation route crosses tribal lands and requires timely notification, emergency planning, and involvement of tribal government officials and staff.

2.10. The SER, Section 4.1.2 Non-Radiological Impacts (page 25). Section 4.1.2. states with respect RCRA-Listed Materials Analysis: "As stated in Section 1.3, the SFC Uranium Material is considered to be the result of natural ore processing, therefore no listed RCRA material is presented because it is exempt under 40 CFR 261.4(b)(7)."

COMMENT

2.10.1. As discussed above at Section 2.3, the SER claims to exempt the SFC 11e.(2) byproduct material from any RCRA-Listed Materials Analysis because the Material is "solid wastes from the extraction, beneficiation, and processing of ores" and not because the SFC Material is "ore." This leaves one wondering if the Division is manipulating statutory definitions to allow the material to be processed at the Mill. One the one hand, the material is exempt from any RCRA-Listed Materials Analysis, because the material to be processed is "solid wastes from the extraction, beneficiation, and processing of ores;" on the other hand, the SFC material is "ore," so the wastes from the processing of the SFC 11e.(2) byproduct material will be defined as 11e.(2) byproduct material. And, the NRC has determined that the SFC Material is 11.(2) byproduct material (which means it is not even a "solid waste," so that the Material can be directly disposed of in a licensed 11e.(2) byproduct material impoundment. Certainly, there are unacknowledged and unexplained discrepancies.

2.10.2. How, exactly, can the SFC Material be both "11e.(2) byproduct material" (as defined under the AEA and NRC and EPA regulation) and "ore" (which has no AEA or NRC and EPA regulatory definition—just hundreds of years of traditional use of that term? Does this SFC 11e.(2) byproduct material get transformed back into "ore"? These magical processes must be explained by the Division.

2.11. The SER, Table 11. Projected Changes in Tailings Inventories and Concentrations From SFC Uranium Material and Comparison to Other Alternate Feed Materials (page 28). Table 11 provides the estimated concentration and mass of various constituents in the SFC 11e.(2) byproduct material and compares that informaiton with the concentrations and mass of those constituents in the White Mesa Mill tailings (before and after the processing of the SFC 11e.(2) byproduct material) and other data. Based on the footnotes to Table 11, it appears that the assumption is that the waste from the processing of the SFC 11e.(2) byproduct material will be disposed of in Cell 3. The footnotes to Table 11 indicate that the data for the current tailings and tailings after the processing of the Sequoyah Fuels waste all refer to Cell 3, though Cell 2 may also be included in some of the data (the Table is not clear in this respect). The data on the concentration range in the Mill Tailings before Processing the SFC Material (column C) is based on 2004 data.

That data is over 12 years old. Table 1 does not include data regarding the wastes in Cells 4A or 4B. According to the SER, the waste from the processing of the SFC 11e.(2) byproduct material will be disposed of in Cell 4A and possibly 4B or future impoundment.

COMMENT

2.11.1. The information in Table 11 is of minimal relevance to the disposal of the wastes from the processing of the SFC 11e.(2) byproduct material, because Table 11 relies on old, incomplete data, and does not include data on the existing tailings impoundment(s) that will receive the waste: Cell 4A and possibly 4B.

2.12. The SER, Section 4. Alternatives (page 45). The Section 4 discussion of alternatives to the processing of the SFR 11e.(2) byproduct material states that "alternate sites and engineering methods be considered in the analysis of the license amendment request." The only alternate site mentioned is the Cotter Mill, which is no longer operational.

COMMENT

2.12.1. The SER should have considered 2 other alternatives: 1) the direct disposal of the SFC 11e.(2) byproduct material at the White Mesa Mill and 2) the direct disposal at the Energy Solutions, Clive, Utah, 11e.(2) byproduct material impoundment. The Clive Disposal Facility is licensed to receive and disposal of 11e.(2) byproduct material by the DWMRC. The White Mesa Mill is also licensed to directly dispose of 11e.(2) byproduct material. These are alternatives that should reasonably have been considered in the SER. Of concern with both alternatives is the fact that the SFC 11e.(2) byproduct material has numerous constituents that are not found in, or are not found in similar concentrations, as 11e.(2) byproduct material produced from the processing of ore (that is, as natural material after removal from its place in nature) at the White Mesa Mill and other uranium mills.

3. DENIAL OF LICENSE AMENDMENT REQUEST

COMMENT

The Division should deny the license amendment request to process 11e.(2) byproduct material from the the Sequoyah Fuels Corporation, Gore, Oklahoma, facility at the White Mesa Mill for the following reasons:

3.1. The NRC has determined that the SFC material is 11e.(2) byproduct material, under the definition of in the AEA and NRC and EPA regulation. The SER and the Division have not explained, and cannot explain, how the SFC 11e.(2) byproduct material can be transformed back into a material that can be defined as "ore," based on statutory and regulatory provisions in the AEA and NRC and EPA regulations.

3.2. The wastes from the processing of the SFC 11e.(2) byproduct material at the White Mesa Mill would not meet the definition of 11e.(2) byproduct material. That is because the SFC material is not "ore," as that term has been in common use for hundreds of years[6] and how that term is used in the AEA definition of 11e.(2) byproduct material.[7] AEA, as amended by the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA),[8] 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. The AEA does not include a definition, or any indication of such definition, of "ore" that states that "ore" is any "matter from which source material is extracted in a licensed uranium or thorium mill." The AEA does not give the Utah

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[6] 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," such as ore bin, ore body, ore deposit, ore district, ore geology, ore grader, ore mineral, ore reserve, 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, and regulatory publications. "Ore" like the word "water," is a word of common and extensive usage with a clear and accepted meaning.

[7] 42 U.S.C. Sec. 2014 (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."

[8] The Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA") (Public Law 95-604, 92 Stat. 3033 *et seq*.), amending the Atomic Energy Act of 1954 (Public Law 83-703, 68 Stat. 919 *et.seq*.).

Department of Environmental Quality (DEQ), or other state or federal entity, the broad authority to authorize the processing of feed materials other than natural ores or the disposal of wastes from such processing at licensed uranium and thorium processing facilities as "11e.(2) byproduct material." The term "ore" has an accepted and historical definition as that term is used in the AEA and regulations promulgated responsive to that Act. Neither the NRC, nor the DEQ have the authority to use "guidance" or other means to change the substantive meaning of a word and, thereby, the regulatory program associated with that word and associated definitions. The DEQ does not have the authority to amend the AEA.

3.3. The statutory 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.
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> 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.]

The statutory history of UMTRCA does not provide any basis for a definition of "ore" as being any "matter from which source material is extracted in a licensed uranium or thorium mill."

3.4. Atomic Energy Commission (AEC) and the AEA of 1946 also demonstrate the intent of Congress and the agency that preceded the NRC with resect ore and the processing of ore. The domestic uranium mining and milling industry was established at the behest of the Manhattan Engineer District and the AEC. The AEC regulated uranium mines and uranium processing facilities, established ore buying stations, and bought ore. Mining and milling of uranium ore was done under contract to the AEC. AEC purchased uranium ore under the Domestic Uranium Program. Regulations related to the AEC's 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. 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 AEAs of 1946 and 1954, the AEC regulated uranium mining and milling and 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 stated that "ore" does not include mill tailings or other mill products. It is clear that "ore," under the AEA and AEC regulation did not mean any "matter from which source material is extracted in a licensed uranium or thorium mill." Such a new definition contradicts the AEA.

3.5. The Statutory Definition of Source Material also is relevant to the use of the term "ore" under that AEA and NRC regulation. 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 over-all 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, over fifty-five 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.

3.5**.** 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 are mined at uranium mines and milled at uranium mills). There is no evidence in the

regulatory history of UMTRCA that Congress intended the term "any ore" to mean anything that the NRC, DWRC, or Energy Fuels wants it to mean. There is no evidence in the regulatory history of UMTRCA that "ore" is "any other matter from which source material is extracted in a licensed uranium or thorium mill."

3.6. In response to UMTRCA, both the EPA and the NRC established a regulatory program for uranium milling and the processing of ores. In establishing those regulations, neither the EPA nor the NRC contemplated the processing of materials that were not "ore" (as that term has been used under the AEA and the common meaning of the term). Neither the EPA nor the NRC considered wastes from other mineral processing operations in their concept of "ore." They did not address in any manner the processing wastes or any matter other than natural ore 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 or materials other natural ore, 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 in the rulemaking processes.

3.7. 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, 45 Fed. Reg. 65521-65538 (October 3, 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.]

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, 11e.(2) byproduct material, or any other matter processed in a licensed uranium mill could be defined as "ore," under any circumstances. The NRC regulations did not contemplate that, under any circumstances, wastes and other materials would be processed at licensed uranium or thorium mills and the tailings, or that the wastes from such processing would be disposed of as 11e.(2) byproduct material in the mill tailings impoundments. The regulations promulgated by the NRC 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. In the rulemaking proceedings and NEPA proceeding, the public did not have an opportunity to contemplate and comment on this kind of uranium or thorium mill processing activity. The information provided in the SER and other documents demonstrate that materials other than natural ore contain radiological and non-radiological constituents that are significantly different than those in natural ore. Therefore the impacts from the processing and disposal of the wastes from those materials would be different from those of “ore.”

Furthermore, 10 C.F.R. Part 40, Appendix A, Criterion 8, states in part:

> 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 this NRC regulation and the regulation in 40 C.F.R. Part 440 (and the enabling statute) have in any manner been amended or altered by subsequent NRC policy guidance. Therefore, any shift in the usage of the word "ore" would conflict with statutory and regulatory authorities with respect 10 C.F.R. Part 40 and 40 C.F.R. Part 440.

3.8. The Final Generic Environmental Impact Statement on Uranium Milling (GEIS).[9] 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.]

The GEIS is very clear about what it considers "ore" to be and gives no indication whatsoever that materials other than ore (a natural material after its removal from its place in nature), such as the tailings or waste from mineral processing operations, are considered to be "ore" if the material is processed at a licensed uranium mill.

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 and "ore reserves." GEIS, Volume I, Chapter 2, at 2-1 to 2-2.

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 andGrinding" (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).

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[9] Final Generic Environmental Impact Statement on Uranium Milling, Nuclear Regulatory Commission, NUREG-0706, September 1980.

The GEIS did not consider the processing of 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 (such as material already defined as 11e.(2) byproduct material) 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. There was no evaluation of the transportation issues related to the transport of such wastes, nor were reasonable alternatives to the transportation, receipt, processing, and disposal of such wastes at uranium or thorium mills ever evaluated.

3.9. EPA Regulatory Standards. 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. . . . [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.[10] 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 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.]

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 or that ore could be defined as “any other matter from which source material is extracted in a licensed uranium or thorium mill.”

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[10] https://www.epa.gov/radiation/health-and-environmental-protection-standards-uranium-and-thorium-mill-tailings-40-cfr

Additionally, the EPA incorporated UMTRCA's 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 “any other matter from which source material is extracted in a licensed uranium or thorium mill.” 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." The EPA did not contemplate, nor was the public informed of the EPA intention to consider, the processing of “any other matter from which source material is extracted in a licensed uranium or thorium mill.”

In the various rulemaking proceedings that have taken place in the establishment of 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 or “any other matter from which source material is extracted in a licensed uranium or thorium mill.” The processing of wastes (such as the material from the Sequoyah Fuels Corp. Gore facility) from material other than natural ore at uranium and thorium mills was beyond the scope of the regulatory program established by the NRC and the EPA in response to UMTRCA for operating uranium mills.

3.10. The AEA, as amended in 1978 by UMTRCA, included provisions applicable to Agreement States. One of those provisions requires NRC Agreements States (such as Utah) to “require for each license which has a significant impact on the human environment a written analysis (which shall be available to the public before the commencement of any such proceedings) of the impact of such license, including any activities conducted pursuant thereto, on the environment, which analysis shall include,” among other things, “consideration of the long-term impacts, including decommissioning, decontamination, and reclamation impacts, associated with activities to be conducted pursuant to such license, including the management of any byproduct material, as defined by section 2014 (e)(2) of this title.”[11] So, again, the AEA imposes requirements associated with the definition of and management of 11e.(2) byproduct material, as that term is defined under the AEA and NRC and EPA regulations promulgated responsive to that Act. The State of Utah has not been given the authority to amend this section of the AEA.

3.11. Regulatory History of NRC’s Alternate Feed Guidance. The SER relies on NRC Guidance (SECY 95-211, SECY-99- 012, and NRC Regulatory Issue Summary

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[11] 42 U.S.C. § 2021(o)(3)(C)

2000-23). 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, including the denial of the amendment requests to process feed material that was not “ore.” One option 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 **or any other matter from which source material is extracted in a licensed uranium or thorium mill**." Emphasis added. NRC Staff made a determination that they would not go to Congress to seek an amendment to the AEA of 1954. If the AEA was amended to include a new definitions, the NRC would have also had to commence a rulemaking to amend 10 C.F.R. Part 40, and the EPA would have had also commence a rulemaking to amend 40 C.F.R. Part 192, 40 C.F.R. Part 61 Subpart W, and other regulations.

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 in a notice and comment opportunity, 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. 57 Fed. Reg. 20525 (May 13, 1992). The NRC did not institute a rulemaking proceeding to amend 10 C.F.R. Part 40, though they indicated that that was their intent.

3.12. The NRC Final Position and Guidance gave a new definition of ore:

> Ore is a natural or native matter that may be mined and treated for the

> extraction or any of its constituents or any other matter from which source material is extracted in a licensed uranium or thorium mill. [60 Fed Reg. 49296 (September 22, 1995).]

Based on the new use of the term "ore" as put forth in the NRC 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 matter** 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 that word was used in the NRC regulatory definition of 11e.(2) byproduct material.

It is plain from the AEA of 1946 and the legislative history of the AEA of 1954 and the Uranium Mill Tailings Radiation Control Act of 1978 and the regulatory history of the AEC, EPA, and NRC rules promulgated responsive to those laws, that the Policy Guidance's new use of the term "ore" goes far beyond the accepted meaning of that term and the clear intent of Congress.

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

The NRC and the State of Utah have 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 and regulations of another federal agency; in this case, the EPA.

The NRC issued the 1995 Final Position and Guidance and the 2000 Interim Position and Guidance without conducting an assessment of any of the health, safety, or environmental effects of establishing a substantively new and different regulatory program that resulted from the issuance of the Final Position and Guidance.

At the White Mesa Mill, this new recovery program—a program that started with the processing of a few small batches of wastes from other mineral processing operations to supplement the processing of uranium ore—grew to be a major uranium recovery program that entailed the receipt and processing of thousands of tons of wastes from other mineral processing operations from across the country and even Canada.

The adverse environmental effects—including cumulative effects—of this new program have not been adequately identified and evaluated under the statutory framework established by the AEA. Further, no NEPA document has ever considered the reasonable alternatives to the processing of wastes from other mineral processing operations at uranium and thorium recovery facilities.

3.13. UMTRCA, as it amends the AEA, clearly specified what constitutes "any ore." What constitutes "any ore" is "any ore." The plain language of the Act and the history of the implementation of the AEA of 1946, as amended by the AEA of 1954 and UMTRCA is all that is needed to determine what "ore" or "any ore" is. Clearly the legislative and regulatory history of the AEA and Title 10 of the Code of Federal Regulations make plan the meaning of the term "ore" and the term "any ore."

The DWMRC's use of the word "ore" for waste materials from mineral processing operations (in this case materials already defined as 11e.(2) byproduct material) is unreasonable and not permitted under the plain language of the AEA. No state or federal agency can use a licensing action or a policy guidance to expand upon and substantively alter the will of Congress when that will is explicitly set forth in statute.

3.14. The standards promulgated by the EPA in 40 C.F.R. Part 192 Subpart D and 40 C.F.R. Part 61 Subpart W no not apply to the processing of materials other than natural ore at a licensed uranium mill, the construction of tailings impoundments that will receive wastes from the processing of materials other than natural ore, the disposal of wastes from the processing of materials other than natural ore, or any other operations or health and safety or environmental impacts from the processing of materials other than natural ore at a licensed uranium mill. The State of Utah has not been given the authority to amend EPA regulations through use of NRC guidance or by any other means. Therefore, the DWMRC cannot approve the proposed license amendment request to process 11e.(2) byproduct material at the White Mesa Mill and the License Amendment Request must be denied.

Thank you for providing the opportunity to comment.

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