From: Lee J Alter <alterconsult@starband.net>
Sent: Friday, March 01, 2013 12:28 PM
To: CHAIRMAN Resource
Subject: Feb 20 Uranium Recovery Briefing -- New U Recovery Technologies
Attachments: BLACK RANGE MINERALS AND TALLAHASSEE URANIUM, December 2012.pdf; TAC Ltr to NRC - UBHM & Ablation July 2012.pdf; TAC Ltr to NRC Dec 14, 2012.pdf; TAC Ltr to S.Tarlton 12.5.12.pdf; NRC Health Physics Positions - HPPOS 184.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Dr. Macfarlane:

Please permit me to refer to your brief dialogue with Geoff Fettus of NRDC during the meeting regarding experimental uranium recovery technologies.

Attached please find an analysis prepared by the Tallahassee Area Community which identifies the regulatory, human health & safety, technical, and environmental issues associated with the Underground BoreHole Mining (UBHM) and Impact Ablation uranium recovery technologies that are being proposed by Black Range Minerals for their Hansen/Taylor Ranch Uranium Project in Fremont County, Colorado and elsewhere in the United States -- perhaps in Non-Agreement States -- as well as globally.

Also, please find my letters to Duncan White and Bill Von Till regarding these issues. Mr. White properly referred me to the Colorado Radiation Program Manager in response to my first letter -- Mr. Tarlton's response with respect to ablation is quoted in the TAC analysis. I have not yet received a substantive response to my second letter, which included the accompanying attachments.

For your information as to Black Range current intentions, please see:
http://www.blackrangeminerals.com/content/wp-content/uploads/2013/02/11-Feb-2013-Investor-Presentation.pdf.

Thank you for your attention.

Lee J Alter
SB (MIT-Sloan), MBA, JD

Chairman, Government Affairs Committee
Tallahassee Area Community, Inc.

Tallahassee Area Community, Inc.

Fremont County, Colorado

Board of Directors
P O Box 343
Cañon City, Colorado 81212
www.taccolorado.com

December 2012

BLACK RANGE MINERALS AND TALLAHASSEE URANIUM

Black Range Minerals, Ltd, a junior Australian exploration company (ASX:BLR) is proposing to exploit the marginal uranium resources in the Tallahassee area of northwest Fremont County, Colorado. The company claims that there are approximately 90 million pounds of uranium with an average ore grade of 0.06%, one of the largest deposits in the US. For comparison, Canadian uranium deposits have ore grades at 10-18% uranium; the World Nuclear Association, the industry trade organization, considers an ore grade of 0.1% as low-grade and 0.01% as very low-grade.

The most completely understood deposit within the BLR Hansen/Taylor Ranch Uranium Project is the Hansen Deposit, located within the South T-Bar Ranch Residential Development. This potential resource is rated at ~17 million pounds at 0.067% U3O8 ore grade (at an uneconomical 250 ppm cutoff) or a more realistic ~9 million pounds at a 750 ppm cutoff.

In order for Black Range to proceed with their project with such a marginal uranium ore grade, the company has proposed to utilize two experimental uranium recovery technologies rather than conventional open pit or underground mining techniques or *in-situ* leach solution mining technology (which is not suitable in Tallahassee for technical geological reasons).

The company claims that by employing the new technologies they can mine uranium economically, in an environmentally friendly manner, and expedite the regulatory permitting process. They propose to be in an active mining phase by 2016.

There are approximately 600 large rural residential properties in the Tallahassee area with more than 1/3 of them full time or part time seasonal residences and most of the others are used as recreational sites (hunting, fishing, camping, etc.) or are being held for retirement. The Tallahassee Area Community (TAC), a Colorado not-for-profit corporation consisting of residents and property owners in the immediate vicinity of the proposed mine site, is opposed to the Black Range project and believes that the company's assertions are incorrect and misleading in many ways.

The first step in the Black Range proposed mining plan is to utilize Underground Bore Hole Mining (UBHM) to bring the uranium bearing ore to the surface. UBHM has never been employed commercially for uranium recovery either in the US or anywhere in the world - there have been experimental trials in Canada, on high grade ore, of a radically different (and more environmentally protective) variation of UBHM, but it has not been put into production to date.

The proposed Black Range process is to drill a 22 inch diameter bore hole down to the depth of the ore body (approximately 650 feet), then to inject high pressure water to excavate a cavern by fragmenting

the uranium-bearing sandstone, then returning the ore pieces to the surface up a pipe in the bore hole as a water slurry. When the cavern is exhausted, the drill rig would be moved to an adjacent site and the process repeated. Black Range has stated that about 2600 bore holes would be required to mine-out Hansen.

There are a number of regulatory, technical, and environmental issues that the company has not commented on and that raise serious concern:

1. The amount of water that would be required to be injected into the bore hole is massive: up to 50,000 gallons per hour/ up to 800 gallons per minute during operations.

2. This water would be pressurized to 1000-1500 psi (up to 100 times normal atmospheric pressure). The water pressure must be this high to fragment the sandstone uranium ore.

3. Presumably, the operation would require diesel powered equipment which would be very noisy and produce large amounts of diesel exhaust fumes as well as large amounts of greenhouse gas(GHG) emissions. Keep in mind that uranium powered electricity generating plants are touted as being pollutant and GHG emission free.

4. Water at standard pressure naturally contains dissolved atmospheric oxygen; the amount of dissolved oxygen increases as the water pressure increases. Although the actual amount that would be in the UBHM water is unknown, the scientific literature discloses that it would be at least four times standard and likely considerably higher.

5. When this highly oxygenated water comes in contact with the fragmented uranium ore, chemical reactions will occur. TAC believes that a significant fraction of the water-insoluble uranium oxide will be oxidized to the soluble form and would be dissolved into the water in the cavern (as will any other radioactive constituents and heavy metals). An unknown amount of this contaminated water will, under pressure, be forced out of the unconfined cavern into the surrounding sandstone aquifer to contaminate the local groundwater and the many domestic water wells in the area; the remaining contaminated water would be returned to the surface as the water/ore slurry.

6. Although Black Range considers this process as "mining", the US Nuclear Regulatory Commission Office of General Counsel, as long ago as 1977 (NRC reviewed and updated in 2012), stated that the line to be drawn between uranium "mining" and "milling" is when the "gross appearance and chemical state of unrefined and unprocessed ore has not been altered from the point of mining". It is at that point, NRC said, that the resulting change in the radiological characteristics require regulatory, health, and environmental consideration. TAC believes that the specific point is when the oxygenated pressurized water fragments the ore in the cavern. It is TAC's position that UBHM is a non-conventional uranium milling activity and would require a source material Radioactive Material License in addition to a Designated Mining Operation mining permit. Neither the NRC, the Colorado Department of Public Health and Environment (CDPHE), nor the Colorado Division of Reclamation, Mining and Safety (DRMS) have made a regulatory determination as yet (December 2012).

The second step in the proposed mining plan is to subject the water/ore slurry to a truly experimental process called Impact Ablation. A 750 pound/hour test machine unit has been developed by Ablation Technologies LLC of Casper, Wyoming (ABT). A 20 ton/hour production unit is proposed but has not yet been built. Black Range has announced that it will fund 100% of the construction cost of the production machine as a major part of its recently announced Joint Venture Agreement with ABT to develop the commercial process, to use it at Hansen, and to market the process to other uranium mining operations.

The procedure is for the water/ore slurry from UBHM to be injected from opposing sides of the machine at high pressure to create a high energy impact zone. The ore fragments would be further broken down by this impact, the fine grain uranium oxide portion would be separated from the bulk rock by gravity screening then collected, dried, and packaged for shipment (presumably by truck) to a conventional uranium mill for further processing into U3O8 "yellowcake". The company claims that the "ablated concentrate" will contain most (but admittedly not all) of the uranium in the ore in only 10% of the bulk volume, thereby significantly reducing the cost of conventional chemical processing.

This process also raises serious regulatory, health, and environmental concerns:

1. Impact Ablation is a brand new concept and has not been proved in production. One highly experienced mining engineer and consultant has told TAC that he has doubts that it will work as claimed.

2. Black Range insists that this process is "mining" and not source material processing ("uranium milling"). It bases its belief on peculiar wording in the definition of "ore" found in the Colorado Radiation Regulations, and thereby expecting to avoid the necessity of obtaining a source material Radioactive Material License. Federal regulations contradict this position and includes the "crushing" or "grinding", separation, screening, and concentration of uranium ore as beneficiation processes which are identified as source material processing activities. TAC pointed out the contradiction between Colorado and Federal regulations to the manager of the Radiation Management Unit of CDPHE. After reviewing our documentation, he stated (in correspondence to TAC in October and November 2012) that *"the process, if implemented as we now understand it, would result in the possession of source material and would, therefore, require a source material radioactive material license at a minimum".*

3. Since ablation is considered by CDPHE as a non-conventional uranium milling activity, the waste product from the process -- 90% of the recovered rock from UBHM and all of the recovered process water -- would be defined as 11e.(2) byproduct uranium mill tailings. This would require very extensive (and expensive) procedures for their handling, storage, and ultimate remediation.

4. As mill tailings, the regulations imply that the waste rock could not be used to backfill the exhausted caverns and bore holes from the UBHM process as Black Range has proposed. TAC believes that means that the 90% of the rock fragments brought to the surface from the ore body would have to be impounded on the surface at the mine site creating a permanent environmental problem.

5. Black Range has proposed to recycle the water output from ablation by re pressurizing and re injecting it into the UBHM bore holes . TAC believes that as liquid mill tailings, contaminated by both the

UBHM and Ablation processes, this would not be permitted , thus requiring "new" clean water for the entire UBHM/Ablation procedure. The contaminated water would have to be impounded on the surface in specially constructed impoundment ponds to preclude seepage down to the groundwater aquifer as well as being protected from overtopping the pond banks and contaminating the surface land and nearby streams and irrigation ditches during major storm events.

6. Both Colorado and Federal regulations have established criteria for the location of uranium mills and mill tailings storage facilities. The very first part of the first criterion is "remote[ness] from populated areas". The Tallahassee rural residential parcels (mostly ranging from 5 to 80+ acres), surrounding the entire Black Range project site on three sides, have been developed over the past 30 years, long before Black Range began their project plans. In addition to the ~600 individual property owners -- organized into 16 Property Owners Associations -- the area also includes a 160+ acre Benedictine Religious Retreat located on Tallahassee Creek and approximately one mile from the Hansen site.

7. Colorado legislation, confirmed in a 2010 Colorado Supreme Court decision, authorizes counties to disallow any mining (and milling) activity from specific portions of the county, at their discretion, based on human health, environmental, and/or socioeconomic concerns. TAC is committed to vigorously insisting to Fremont County that the rural character of Tallahassee be preserved and protected.

The third step of the Black Range plan is to transport the "ablated concentrate" out of the area for final chemical processing into yellowcake. The nearest conventional uranium mill is the White Mesa Mill in Blanding, Utah -- over 300 miles west of Tallahassee. A proposed new mill in western Colorado -- about 250 miles away -- has not yet received final regulatory approval and is facing strenuous opposition from some of the local population. Even if it receives final permit approval, there is no assurance that the mill would ever be funded or constructed.

An alternative that Black Range has suggested is to sell the concentrate outright to a major uranium producer who would then transport it to its facilities for processing, perhaps in Canada. The price that would be received by Black Range for the concentrate would be at a significant discount from the spot price of yellowcake since transportation and final processing costs would be borne by the purchaser.

Although Black Range continually cites the US market as the target market for its product, American nuclear energy demand is expected remain flat for the foreseeable future. The demand for uranium power plant fuel is, however, expected to increase elsewhere in the world, especially in Asia and the Middle East.

TAC has been instrumental in the passage of strong new legislation and regulations regarding how uranium is to be mined and milled in the state of Colorado. We intend to continue our efforts to protect our pristine rural mountain community from the adverse impacts to our health, environment, and socioeconomic wellbeing that would result from the mining and milling of a marginal uranium resource.

Nuclear power is neither clean, nor green, nor renewable.

There are serious consequences at the Front End of the Nuclear Power Cycle.

Tallahassee Area Community, Inc.

Fremont County, Colorado

Board of Directors
P.O .Box 343
Cañon City, Colorado 81212
(www.taccolorado.com)

July 12, 2012

U.S Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Attention:
Mr. Duncan White, Branch Chief, Agreement State Programs;
Division of Materials Safety and State Agreements
Mr. Randolph (Bill) Von Till, Branch Chief, Uranium Recovery ;
Division of Waste Management and Environmental Protection

Federal and State Materials and Environmental Management Programs

Via email attachment (Duncan.White@nrc.gov; RWV@nrc.gov)

Dear Mr. White and Mr. Von Till:

This letter is related to the reference to Emerging Technologies in Uranium Recovery at the recent April 17, 2012 IMPEP review meeting with the Radiation Management Unit of the Colorado Department of Public Health and Environment (CDPHE). Black Range Minerals, Ltd. (ASX:BLR) has made numerous recent announcements regarding their expected utilization of both Underground Bore Hole Mining (UBHM) and Ablation technologies for uranium recovery at their Hansen/Taylor Ranch Uranium Project. Please see: www.blackrangeminerals.com, Investor Relations, ASX Announcements.

The Tallahassee Area Community, Inc. (TAC) is a Colorado not-for-profit organization consisting of residents and property owners in the Tallahassee area of northwest Fremont County, Colorado who are concerned about the potential adverse human health and environmental impacts of large scale uranium exploitation in the immediate vicinity. Please see: www.taccolorado.com.

Both UBHM and Ablation for uranium recovery are acknowledged experimental technologies. To the best of our knowledge, neither have ever been used commercially nor have been specifically considered in NRC or Agreement State regulations or guidance.

TAC believes that their regulatory status is unclear and that there appears to be a conflict between NRC and Colorado definitions and possible interpretations with respect to the question of whether either or both of these technologies should require the issuance of Colorado Radioactive Materials Licenses.

A. **<u>Underground Bore Hole Mining</u>**

1. Black Range, and its consultant Kinley Exploration, LLC, describes the process as the injection of high pressure water, without added chemicals, into large bore holes drilled to the depth of the targeted uranium ore body which then, by use of an "under reamer", excavates a "cavern" by fragmenting the uranium containing rock and returning those fragments to the surface as a water slurry. http://www.blackrangeminerals.com/content/wpcontent/uploads/2012/05/New/BlackRangeSelectsDevelopmentApproachForHansenDeposit26Apr12.pdf

2. The company has not disclosed many details about the process ,however, TAC research has revealed that up to 50,000 gallons per hour of water pressurized to 1000 - 1500 psi or greater would be required to fragment the sandstone-embedded uranium ore body.

3. The water recovered from the slurry would be reused -- supplemented with make-up water, re pressurized and re injected into the bore hole -- until the cavern is exhausted of the targeted material.

4. It is, at present, unknown what concentration of atmospheric oxygen would be dissolved in the water injected into the bore hole. It would surely be greater than for water at standard temperature and pressure conditions. Oxidation of insoluble uranium oxide to the soluble state, depending on the pH and other conditions in the cavern, would be enhanced. It is expected that as the water is reused, the concentration of uranium, other radioactive constituents , and heavy metals would increase.

5. Some portion of this high pressure water would inevitably be forced out of the cavern into the surrounding sandstone aquifer and threaten the quality of the groundwater and local domestic water wells. Ultimately, the remaining water would be impounded on the surface and presumably left to evaporate away.

6. While UBHM poses many of the same environmental issues as does In-Situ Leach Uranium Recovery, it does not meet the current definition since only the fragmented ore pieces are processed for its uranium content; the "leachate" is not processed for recovery of uranium but rather would be treated as waste.

7. The Colorado Hard Rock Mining Rules distinguish between In-Situ Leach Uranium Mining, which it regulates concurrently with CDPHE, and In-Situ Mining. However, the point at which uranium mining ends and uranium processing begins appears to be defined by conflicting definitions of CDPHE and NRC. The difference is: precisely when does "ore" becomes "source material". CDPHE regulations specify that uranium ore prior to chemical processing is not source material but rather the product of mining. The NRC Office of General Counsel has ruled to the contrary.

8. OGC has said that the line between "mining" and "processing" is drawn at the point of "unrefined and unprocessed ore" in its "natural form" and when "its gross appearance...has not been altered from the point of mining". http://www.nrc.gov/about-nrc/radiation/protects-you/hppos/hppos184.html.

TAC believes that it is reasonable and prudent, in view of health & safety and environmental considerations of the UBHM technique, that the fragmenting of ore in the underground cavern be considered as a uranium processing activity requiring (in Colorado) a Radioactive Material License.

B. Ablation

1. The name of the technology should properly be "Impact Ablation" to distinguish this uranium concentration process from Laser Ablation, which is used to identify minerals and in other applications.

2. Black Range and Ablation Technologies, LLC, its consultant and recently announced Joint Venture partner, describes the process as follows: " In ablation, the slurry from UBHM is ejected from two opposing injection nozzles to create a high energy impact zone. This high energy impact separates the mineralized patina of uranium from the underlying grain. The uranium bearing particles are found in the fine fractions separated in a subsequent screening process. As tested on material from Hansen, ablation allows approximately 90% of barren material to be separated from mineralized material prior to milling, greatly reducing the total OPEX and CAPEX costs to process mineralized material. The final product is an "ablated concentrate" which consists of approximately 10% of the original mineralized material, which will be processed with conventional milling techniques."
http://www.blackrangeminerals.com/content/wp-content/uploads/2012/07/07-06-2012-BLR-Secures-Rights-to-Ablation-Technology.pdf. (Emphasis added).

3. Clearly, the company does not consider that this process is "milling" and subject to licensing by CDPHE. It appears to be relying on the Colorado Radiation Control Regulations definition of "ore" as a product of mining and before it becomes "source material". ""Ore" means naturally occurring uranium-bearing, thorium-bearing, or radium-bearing material in its natural form, to be processed for its uranium or thorium content, prior to chemical processing including but not limited to roasting, beneficiating, or refining, and specifically includes material that has been physically processed, such as by crushing, grinding, screening, or sorting." 6 CCR 1007-1 Part 1.2 Definitions. (Emphasis included in the recent PowerPoint presentation by the Black Range Vice President of Regulatory Affairs to the National Mining Association in Denver). http://www.nma.org/pdf/urw_2012/grebb.pdf

4. Regardless of the determined status of the UBHM fragmented ore in the cavern, the material undergoing impact ablation is being subjected to source material processing and the resultant waste, both the "barren" rock and process water, is 11e.(2) byproduct material. The high energy impact which separates the uranium grains from the "barren" rock is the functional equivalent of crushing or grinding. The grains are then separated and sized by a screening and elutriation process to isolate the "ablated concentrate" which is then transported off-site to a conventional mill for final processing into yellowcake.

5. As stated in 40 CFR 261.4(b)(7) the beneficiation of ore (including uranium ore) includes every one of those steps. The fact that they would be done at other than a conventional mill does not change the fact that impact ablation is a milling activity subject to a Radioactive Materials License.

6. In the 2002 Office of General Counsel document entitled *Uranium Milling Activities at Sequoyah Fuels Corporation* , the question of "What Constitutes Uranium Milling" was considered: "A fundamental,

plain-language, working definition of uranium milling can be constructed from the somewhat circular references contained in the ... regulatory definitions (in 10 CFR 40.4, of uranium milling, byproduct material and source material): Uranium milling is an activity or series of processes that extracts or concentrates uranium or thorium from any ore primarily for its source material content, and the resulting tailings or waste are 11e.(2) byproduct material." http//www.nrc.gov/reading-rm/doc-collections/commission/secys/2002/secy2002-0095/attachment5.pdf.

7. The OGC document further discussed non-conventional milling and milling at multiple locations. It stated: " Non-conventional processing ... comprise other technologies.... The distinction among non-conventional milling activities is that these activities often occur at locations other than a uranium mill.... Uranium milling entails many processing steps , which ... are not required to occur at a single location, but often do."

We respectfully request that you consider the regulatory status of both UBHM and Impact Ablation uranium recovery technologies as promptly as possible since Black Range is expected to finalize their intentions for the Hansen/Taylor Ranch Uranium Project by the end of 2012.

Thank you for your attention. I look forward to your response.

Respectfully submitted,

Lee J Alter
Chairman, Government Affairs Committee
Tallahassee Area Community, Inc.

0489 Fremont County Road 21A
Cañon City, Colorado 81212
719.276.0864
AlterConsult@Starband.net

Tallahassee Area Community, Inc.

Fremont County, Colorado

Board of Directors
P O Box 343
Cañon City, Colorado 81212
www.taccolorado.com

December 5, 2012

Mr. Steve Tarlton
Manager, Radiation Program
Colorado Department of Public Health and Environment
4300 Cherry Creek Dr. S.
Denver, CO 80246-1530

Via email attachment (steve.tarlton@state.co.us)

Dear Mr. Tarlton:

Thank you for your letter of December 4th.

Please permit me to amplify my argument that UBHM, as described by Black Range, should be considered a non-conventional source material processing activity as well as uranium mining. I recognize that the use of water, without added chemicals, to fragment uranium ore is analogous to conventional underground blasting. It is what occurs in the cavern immediately following the ore fragmentation that is, however, significantly different from the situation in conventional underground mining dry blasting.

The water that is to be pressurized up to 1500 psi (one hundred times standard atmospheric pressure) prior to injection into the bore hole, will contain dissolved atmospheric oxygen (DO) at a concentration considerably higher than standard. At four bar (four times standard atmospheric pressure) the concentration of DO is approximately four times greater; a number of scholarly studies report a straight line increase as a function of water pressure up to, at least, 200 bar.

This highly oxygenated water will cause chemical reactions to occur when coming in contact with the newly fragmented uranium bearing sandstone ore. An unknown fraction of the insoluble uranium oxide (and other radioactive and heavy metal compounds) will be converted to the more soluble, oxidized state and dissolved into the water. Some portion of this pressurized water will inevitably be forced out of the unconfined cavern into the surrounding sandstone aquifer. The remaining contaminated water would be returned to the surface as a water/ore slurry to be utilized in the ablation process.

The NRC Office of General Counsel has stated that the line that is to be drawn between uranium mining and milling is when the gross appearance and chemical state of unrefined and unprocessed ore has been altered from the point of mining. It is at that point that a recognition of the changed radiological environment and underlying health and safety considerations becomes a matter of legitimate regulatory concern. Please see the attached NRC Health Physics document [color highlight and emphasis added].

It is TACs position that UBHM ore fragmentation alters both its gross appearance and its chemical state from the condition it was in just after removal from its place of deposit in nature, and therefore should be considered source material processing. We believe that UBHM should be defined as such in the Colorado Radiation Regulations.

Thank you for the opportunity to continue this dialogue with you.

Sincerely,

/s Lee J Alter, Chairman
TAC Government Affairs Committee

cc via email:
Duncan Burdick, MD, Chairman, Radiation Advisory Committee
Mike King, Executive Director, DNR
Loretta Piñeda, Director DRMS
Cathe Meyrick, President, TAC

Tallahassee Area Community, Inc.
Fremont County, Colorado

Board of Directors
P O Box 343
Cañon City, Colorado 81212
www.taccolorado.com

December 14, 2012

U.S Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Attention:
Mr. Duncan White, Branch Chief, Agreement State Programs;
Division of Materials Safety and State Agreements
Mr. Randolph (Bill) Von Till, Branch Chief, Uranium Recovery ;
Division of Waste Management and Environmental Protection

Federal and State Materials and Environmental Management Programs

Via email attachment (Duncan.White@nrc.gov; RWV@nrc.gov)

Dear Mr. White and Mr. Von Till:

As Mr. White suggested in your letter of August 8, 2012 regarding the regulatory status of Underground Bore Hole Mining and Impact Ablation uranium recovery technologies, we have a continuing dialogue with Steve Tarlton, Radiation Program Manager at CDPHE.

Black Range Minerals has not yet submitted a proposal to proceed with their project in Fremont County however their public announcements continue to speak of the benefits of the experimental processes. Mr. Tarlton has made a partial initial determination as to ablation but is awaiting more information and a formal application from the company.

Regarding the ablation process, he has stated that *"the proposed process, if implemented as we now understand it, would result in the possession of source material and would, therefore, require a source material radioactive material license at a minimum".* TAC understands that to mean that both the waste rock (approximately 90% of the total volume recovered from the underground cavern) and the process water is 11e.(2) byproduct and must be handled as uranium mill tailings and be subject to the requirements of Appendix A (essentially the same in both Colorado and Federal radiation control regulations).
Question: Is this a reasonable assumption?

Regarding UBHM, although everyone accepts the premise that is it not, by definition, *in-situ* leach solution mining, Mr. Tarlton believes that the current Colorado ISR regulations are adequate but has asked us for suggested changes in the regulations. It is TACs position that UBHM meets the requirements outlined in the NRC Health Physics document going back to 1977 which drew the line

between uranium mining and milling at the point where the gross appearance and chemical state of the unrefined and unprocessed ore is altered from the point of mining. Please see our December 5 letter to Mr. Tarlton and the OGC HPPOS 184 document attached.
Question: Does the Commission position stated in HPPOS 184 remain current and is our argument outlined in the letter to Mr. Tarlton a reasonable one?

Thank you for your prompt attention.

Sincerely,

s/ Lee J Alter

Chairman, TAC Government Affairs Committee

0489 Fremont County Road 21A
Cañon City, Colorado 81212
<AlterConsult@Starband.net>

http://www.nrc.gov/about-nrc/radiation/protects-you/hppos/hppos184.html

NUCLEAR REGULATORY COMMISSION

HPPOS-184 PDR-9111210289

Title: Licensing for Crushing of Uranium Ore per 10 CFR 40.4 (k)

See the memorandum from G. D. Brown to G. W. Roy dated July 13, 1977, and the informal note from R. L. Fonner to G. W. Kerr dated March 1, 1977. Crushing of uranium ore is a form of processing subject to licensing by definition in 10 CFR 40.4 (k).

...

The licensee contended that the crushed ore (run through a crusher at the mill) was not licensed material pursuant to 10 CFR 40.13 (b), "Unimportant Quantities of Source Material," since it was unrefined and unprocessed ore as defined in 10 CFR 40.4. The licensee contended that grinding, in the milling industry, is part of the milling process, whereas, crushing is not. Therefore, their position was that the citation was not legally valid, and a legal ruling was needed as to whether or not the crushed ore was unrefined ore or ore that was licensable.

10 CFR 40.13 (b) exempts for licensing unrefined and

unprocessed ore (excepting export). 10 CFR 40.4 (k) defines "unrefined and unprocessed ore" as ore in its natural form prior to any processing, such as grinding, roasting or beneficiating, or refining. "Processing" in this definition includes both physical and chemical procedures that alter the ore from the condition it was in just after removal from its place of deposit in nature.

It is accepted interpretation of the AEA of 1954, as amended, that section 52 does not authorize the regulation of uranium mining by licensing. However, AEA does permit regulation by licensing at any stage after mining. 10 CFR 40.13 (b), by exempting the transportation and handling of unprocessed ore, implicitly recognizes this authority to regulate. Further, by drawing the exemption lines at unprocessed and unrefined ore (i.e., ore whose gross appearance and chemical state has not been altered from the point of mining), there is recognition of underlying health and safety considerations. The assumption is that any processing or refining may alter the radiological environment associated with the source material enough so that the health and safety of workers and others becomes a matter of legitimate regulatory concern.

If the handling of the ore (e.g., sorting) exposes workers

to an increase in exposure to radioactive material (i.e., radium, radon, etc.), it may be viewed as a licensable situation. Crushing of ore is obviously a form of processing subject to licensing by definition in 10 CFR 40.4 (k).

Regulatory references: 10 CFR 40.3, 10 CFR 40.4

Subject codes: 3.8, 11.6, 12.9

Applicability: Fuel Cycle

Page Last Reviewed/Updated Thursday, March 29, 2012