ENERGY FUELS

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Div of Waste Management
and Radiation Control

JUN 29 2020

June 25, 2020

SENT VIA E-MAIL AND EXPEDITED DELIVERY

Mr. Ty L. Howard
Director
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144880
Salt Lake City, UT 84116

Re: Receipt and Processing of Ores from Chemours at the Energy Fuels Resources (USA) Inc. ("EFRI") White Mesa Mill

Dear Mr. Howard:

This letter is to advise the Utah Division of Waste Management and Radiation Control ("**DWMRC**") of EFRI's plan to receive and process at the White Mesa Mill (the "**Mill**") natural uranium ores in the form of monazite sands (the "**Ore**") from The Chemours Company's ("**Chemours**') Mineral Sand Separation Plant in Offerman, Georgia, for the recovery of uranium, as well as the production of a commercial rare earth element ("**REE**") concentrate. Because the Ore is natural ore, EFRI intends to receive and process the Ore under the Mill's current Radioactive Materials License No. 1900479 (the "**License**"), subject to finalization of commercial arrangements with Chemours.

Chemours operates the Mission Mine in Charlton County Georgia and the Amelia Mine in Wayne County, Georgia and has mining operations in Clay, Bradford, Baker and Duval counties in Florida (collectively, the "**Mines**"). Currently, EFRI intends to receive and process Ore from Chemours' Mission Mine, which is separated from other mined sands at Chemours' Offerman mineral separation plant ("**MSP**") in Pierce County, Georgia. The Mill may also take similar Ore from Chemours' other Mines in the future.

Chemours anticipates shipping approximately 3,000 to 5,000 tons of Ore per year to the Mill from the Mines, for an indefinite period of time.

We are providing this letter to you because the source of the Ore is somewhat different from other mined ores typically received and processed at the Mill, and we want to make sure you are kept advised of all Mill activities.

1. Background

The Ore is from natural sands mined by Chemours at the Mines which are separated into mineral sand fractions at Chemours' Offerman MSP in Pierce County, GA. The Ore is high in rare earth elements as well as uranium. Chemours refers to the Ore, from which other mineral fractions have been removed, as rare earth mineral sands product ("**REMS product**") because it is currently being sold by Chemours to third parties for processing, but it is also a natural uranium ore with a uranium content higher than most Colorado Plateau uranium ores.

Although the Ore is separated from other mined sands, through a number of mechanical, magnetic and electrostatic steps, it is not changed or altered in any way from its natural or native state. It is in the same natural or native state it was in prior to separation from the other sands and prior to mining. Photographs of the Ore as it will be received at the Mill are included as Attachment A to this letter.

Chemours currently sells the Ore to facilities in China for the recovery of uranium and production of REEs in China.

A description of the Ore, mode of transportation, storage at the Mill after receipt, processing at the Mill, and disposal of the byproduct residuals are discussed below.

2. Mining

The following description is from the Mission Mine. Mining at the other Mines is performed in substantially the same manner.

At the Mission Mine, excavation proceeds as follows.

(a) An excavator digs from the surface down to approximately 20', dumping each bucket of sand into an off-road haul truck;
(b) Pumps are installed to remove groundwater from the open excavation;
(c) Haul trucks carry the sand to a screener, which rejects roots, stumps and boulders of cemented sand;
(d) Loose sand that passes through the screen is mixed with water and pumped to the Wet Concentrator Plant;
(e) After the water is exposed to the sand, the dirty water is flocculated with a polymer to separate the organics (humate) from the water, and the organics are then pumped to previously excavated mine pits. The organics and flocculant are associated solely with mine water treatment and are not part of the sand product and eventual Ore;
(f) Sand is distributed among hundreds of separatory spirals to reject a portion of the quartz sand from the mineral sand;
(g) The separated quartz sand is returned to previously excavated mine pits;
(h) The remaining sands are pumped to an attrition cell where weak sodium hydroxide (weak caustic) is added to the water carrying the sands, and the mixture is agitated to wear away organic coatings on the surface of the sands. The organic coating consists of naturally occurring film of biological residual, which is washed away to leave a clean mineral sand. The use of a weak caustic or similar agent to remove the organic and leave clean mineral sand is typical at mineral sand mining operations. The organic material and caustic solution remain at the mine site and are not part of the sand product and eventual Ore. Chemours also refers to the clean mineral sand as clean mineral concentrate (**"CMC"**), because the sands have been washed and the tree stumps, rock lumps, weeds and debris have been removed, resulting in a clean sand mass;
(i) The CMC is rinsed, then piled up and allowed to air dry for at least three days; and
(j) Heavy equipment then loads over-the-road haul trucks with the CMC, which is hauled to the MSP.

A schematic drawing of mining steps is provided in Attachment B. The schematic is typical of any of Chemours' Mines.

3. Separation

The CMC from the Mine is trucked to the Offerman MSP to be sorted into sand fractions by mechanical separation. All separation or sorting steps used at the Offerman MSP are physical separations, including wet or dry size screening, electrostatic and magnetic separations, spiral separators, and shaker tables. No flocculants, precipitants, surfactants, flotation agents, or chemical additives of any kind are used in the MSP. No reactions or chemical changes occur in the separation steps, and each sorted fraction remains in its natural sand form. While it is not untypical for wet separations at other sands sorting sites to use additives to enhance separation of certain fractions, none of which alter the natural form of the sands, no such additives are used at the Offerman facility.

The CMC arrives at the MSP from the Mine in the form of natural sands as described above. The CMC is a natural combination of quartz sand, kyanite sand, staurolite sand, ilmenite sand, leucoxene sand, rutile sand, zircon sand, and rare earth mineral sand which are sorted in the MSP. Each of these sorted fractions remains in the form of natural sand. The sorting sequence is described below:

(a) Quartz sand is separated and rejected from the sands using an upward current classifier;
(b) The remaining sands are then dried and heated;
(c) The sands pass through an electrostatic field, and conductive minerals are separated into ilmenite and rutile titanium sand products;
(d) The remaining sands are separated by density (spiral separators, wet shaking tables, upward current classifiers), dried, then magnetic and electrostatic separators are used to produce a staurolite sand product;
(e) The remaining low density mineral-bearing sands are removed using spiral separators, wet shaking tables, and upward current classifiers;
(f) The remaining high density sands are dried, and a non-magnetic zircon sand product is produced using electrostatic and magnet separators; and
(g) The remaining high density, magnetic sands are separated with density, electrostatic, and magnetic separators resulting in the rare earth mineral sand ("**REMS**"), also called monazite sand, which comprises the Ore to be shipped to the Mill.

The MSP was designed as a zero-discharge facility. Wash water from wet steps are recycled to the maximum extent possible. Quartz sand and sands of non-marketable minerals are returned to the previously excavated pits at the mine site.

Offerman currently receives CMC from the Mission Mine and separates it into Ore. Offerman plans to receive (monazite-containing) washed natural CMC sands from the Amelia Mine in Wayne County, GA beginning in August 2020, for the separation of Ore. The Amelia Mine uses the same mining and washing steps as the Mission Mine, and at the Offerman MSP the sands will undergo the same physical separations as CMC sands from the Mission Mine.

Offerman also plans to receive sand hauled from Chemours' Starke MSP in Clay County, FL. Those sands were accumulated over the past decades from mining in Clay, Bradford, Baker and Duval counties in Florida, which had previously undergone steps 3(a) through (f) above at the Starke MSP, but not step 3(g), which is not available at that facility. Those stockpiles will be moved to Offerman and undergo the same density, electrostatic, and magnetic physical separations under step 3(g) above as other CMC sand at Offerman to yield Ore.

A schematic drawing of the sorting sequence at the Offerman MSP is provided in Attachment C.

4. Composition and Grade of the Ore

The Ores to be shipped to the Mill:

- are in their natural unconsolidated sand form;

- contain no additives or chemicals; and
- are unchanged chemically or structurally from their natural or native state.

A summary of the mineral composition of a typical Ore produced in 2019 is provided in Attachment D.

The Ore has a uranium grade consistent with natural uranium ores routinely received and processed at the Mill, with a content of approximately 0.26% U_3O_8 This is comparable to a high-grade Colorado Plateau uranium ore. By comparison, the average grade of ore at the Company's La Sal mine in Utah, is 0.169% U_3O_8, so the Ore grade is over 50% greater than the averages at La Sal.

The Mill is designed to process approximately 2,000 tons of ore per day, so 3,000 to 5,000 tons of Ore per year will represent a very small percentage of the Mill's operational capacity (less than three days out of 365 days per year of capacity utilization). Based on the approximate quantity of 5,000 tons of Ore per year, processing of the Ore is expected to result in the production of approximately 12.5 tons of yellowcake per year. The recovery of this amount of yellowcake will not cause the Mill to exceed its License production limit of 4,380 tons of yellowcake per year. If the quantity of Ore increases by even four or five times that quantity, it will still be insignificant compared to the Mill's operational and licensed capacity.

5 Transportation to the Mill

The Ore will be transported to the Mill in 4400-pound Supersacks. The Supersacks will be loaded into covered intermodal containers (**"IMCs).** The IMCs will be either:

- transported by rail to one of the existing rail transfer yards in Utah (e.g., Green River), followed by transfer to intermodal truck tractors from the railhead to the Mill, or
- transported by multi-unit truck tractors over public highways to the Mill.

The number of trucks associated with transporting the Ore from the MSP or the railhead to the Mill will be approximately the same as the number of trucks required to transport the quantity of a Colorado Plateau ore needed to produce the same mass of yellowcake. Based on the estimated quantity of 5,000 tons of Ore, transport may require up to 10 trucks per day over a period of 25 days.

The number of trucks required to transport the resulting separated, precipitated, dried and packaged yellowcake from the Mill would be the same as required to transport yellowcake produced from processing any other conventional ore at the Mill.

6. Processing at the Mill

6.1. Storage at the Mill, Pending Processing

The Ore will be transported to the Mill in Supersacks as described above in covered transport containers. Upon arrival at the Mill, the Supersacks will be unloaded from the transport containers, and the transport containers will be decontaminated, scanned and released from the site.

Because the Ore is a fine-grained sand, it will be stored in the Supersacks on the Mill's ore storage pad pending processing in order to avoid any potential windblown dust issues. In order to ensure no potential UV degradation of the Supersacks while stored, the Mill will regularly inspect the Supersacks and will ensure that no Ore is stored on the ore pad for longer than 365 days before it is processed unless other appropriate precautions are taken. If any of the Supersacks are breached as a result of unloading or otherwise, an appropriate cover will be placed over the breached Supersacks to prevent any windblown dust from the Ore.

6.2. Mill Process

Using primarily existing Mill facilities and equipment, with no significant changes at this time, the Mill will recover the uranium from the Ore and will attempt to produce a commercial REE concentrate that can be sold to an REE separation facility for the production of REE oxides. If the Mill is not able to produce a commercial REE concentrate, then the Ore will either be processed solely for its uranium content, or will be sold to another licensed facility, likely outside of the United States, for processing.

The Mill has used both sulfuric acid leach and alkaline leach in the past for the recovery of uranium, depending on the ore source. The Mill is currently evaluating which of those two methods will allow for the best recovery of uranium as well as the REE concentrate.

How the Ore will be fed to the process will depend on the leaching method used. If sulfuric acid leaching is used, the Ore will likely be fed directly into a leach tank and slurried with concentrated sulfuric acid. The slurry will likely be heated to 100-150°C during the leaching process. After the leach is complete, water will be added to the slurry and the solids will be washed.

If alkaline leaching is used, the Ore will likely be fed to the SAG mill and ground, and then dry caustic will be added to the ground Ore slurry in a leach tank. The slurry will likely be heated to 100-150°C while leaching. The leached solids will be washed with water and then re-leached with sulfuric acid.

Regardless of which leaching method is used, the subsequent process steps will be nearly identical. The solids will be washed (CCD) and the pregnant solution will be fed to solvent extraction for uranium and thorium removal, with the uranium going to the existing precipitation, drying and packaging circuits for the production of a commercial yellowcake product and the thorium going directly to the Mill's tailings management system for disposal. The natural thorium concentration in the Ore is somewhat higher than other mined ores typically processed at the Mill, but well within the range of concentrations contemplated by existing Mill radiation protection and other procedures, and well within the concentrations of other materials approved for processing at the Mill. The remaining solution will then be precipitated with a base, probably sodium carbonate, to produce a rare earth carbonate precipitate that will be washed with water and then dried (not calcined) to remove water content. The rare earth carbonate will be packaged and sold as an intermediate product to one or more REE separation facilities for the production of REE oxides.

The Mill currently expects to be able to process the Ore for the recovery of uranium and produce a commercially salable REE concentrate product with minimal changes to Mill processes and without the need for any significant capital modifications, other than potentially the addition of some smaller tanks and a small vacuum dryer that will not have any air emissions. Those types of process adjustments are routine at the Mill and not of the nature that would require any permit amendments. Once the Mill has demonstrated that it can produce a commercial REE concentrate along with the uranium, it will evaluate possible equipment and process adjustments to optimize the process. Although we do not believe any such adjustments would require any permit modifications, we will evaluate whether any such permit modifications may be required at that time, depending on the nature of the adjustments.

6.3. Disposal

Once the Mill has recovered the uranium content, and potentially the REE concentrate, from the Ores as described above, the remaining tailings will be disposed of in the Mill's tailings management system, in the same way as tailings from other ores.

7. Other Considerations

As the Ore is a natural ore (i.e., native rock) it can be received and processed at the Mill under its existing License. It is not an alternate feed material that would require a License amendment under License condition 10.1C.

The Ore is not an "Alternate Feed Material" as defined in UC 59-24-102, and in NRC's "*Interim Position and Guidance on the Use of Uranium Mill Feed Material Other than Natural Ores*", RIS 00-023: Recent Changes to Uranium Recovery Policy, November 30, 2000 (the "**Alternate Feed Guidance**"), because the Ore is a natural ore. The Alternate Feed Guidance, states that "[i]n reviewing licensee requests to process alternate feed material (*material other than natural ore*) in uranium mills, the Nuclear Regulatory Commission staff will follow the guidance presented below." (emphasis added).

Further, in its May 13, 1992 Federal Register Notice accompanying the original Alternate Feed Guidance, NRC refers to an alternate feed material as "feed material that was not natural (native, raw uranium ore)" Fed. Reg. Vol 57, No. 93, May 13, 1992, Page 20531, and other ores as "natural uranium-bearing rock (i.e., ore)" and as "native rock." Fed. Reg. Vol 57, No. 93, May 13, 1992 Page 20532.

Since the Ore is natural, native sand (i.e. rock) it is not an alternate feed material, and an amendment to the Mill's License is not required or appropriate.

If successful in recovering an REE concentrate along with the uranium from the Ore, the Mill intends to pursue other natural monazite sand ores having similar characteristics as the Ore, from other mines in the U.S. and elsewhere, for the recovery of uranium and REE concentrates under the current License.

If you should have any questions regarding this letter, or you disagree with any of our conclusions, please contact me.

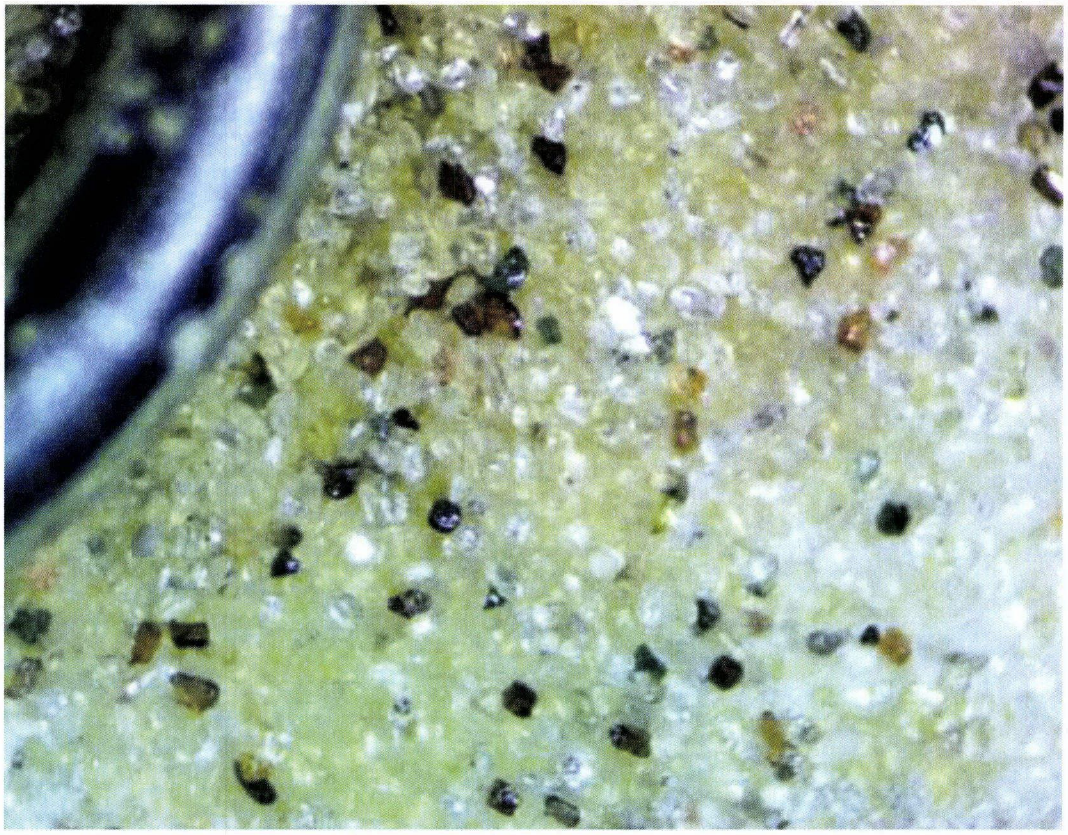
Yours very truly,

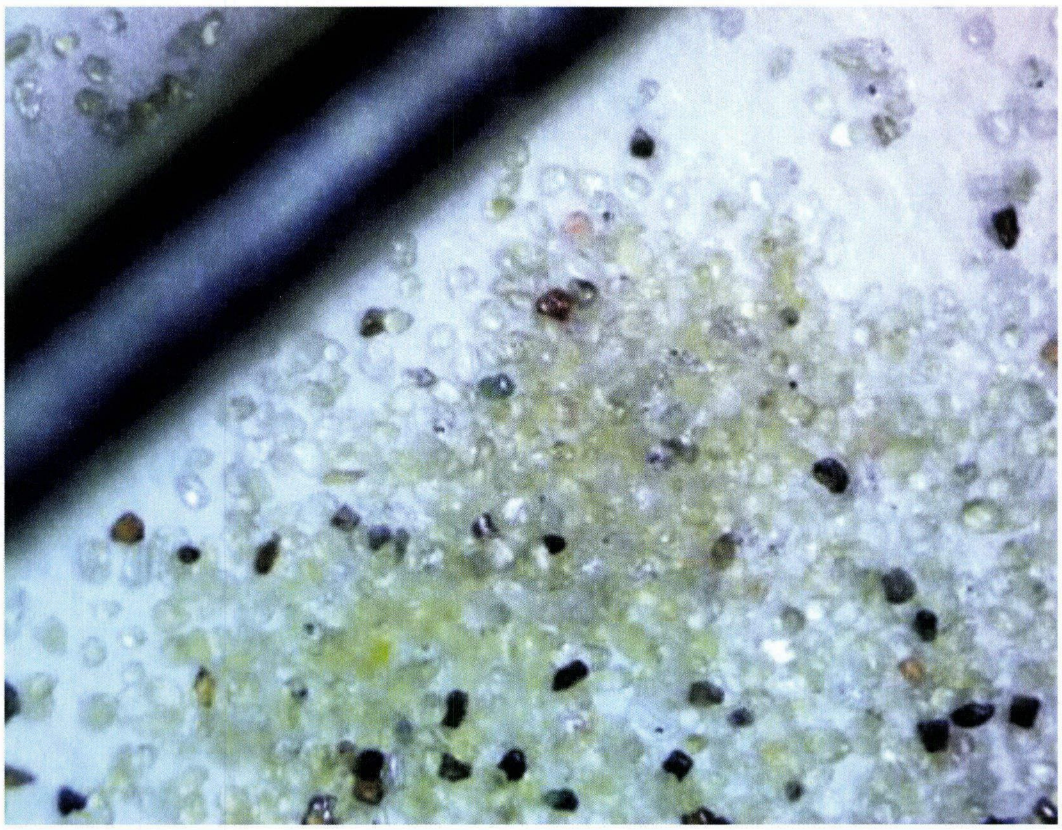
ENERGY FUELS RESOURCES (USA) INC.
David C. Frydenlund
Chief Financial Officer, General Counsel and Corporate Secretary

cc: Scott Bakken
Mark Chalmers
Paul Goranson
Logan Shumway
Terry Slade
Kathy Weinel
Jo Ann Tischler

ATTACHMENT A

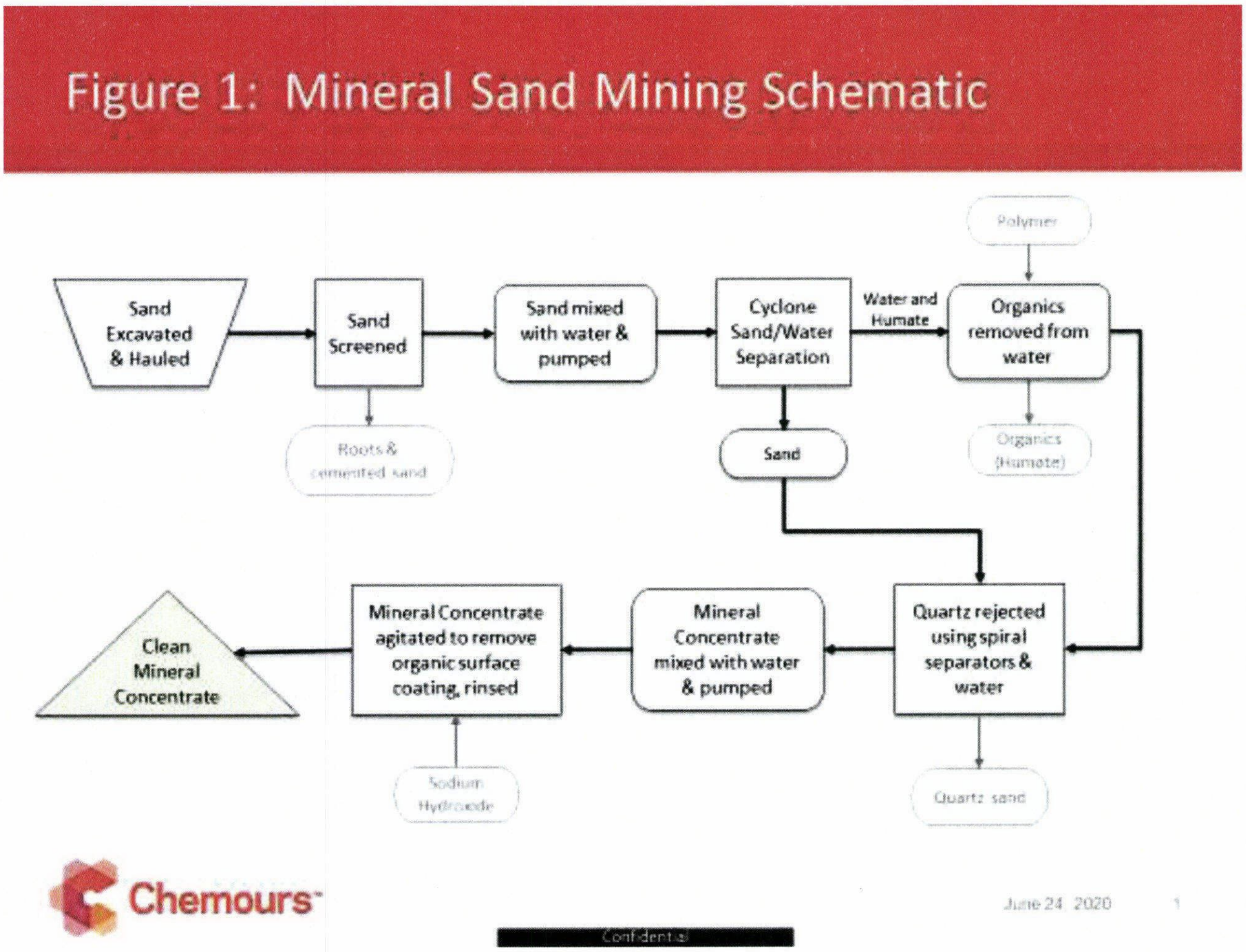
Photographs of the Ore as it will be Received at the Mill
(the metal object is one leg of a standard one-inch paper clip, for size comparison)





ATTACHMENT B

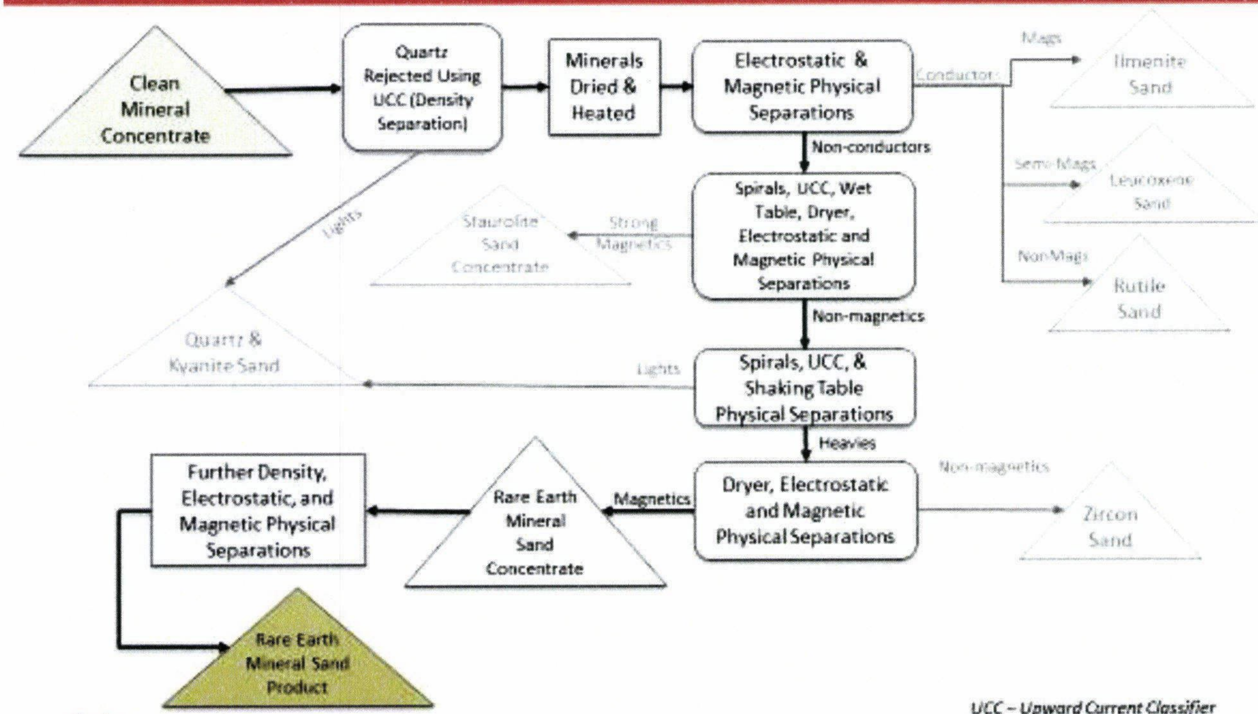
Mining Schematic



ATTACHMENT C

Separation Schematic

Figure 2: Offerman Mineral Sand Separation Schematic



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ATTACHMENT D

Typical Ore Composition Data

Mineral	Concentration (%)
SiO_2	5.22
ZrO_2	9.19
P_2O_5	18.33
U_3O_8	0.26
ThO_2	2.59
HfO_2	0.34
Other oxides	2.11
Other minerals	8.18
CeO_2	25.10
Dy_2O_3	0.56
Er_2O_3	0.13
Eu_2O_3	0.14
Gd_2O_3	1.19
Ho_2O_3	0.07
La_2O_3	10.58
Lu_2O_3	0.00
Nd_2O_3	9.24
Pr_6O_{11}	2.69
Sc_2O_3	0.01
Sm_2O_3	1.69
Tb_4O_7	0.17
Y_2O_3	2.12
Yb_2O_3	0.10
SUM	100%