ATTACHMENT 2.3

BLACK RANGE
MINERALS

Detailed Description of the AMT Processes

Prepared by Black Range Minerals
PO Box 825, Nucla Colorado, 81424-0825

Detailed Description of AMT Processes

This attachment is provided to respond to the Colorado Department of Public Health and Environment's (CDPHE) letter to Black Range Minerals of 13 August 2016 in which the CDPHE requested that Black Range Minerals provide:

2. Detailed description of the following items:
2.3 Please provide more details of the following AMT processes than those already presented in the White Paper:

- *Crushing*

As an ancillary component to the AMT system, crushing and feeding takes place in between material being conventionally mined and its introduction to the AMT mix tank module. Mined material or ROM is delivered by a conventional uranium miner to a grizzly separator through-which the ROM is directed via gravity into a cone crusher. The crusher is responsible for ensuring all material entering the AMT mix tank module is of an appropriate size so as not to plug the AMT impact modules' nozzles. Crushed ROM continues via conveyor into the top of a storage bin or ROM hopper where the feed rate can be controlled. Another conveyor then transports the controlled ROM hopper feed into the AMT mix tank module.

A cone crusher which is capable of 60 tons per hour throughput was designated as an appropriate model for the SMC system design. This crushing unit is capable of accepting ROM of a diameter of up to 0.2 meters and its overall physical dimensions are approximately 2.44 meters by 2.36 meters by 1.76 meters.

The currently designated ROM hopper for the SMC can hold enough crushed material for approximately 1.5 hours of AMT system operation at a nominal 20 tons/hour rate. In the SMC operation, ROM from the miner's trucks is required to enter the crusher at an average hourly rate which ensures the ROM hopper's contents match the AMT system's material throughput requirements.

- *Disassociation-- How does AMT repeat the needed collisions until the minerals are disassociated from the sand grains?*

Slurry mixing and disassociation processes are inherent to the AMT system and its modules. The AMT mix tank module is responsible for mixing a consistent slurry of water and ROM which is pumped through the AMT impact modules and subsequent ancillary system components. Depending on physical characteristics of the ROM (cementation, grain size, mineralogy, etc.) a number of AMT impact modules can follow the AMT mix tank module to ensure an ideal number of disassociation impacts occur.

As discussed in Attachment 2.1 of this transmittal package the AMT impact modules are each equipped with two pumps; one of a larger flow capacity for impact circulation and one of a smaller flow capacity for slurry transfer to the next AMT impact module or ancillary system component.

The average collision per sandstone particle or fragment within a slurry stream of an AMT system is controllable. Control is gained via the baffled nature of the AMT impact module tanks with relation to the slurry pump intakes, the relationship between the flow rates of the impact circulation pump versus the transfer pump, and the number of AMT impact modules aligned after the AMT mix tank. The pumps' slurry flow relationship can be altered (e.g. 5:1 versus 10:1 flow relationship) to ensure that an average sandstone particle or fragment within the slurry will be subject to a controlled number of impacts prior to being sent on to the next AMT impact module or ancillary system component. The number of AMT impact modules can also be altered to increase or decrease the minimum and average number of impacts per sandstone particle or fragment.

- *Screening*

Separation is an ancillary component of the AMT system which is responsible for handling the disassociated post AMT slurry and ensuring a physical size cut for post AMT ore versus waste. A post separation slurry stream of fine particles and water are pumped from the separation component to the dewatering component. On the opposite side of the separation component, a waste stream of moist coarser sand grains is directed to a waste trench for disposal.

Vibratory screeners were initially the separation method of choice but are no longer intended to be employed at the SMC operation due to their physical size and present limitations of the SMC's underground setting.

A slurry effluent stream pumped from the final AMT impact module which maintains its initial solids to water mass ratio of 20% is piped into a series of separators. The separators include a number of sand traps, self cleaning filters, and then centrifuges, cyclones or other momentum based particle size separators. Within this series of separators, material larger than 37 microns is removed as a moist post AMT waste and material smaller than 37 microns continues with the water stream to the ancillary system component referred to as dewatering. Post separation and pre dewatering the fines-only slurry stream is approximately 5 % solids and 95 % water by mass. The sub 37 micron grains and particles within the post separation slurry stream include approximately 90 % of the pre AMT ROM's uranium contents and only ~20 % of the pre AMT ROM's total mass.

The moist coarse material, post separation, is directed to a waste trench where it can be handled and transported for disposal. The post AMT waste material's uranium contents are approximated to be 0.025 % U.

- *Dewatering of each fraction of the post-AMT materials*

Dewatering is an ancillary component of the AMT system which is responsible for filtering a post separation slurry stream of fine particles from water and ultimately preparing post AMT ore for shipment.

The post separation fine grained material or ore is pumped as a slurry through pipes to a set of filter presses where an ore product with a moisture content of ~30% by mass will be

formed. A dewatered paste-like ore product falls from the filter press' plates onto an underlying conveyor which directs the product to the packaging component. The moist, solid ore falling onto the conveyor from the filter plates is anticipated to be of a uranium grade of approximately 1 % U.

The clear effluent stream of water from the filter presses is recycled to the front end of AMT system or to the AMT mix tank module and supplemented with a make-up water stream which matches the water retained in the post AMT ore and waste streams. Please see Attachment 2.4 for further discussion regarding water and the AMT system.

- *Packaging of the fine-grained post-AMT minerals*

Packaging of the post AMT ore is considered an ancillary component to the AMT system and is responsible for directing the dewatered ore product into super sacks which are placed in the back of a haul truck and brought to the surface for transport to the uranium mill.

Dewatered post AMT ore is directed via conveyor from the filter presses to a tank hopper and feed system which controls and directs the ore into a super sack. Approximately two 2-ton super sacks are filled per hour and then directed onto the back of an awaiting haul truck. Every two to three hours, the haul truck is filled to capacity, driven to the surface, and replaced with an empty haul truck.