

Ablation - breakthrough technology to reduce uranium mining cost and increase resources

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Ablation Technologies, LLC has developed and patented a revolutionary mining technology termed “ablation” . Ablation is a process using only mechanical forces to upgrade sandstone uranium ores. Uranium bearing sandstone orebodies are formed from a uranium enriched solution flowing through an aquifer until it reached some type of a “red/ox” zone forcing the uranium and other heavy metals to come out of solution. The precipitate forms a thin coating on the sand grains and fills the interstitial space between the sand grains but does not penetrate the sand grains. The ablation process knocks the precipitate off the sand grains using the forces of abrasion, elastic compression and rebounding, much like a mud coated tennis ball will shed the mud when bounced off the ground, and to some extent, sonic waves. This produces a product which collectively is exactly the same as the ore going in but with all the individual components separated. This allows for disjunctive separation, the most important of which is screening. The uranium and heavy metals report to the finer fractions of the material, typically less than 250 mesh. The larger fractions contain less than five percent of the uranium but 90 to 95 percent of the mass.

The advantages of making an enriched ore are numerous:

- Reduce haulage costs from 90 to 95 percent
- Reduce milling costs by reducing material handling costs, acid consumption and tailings disposal costs.
- In addition to reducing overall mining and milling costs, the overall recovery of the resource is increased because the ablation process is so inexpensive, if the material has to be mined it will be ablated and screened. This basically means ore control is significantly reduced, cutoff grade goes to practically zero and overall resource recovery is significantly increased.
- Environmentally, the two major advantages are reduced tailings requirements at the mill site and cleaner waste dumps at the mine site.

This paper will show test results from sandstone uranium ores from all over the world, all getting ninety plus percent recovery in a matter of minutes plus economic comparisons with what has heretofore been referred to as conventional mining practices.

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