

# Cuttings Reinjection Using Enhanced Pretreatment Saves USD 6.5 Million in Waste Management Costs

High-speed grinding mill and MONGOOSE PRO shakers enable reinjection of active rig waste and stored drill cuttings with no NPT in sensitive environment, Alaska

**CHALLENGE**

Provide a cuttings reinjection (CRI) system capable of processing solid and liquid drilling wastes at rates high enough to support an active drilling rig in real time while simultaneously processing stored drilling solids from a previous campaign.

**SOLUTION**

Equip the CRI facility with an exclusive high-speed grinding mill and MONGOOSE PRO\* dynamic dual-motion shale shakers.

**RESULTS**

Saved approximately USD 6.5 million in waste management costs by successfully injecting more than 92,000 bbl [14,720 m<sup>3</sup>] of cuttings slurry and more than 37,000 bbl [5,930 m<sup>3</sup>] of produced water during 7 months of operation.



**Improve drilling waste management efficiency in remote location**

In Alaska, drilling costs are often pushed higher due to expenses associated with the transportation, treatment, and disposal of cuttings, drilling fluid, washwater, and produced water. For a land rig on the west side of the Cook Inlet, floating ice in extreme tidal currents and wetlands that were not completely frozen meant there was no access to the location by boat or ice road for several months of the year. For this reason, cuttings reinjection is required for year-round drilling operations. Injection facilities must be able to grind drill cuttings to a specific micron size, depending on the well characteristics, so that they can pass through shaker screens and be mixed into a slurry for injection.

During the first 10 to 11 months of the Cook Inlet project, the operator hired a third party to perform real-time CRI services for the rig. Real-time CRI requires equipment capable of effectively processing large volumes of waste—most importantly, the classifying shakers and cuttings mills need to be rated for high volumes of solids and high reliability. Because the previous third-party facility was not equipped with shakers or cuttings mills capable of maintaining real-time CRI, the volumes of solids and fluid to be processed were increasing faster than they were being injected. The waste buildup led to numerous problems, including NPT and the emergency storage of wastes in tanks and pits, which finally resulted in the rig being forced to halt drilling operations.

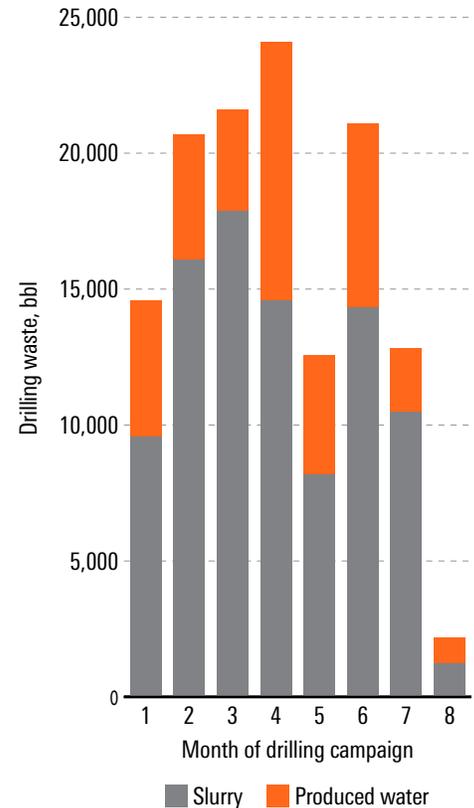
**Efficiently process waste buildup and drilling rig cuttings for injection**

The operator contacted M-I SWACO with the need to efficiently prepare and dispose of stored waste buildup as well as waste being generated by the active drilling rig. In response to these needs, M-I SWACO recommended equipping the waste injection facility with an exclusively licensed high-speed grinding mill and MONGOOSE PRO shakers.

Industrial vacuum trucks, the main source of waste transportation in Cook Inlet land operations, were used for transporting waste buildup from various storage units and the rig to the injection facility. The contents of each storage unit were classified before injection because of the variety of waste types that had previously been accumulated. The cuttings were then crushed into fine solids until they were able to pass through the shaker screens and be mixed into a slurry for injection.

**Enable significant reduction in waste management costs**

While the earlier residual waste stored in reserve pits, tanks, and cuttings boxes was being processed and injected, M-I SWACO began processing waste from the active drilling rig. During the first 4 months of operation,



*Cuttings slurry and produced water injected during the 7 months of waste injection facility operation.*

## CASE STUDY: Cuttings reinjection with enhanced pretreatment saves USD 6.5 million in waste management costs, Alaska

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the previous waste buildup from the various units was successfully crushed and made into a slurry suitable for subsurface injection, including the hazardous pit cleanout waste. The injection rate varied only slightly with an average of approximately 2.55 bbl/min [0.4 m<sup>3</sup>/min]. After the residual waste was injected, the waste injection facility remained onsite for standard reinjection, keeping up with the rate of drilling waste production from the active rig operations and only shutting down when drilling was completed. There was no NPT recorded during and after the period of time that M-I SWACO was simultaneously processing both the residual and real-time waste streams being generated by the rig.

Over the 7 months of the waste injection facility operation, the operator saved approximately USD 6.5 million in waste management costs. During that time, more than 92,000 bbl of cuttings slurry and 37,000 bbl of produced water were injected.

[miswaco.com/CRI](http://miswaco.com/CRI)