

# AMC Surface SRU<sup>TM</sup> limited risks of spills in protected areas.

## CASE STUDY

A uranium drilling project, located in Canada's Patterson Lake South, presented a number of unique environmental and technical challenges for the resource company. AMC's Surface Solids Removal Unit<sup>TM</sup> (AMC Surface SRU<sup>TM</sup>) was implemented to assist operations and reduce costs on site.

## Background

The uranium mining project is located within a lake surrounded by protected native land. The site is also within the migratory range of the Beverly Caribou herd – a major source of sustenance for the Denesuline communities.

As an environmentally sensitive area, strict environmental policies apply to protect the natural environment, prevent contamination of the lake and the impact of drilling must be kept to an absolute minimum.

Logistical difficulties presented further challenges at this site. Being in an isolated location, with drilling operations mounted on barges on the lake, there is no infrastructure for mobilisation of equipment and management of fluid and drilling waste is costly and time consuming. This also presents a higher risk of environmental contamination through spills and leaks off the barge.



## Results

- Fluid transport savings up to US\$120,000 / month
- Enhanced operational efficiency and productivity
- Reduced environmental footprint and risk of contamination
- Mud consumption reduced by 65 – 90%
- Enabled cleaner and safer operations.

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Limited risks of spills in protected areas of Patterson South Lake, Canada.



## 65 – 90% Reduction in Mud Consumption

Before the introduction of the AMC Surface SRU™ units, the drill crew would typically use 6 bags of bentonite to case a hole and approximately 6 – 10 bags during a shift of normal coring operations. When using the AMC Surface SRU™, these numbers reduced to approximately 2 bags of bentonite to case the hole and 1 – 2 bags per shift to maintain the system.

## Fluid Transport Savings up to \$120,000 / month

Prior to using the AMC Surface SRU™, fluid was pumped from holding tanks on a barge into tanks on a support boat. These tanks were then transported to shore where the fluid was pumped into a sump approximately 0.5 km uphill. This process occurred twice a shift for each drill and often presented pump and hose challenges for the crews.

Once the AMC Surface SRU™ units were in place, transportation of fluid from the drill rigs to the shore was not needed. This significantly reduced costs and increased operational efficiencies for the customer.

Savings relating to fluid transportation were estimated to be US\$375 – US\$500 per rig per shift. Based on these figures the monthly saving would be approximately US\$90,000 – US\$120,000.

Before using the AMC Surface SRU™, fluid tanks (pictured below) were required for fluid disposal 0.5 km uphill on shore. The AMC Surface SRU™ completely eliminated the need to remove fluid from the rigs, providing significant logistical, productivity and cost savings.



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## Easy Cuttings Disposal

Cuttings processed via the high speed centrifuge of the AMC Surface SRU™ produce a semi-dry solid, reducing slurry volumes by up to 75%. This enables easy removal from the barge, with a bag weighing approximately 1500 lbs being removed via helicopter twice a day. Feedback from the crew suggested the bag changes “took only a matter of minutes”.



## Project Outcome

This unique project was deemed a success by AMC and its customer. The barge mounted AMC Surface SRU™ units reduced costs associated with mud usage and transportation of fluids; increased operational efficiencies; and importantly, enabled cleaner and safer operations within this environmentally sensitive area. Feedback from the customer also highlighted the high level of training and support provided by AMC, ensuring smooth set up and operation.

### Key Benefits for the Drilling Company

- Reduced fluid waste and transport costs
- Reduced water consumption and cartage costs
- Reduced mud usage and associated costs
- Reduced slurry volume, waste cartage and disposal
- Improved productivity leading to extension of drill program
- Reduced wear and tear on drill components
- Reduction in drill downtime, no mechanical failures experienced
- Saves time managing and mixing mud
- Improved on-site health and safety, reducing slips and hazards due to mess, mud and water.

## Efficient Operations Boost Productivity

The AMC Surface SRU™ successfully enhanced the efficiency of operations and increased productivity. During the trial the crew did not experience any mechanical failures or downtime for the drills, less time was spent mixing fluids and cuttings removal was significantly enhanced. The efficiency of the operations was supported by the customer extending the program by 15 holes within the same project time frame.

## Cleaner and Safer Operating Environment

Feedback from the crews suggested the AMC Surface SRU™ was much cleaner to work with. Other recycling equipment used in the past had covered the barge and the operator in drilling fluids, which made it difficult to contain, and presented safety and environmental risks.



### Key Benefits for the Resource Company

- Minimises environmental contamination risk
- Increased drilling productivity
- Reduced project costs, including water consumption and mud usage, and associated costs
- Drilling programs can expand to previously inaccessible areas
- Facilitated access to environmentally sensitive or remote drill sites
- Extended drill program, additional 15 holes completed in project time frame
- Improved relationships with land owners.

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## About the AMC Surface Solids Removal Unit™ (AMC Surface SRU™)

AMC's Solids Removal Unit™ (AMC SRU™) is an innovative alternative to fluid sumps, proving highly beneficial for the environment, on-site health and safety, operational efficiency as well as delivering significant cost savings. The closed-loop system of the AMC SRU™ is transforming drilling operations worldwide, reducing environmental impact and footprint of the drill site.

The AMC SRU™ works by circulating drilling fluid directly from the drill collar to be processed by the shaker and centrifuge, where drill solids are separated from the mud slurry and discharged via a waste chute. After being processed, cleaned drilling fluids flow into a storage tank, are transferred via a weir to the mixing / suction tank, and then returned to the drill hole.



## Key Features

- High speed 9" bowl decanting centrifuge offers a g-force of 2900 at 3000 rpm, removing solids to less than 10 micron
- Electric motor
- 25 kVA silenced generator
- Shale shaker for high capacity fluid processing, top-hole section and centrifuge back-up
- 3 x 1000 L mixing chambers with weir system, metered polymer feed and hopper designed for powders and back-up mixing
- Process capacity of 40 – 130 L / min
- Available on a trailer or skid mounted with levelling jacklegs, enabling easy transportation to, from and around the drill site
- Free expert technical support, training and advice.

## Award-winning Technology



AMEC ENVIRONMENT AWARD



WA INNOVATOR OF THE YEAR AWARD

## Further Information

For more information about this case study, please contact [amc@imdexlimited.com](mailto:amc@imdexlimited.com) or your local AMC representative.



Check out our website or YouTube to watch a video on this product. [youtube.com/amcdrillingfluid](https://www.youtube.com/amcdrillingfluid)

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