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CONTACT US

+27 11 958 2899

EXPLORATION

**UWE ENGELMANN**

METALLURGY

**DARIO CLEMENTE**

## Mechanised Augur Drilling - Dumps & Unconsolidated Sediments

Augur drilling is the process used to obtain samples of unconsolidated sediments occurring in mine dumps, beaches, etc. It is a quick, portable, relatively non-invasive, and cheap method of drilling. The entire drilling crew and equipment can fit on the back of a Ldv or in an Ldv and trailer. Depending on the nature of the sediments being augured and the depth of the holes, 100 to 150 m of auguring could reasonably be expected per day.

The figure below shows a drilling crew and their transport.



### Drilling/Auguring

Drilling is undertaken using a fully portable hydraulic drill rig comprising of a rotating spiral auger drill encased in a stainless steel core barrel/rod. The rod comprises of a drill rod and inner spiral, with the inner spiral rotating in the opposite direction to the outer casing whilst advancing into the sediment. The rod is guided by two concentric rubber guide wheels. The advance of the rods is powered by a hand-held hydraulically powered outer drill mechanism. The entire drill rig is powered by a petrol or diesel engine and the rods are extracted by reversing the direction of the wheels inside the extractor box. The drilling is performed dry.

The extension rods and spiral augers have three lengths, namely 1.5m, 3.0m and 4.5m. This facilitates the extraction of 1.5m samples. The following figure depicts an augur crew drilling an historical

mine dump.



The figure below shows auguring on an active slimes dam. The rods are being raised in order to extract the sample.



### Sample Extraction

Great care is taken to ensure that contamination is minimised. The equipment is thoroughly cleaned between each sampling cycle. All equipment is stored on racks and stands. Drilling is suspended during windy conditions to reduce the risk of contamination by airborne dust.

Samples are extracted by rotating and pulling out the spiral auger until the first 10-15cm of the sample is exposed. This is discarded as it is the most likely portion of the sample to be contaminated. The remainder of the sample is then collected in a trough or box. Once the sample tube has been emptied into this container, the sample is placed in a new sample bag.

The spiral auger and sample collection equipment is cleaned between each sample. Cloths and a wire brush (figure below) are used on the spiral. The interior of the barrel is cleaned with a wire brush attached to a long metal rod. The

sample collecting container is wiped clean.

Blanks, duplicates and Certified Reference Materials (CRM's) are inserted into the sampling sequence prior to submitting the samples to the assay laboratory.



Agere Project Management has extensive experience in managing auguring programmes and if any further information is required please contact us.

### News Letter

In our forth coming issues :

- Plant Audits;
- Taxation and other unforeseen matters in other countries;
- Strategy for operating small plants;

If we can be of any assistance, or should you require a back copy of our news letter, please feel free to contact us.

### It Has Been Said:

**“Life is like a dogsled team - if you aren't the lead dog the scenery never changes” - Lewis Gizzard -**