GroundTruth Exploration

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RAB Drill

Personnel: The surveys are conducted by the following GroundTruth personnel:

Lead RAB Drill Operator
Geotech / XRF Technician
RAB Drill Assistant / Line Cutter / Surveyor

A. Instruments and Equipment: The crew is equipped with the following instruments and equipment.

RAB Drill Overview

The RAB Drill (Rotary Air Blast) is a remotely controlled tracked platform with an onboard air compressor, tilting mast and rotary drill head. The RAB Drill has 1650 sq. inches of track coverage with less than 1.0 psi ground pressure allowing it to be extremely versatile and low impact in the field. The entire unit is powered by a 60hp Turbo charged Kubota diesel engine and is completely air / hydraulically operated. Each drill hole is cased from surface to bedrock and entire sample is collected. Once the casing is seated into bedrock then an open hole hammer is used to penetrate into bedrock. Rock chip sample size is 1/4 – 3/8" and is analyzed and catalogued into chip trays by our onsite Geotech XRF Technician. Each sample location is surveyed by DGPS. Sample location database and plotted XRF results available to client next day.

Shallow Hole RAB Setup:

Average production is 30m/day sampled at 1.5m intervals using the onboard air compressor.
2 sling loads – RAB
1 sling load – Drill Rods (30m)

Deep Hole RAB Setup:

Average production is 100m/day sampled at 1.5m intervals using stationary 300/200 air compressor with layflat hose giving the RAB a 500m drilling radius around Stationary 300/200 air compressor without use of helicopter.
2 sling loads – RAB
2 sling loads – Drill Rods (100m)
1 sling load – Layflat Air Hose

RAB Drill Technical Specifications

- Length – 96"
- Width – 50"
- Height – 80"
- Weight – 3400 lbs
- Pull Back Force – 16,200 lbs
- Onboard Air Compressor – 150cfm @ 175psi
- Working Angle – 45 to 90 degree
- Less than 1.0 psi ground pressure
- 60hp Turbo Charged Kubota
- Hydrostatic Drive
- Wireless Remote Driving Capability
- 2 sling loads with Astar Helicopter

Stationary 300/200 Air Compressor

- Length – 72"
- Width – 32"
- Height – 60"
- Weight – 1750 lbs
- 1 sling load with Astar Helicopter

Tooling

- Diameter of bit – 90mm
- Drill rod length – 1.5m
- 50m capacity in rod basket
- 1 sling load with Astar Helicopter

XRF – Innovex X-5000 bench top XRF (for use at GT Headquarters)

Survey GPS – Ashtech PROMARK 100 GPS

Data Processing – Laptop computer with proprietary 'Truthware' software for synchronous download of GPS / XRF data.

Satellite Internet – Portable Satellite Internet for nightly data downloads.

B. RAB Drill Standard Operating Procedure:

Overview

This document outlines the standard operating procedures used to collect rock chips and soil samples which have been extracted by the RAB. This describes the methodology behind the RAB Drill Survey based on Yukon Projects conducted during the 2014 field season.

RAB Drill Sampling:

1. Planned drill collar location is brushed out and RAB Drill is setup.
2. Sampling Technician sets up sampling station at drill.
3. Once RAB Drill is in position and setup, the operator drills casing into ground in 1.5m lengths.
4. Sample Bucket (5 gallon) is filled from cyclone, 4 - 7 minutes average frequency.
5. Sample is poured into 8:1 splitter
6. Retention Sample is put into a 5 gallon bucket from splitter and a portion is bagged in 12x20 ore bag, Sample ID, Hole ID and Interval written on Sample ID with marker and sealed with zip tie with external Sample ID attached, 5lbs weight. Excess retention is then discarded.
7. Analytical Sample is bagged in 12x20 ore bag , Sample ID Barcode inserted into bag and sealed with zip tie with external barcode Sample ID attached, 5lbs weight
8. Buckets and Splitter cleaned with pressurized air.
9. Chip Tray chips are collected from Retention bucket using a small plastic container.
10. Chips are then poured into 'dry' wire sieve to discard fine portion, the coarse material in dry strainer is poured into a second 'wet' sieve and washed in a 5 gallon bucket of water.
11. Once chips have been washed with 'wet' sieve, a smaller portion is catalogued in a chip tray with Sample ID and Interval marked.
12. Soil is collected from retention and put into a 40gram bag with sample ID written on bag for XRF analysis back at HQ using Bench-Top XRF in 3 beam (20sec-20sec-20sec) mode directly through sample bag.
13. Analytical Sample Barcode ID is entered into laptop with interval/descriptive info logged.
14. Analytical sample is placed into rice bag with client, Project code, Bag Series and number of samples written in marker on bag, 10 samples per bag then rice bag is sealed with zip tie and then security zip tie and ready for shipment.
15. Receive next sample.

RAB Drill Sampling Shift Schedule (12 hours):

1. Receive and set up sampling tent near new site while drill is being setup.
2. Collect Samples and log while drill is operating.
3. At end of shift all analytical samples are placed into rice bag with client, Project code, Bag Series and number of samples written in marker on bag, 10 samples per bag then rice bag is sealed with security zip tie and ready for shipment.
4. All retention samples are put into rice bags with client, Project code, Bag Series and number of samples written in marker on bag, 10 samples per bag then rice bag is sealed with zip tie and brought back to HQ for storage

RAB Drill Sampling Gear and Sampling Supplies Required at Site:
(not including actual RAB drilling gear).

1. Laptop for data download and logging .
2. 8x10 Wall Tent with poles, tie-down ropes/rebar stakes, Table, 2 chairs and kerosene heater.
3. Kerosene (20l) and Generator gas (20l), Generator spark plug/wrench and 1l 5w30 oil., 20l water.
4. 5 gallon buckets (4 for sample from cyclone, 1 for receiving retention from splitter, 1 filled with water to wash logging samples)
5. 2 metal wire sieves w/handles.
6. Rubber mallet to dislodge material in splitter
7. PPE: Hard Hats, Ear Protection, Eye protection, Masks

Sampling Supplies:

1. 12”x20” Ore bags: Retention Sample (65 required for 12h, 100m of drilling)
2. 12”x20” Ore bags: Analytical Sample (65 required for 12h, 100m drilling + QAQC samples)
3. Barcode Sample ID Tags (65 required for 12h)
4. Standard Zip Ties , 5”: Retention + Analytical Samples (130 required for 12h, 100m drilling)
5. Rice Bag (6 for retention, 6 for analytical required for 12h, 100m of drilling)
6. Security Zip Ties for Rice Bag (6 required for 12h, 100m of drilling)
7. Chip trays (3 – 20 slot chip trays required for 12h, 100m drilling)