

PHASE 2 INITIAL BOREHOLE DRILLING AND TESTING, IGNACE AREA

WP03 Data Report – Geological and Geotechnical Core Logging, Photography and Sampling for IG_BH04

APM-REP-01332-0258

August 2021

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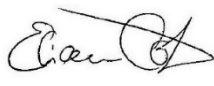
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Abbreviation List

A	Alteration Index
APM	Adaptive Phased Management
BCD	Boxed Core Dry
BCW	Boxed Core Wet
BH	Borehole
BO	Back Oriented
BCZ	Broken Core Zone
BR	Broken
CEC	Cation Exchange Capacity
CO	Carbon Monoxide
D _e	Effective Diffusion Coefficient
DMP	Data Management Plan
GSI	Geological Strength Index
HQ	BH size (Hole diameter = 95mm)
HQ3	Core Diameter (61.1mm)
ID	Identification
IG	Ignace
IN	Intact
Ja	Joint Alteration
JCR	Joint Condition Rating
Jn	Joint Number
Jr	Joint Roughness
K	Potassium
LED	Light Emitting Diode
LIS	List
MAN	Manual
mbgs	meters below ground surface
MEM	Memorandum
N	No
NGI	Norwegian Geotechnical Institute
NWMO	Nuclear Waste Management Organization
OGW	Opportunistic Ground Water
PE	Polyethylene
PIN	Partially Intact
PLC	Programmable Logic Controller
PLN	Plan
PPE	Personal Protective Equipment
PRA	Potential Repository Area
PVC	Polyvinyl Chloride
Q	NGI's Rock Mass Rating
QC	Quality Control

QA	Quality Assurance
QMS	Quality Management System
R0	Rock Strength
RFP	Request for Proposal
RQD	Rock Quality Designation
RMR	Rock Mass Rating
SCR	Solid Core Recovery
SOW	Scope of Work
TBD	To Be Determined
TCR	Total Core Recovery
TCS	Triaxial Compressive Strength
Th	Thorium
U	Uranium
UCS	Uniaxial Compressive Strength
W	Weathering
WP	Work Package



1.0 Introduction

The initial Borehole Drilling and Testing project at Ignace, Ontario is part of a Phase 2 Geoscientific Preliminary Field Investigation program lead by the Nuclear Waste Management Organisation (NWMO). This initiative is part of an Adaptive Phased Management (APM) Site Selection Phase.

This project, carried out by a team led by Wood on behalf of the NWMO, involves the drilling and testing of several deep inclined boreholes in the Ignace region within the identified Potential Repository Areas (PRAs). The targeted site is located in the northern part of the Revell batholith, an area predominantly underlain by a massive to weakly foliated granodiorite-tonalite intrusive complex (Golder and PGW, 2017).

This report describes the methodology, activities, and results for Work Package 03 (WP03): Geological and Geotechnical Core Logging, Photography, and Sampling with respect to IG_BH04. As shown on Figure 1, Borehole BH04 is located 43 Km northwest of the Town of Ignace and is accessible via Highway 17 and primary logging roads.

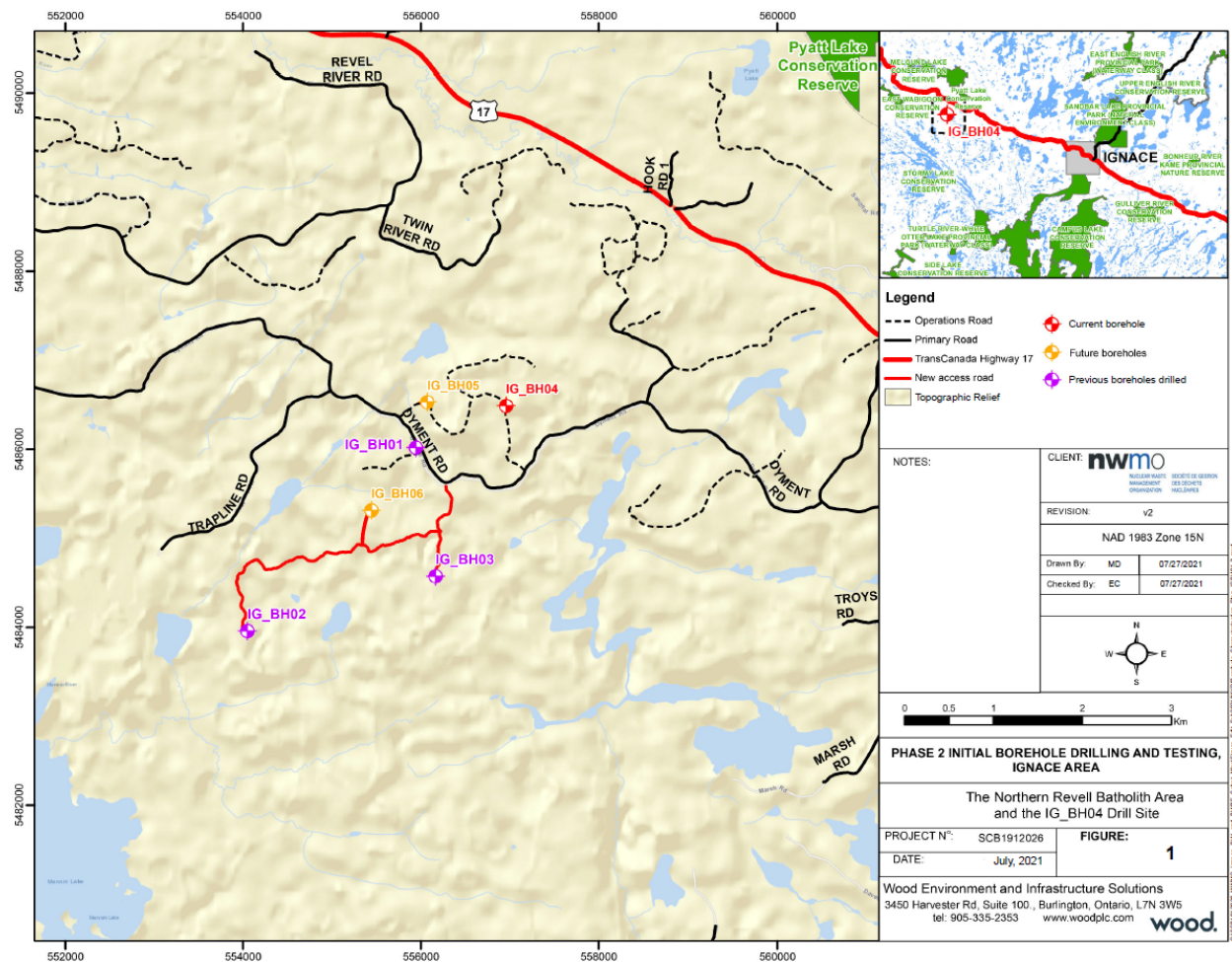


Figure 1: Ignace Borehole Site Locations for IG_BH01-to IG_BH06

2.0 Background Information

2.1 Geological Setting

The PRA under investigation is located within the Revell Batholith, a 2.7 billion year old intrusion located within the western part of the Wabigoon Subprovince of the Archean Superior Province. As seen on (Figure 2), the batholith is roughly elliptical in shape with the long axis trending northwest, and is approximately 40 km in length, 15 km in width, and covers an area of approximately 455 km². Based on geophysical modelling, the batholith has a relatively flat base that extends to depths of nearly 4 km in some regions (SGL, 2020). The batholith is surrounded by supracrustal rocks of the Raleigh Lake (to the north and east) and Bending Lake (to the southwest) greenstone belts.

Four main rock units are identified in the supracrustal rock group: mafic metavolcanic rocks, intermediate to felsic metavolcanic rocks, metasedimentary rocks, and mafic intrusive rocks. Sedimentation within the supracrustal rock assemblage was largely synvolcanic, although sediment deposition in the Bending Lake area may have continued past the volcanic period (Stone, 2009; Stone, 2010a; Stone, 2010b). All supracrustal rocks are affected, to varying degrees, by penetrative brittle-ductile to ductile deformation under greenschist- to amphibolite-facies metamorphic conditions (Blackburn and Hinz, 1996; Stone *et. al.*, 1998). In some locations, primary features, such as pillow basalt or bedding in sedimentary rocks are preserved, in other locations, primary relationships are completely masked by penetrative deformation. Uranium-lead (U-Pb) geochronological analysis of the supracrustal rocks produced ages that range between 2734.6 +/-1.1 Ma and 2725 +/-5 Ma (Stone *et. al.*, 2010).

Three main suites of plutonic rock are recognized in the Revell batholith, including, from oldest to youngest: a Biotite Tonalite to Granodiorite suite, a Hornblende Tonalite to Granodiorite suite, and a Biotite Granite to Granodiorite suite. Plutonic rocks of the Biotite Tonalite to Granodiorite suite occur along the southwestern and northeastern margins of the Revell batholith. The principal type of rock within this suite is a white to grey, medium-grained, variably massive to foliated or weakly gneissic, biotite tonalite to granodiorite. One sample of foliated and medium-grained biotite tonalite produced a U-Pb age of 2734.2 +/-0.8 Ma (Stone *et. al.*, 2010). The Hornblende Tonalite to Granodiorite suite occurs in two irregularly shaped zones surrounding the central core of the Revell batholith. Rocks of the Hornblende Tonalite to Granodiorite suite range compositionally from tonalite through granodiorite to granite and also include significant proportions of quartz diorite and quartz monzodiorite. One sample of coarse-grained grey mesocratic hornblende tonalite produced a U-Pb age of 2732.3 +/-0.8 Ma (Stone *et. al.*, 2010). Rocks of the Biotite Granite to Granodiorite suite underlie most of the northern, central and southern portions of the Revell batholith. Rocks of this suite are typically coarse-grained, massive to weakly foliated, and white to pink in colour. The Biotite Granite to Granodiorite suite ranges compositionally from granite through granodiorite to tonalite. This suite includes the oval-shaped potassium-feldspar megacrystic granite body in the central portion of the Revell batholith (**Error! Reference source not found.**). One sample of coarse-grained, pink, massive potassium-feldspar megacrystic biotite granite produced a U-Pb age of 2694.0 +/-0.9 Ma (Stone *et. al.*, 2010).

Borehole IG_BH04 is located within an investigation area of approximately 19 km² in size, situated in the northern portion of the Revell batholith. Bedrock exposure in the area is generally very good due to minimal overburden, few water bodies, and relatively recent logging activities. Ground elevations

generally range from 400 to 450 m above sea level. The ground surface broadly slopes towards the northwest as indicated by the flow direction of the main rivers in the area. Local water courses tend to flow to the southwest towards Mennin Lake (Figure 1).

The bedrock surrounding IG_BH04 is composed mainly of massive to weakly foliated felsic intrusive rocks that vary in composition between granodiorite and tonalite, and together form a relatively homogeneous intrusive complex. Bedrock identified as tonalite transitions gradationally into granodiorite and no distinct contact relationships between these two rock types are typically observed (SRK and Golder, 2015; Golder and PGW, 2017). Massive to weakly foliated granite is identified at the ground surface to the northwest of the feldspar-megacrystic granite. The granite is observed to intrude into the granodiorite-tonalite bedrock, indicating it is distinct from, and younger than, the intrusive complex (Golder and PGW, 2017).

West-northwest trending mafic dykes interpreted from aeromagnetic data extend across the northern portion of the Revell batholith and into the surrounding greenstone belts. One mafic dyke occurrence, located to the southwest of IG_BH04, is approximately 15-20 m wide. All of these mafic dykes have a similar character and are interpreted to be part of the Wabigoon dyke swarm. One sample from the same Wabigoon swarm produced a U-Pb age of 1887 ± 13 Ma (Stone *et. al.*, 2010), indicating that these mafic dykes are Proterozoic in age. It is assumed based on surface measurements that these mafic dykes are sub-vertical (Golder and PGW, 2017).

Long, narrow valleys are located along the western and southern limits of the investigation area. These local valleys host creeks and small lakes that drain to the southwest and may represent the surface expression of structural features that extend into the bedrock. A broad valley is located along the eastern limits of the investigation area and hosts a more continuous, un-named water body that flows to the south. The linear and segmented nature of this waterbody's shorelines may also represent the surface expression of structural features that extend into the bedrock.

Regional observations from mapping have indicated that structural features are widely spaced (typically 30 to 500 m spacing range) and dominantly comprised of sub-vertical joints with two dominant orientations: northeast and northwest trending (Golder and PGW, 2017). Interpreted bedrock lineaments generally follow these same dominant orientations in the northern portion of the Revell batholith (DesRoches *et. al.*, 2018). Minor sub-horizontal joints have been observed with minimal alteration, suggesting they are younger and perhaps related to glacial unloading. One mapped regional-scale fault, the Washeibemaga Lake fault, trends east and is located to the west of the Revell batholith. Ductile lineaments, also shown on Figure 2, follow the trend of foliation mapped in the surrounding greenstone belts. Additional details of the lithological units and structures found at surface within the investigation area are reported in Golder and PGW (2017).

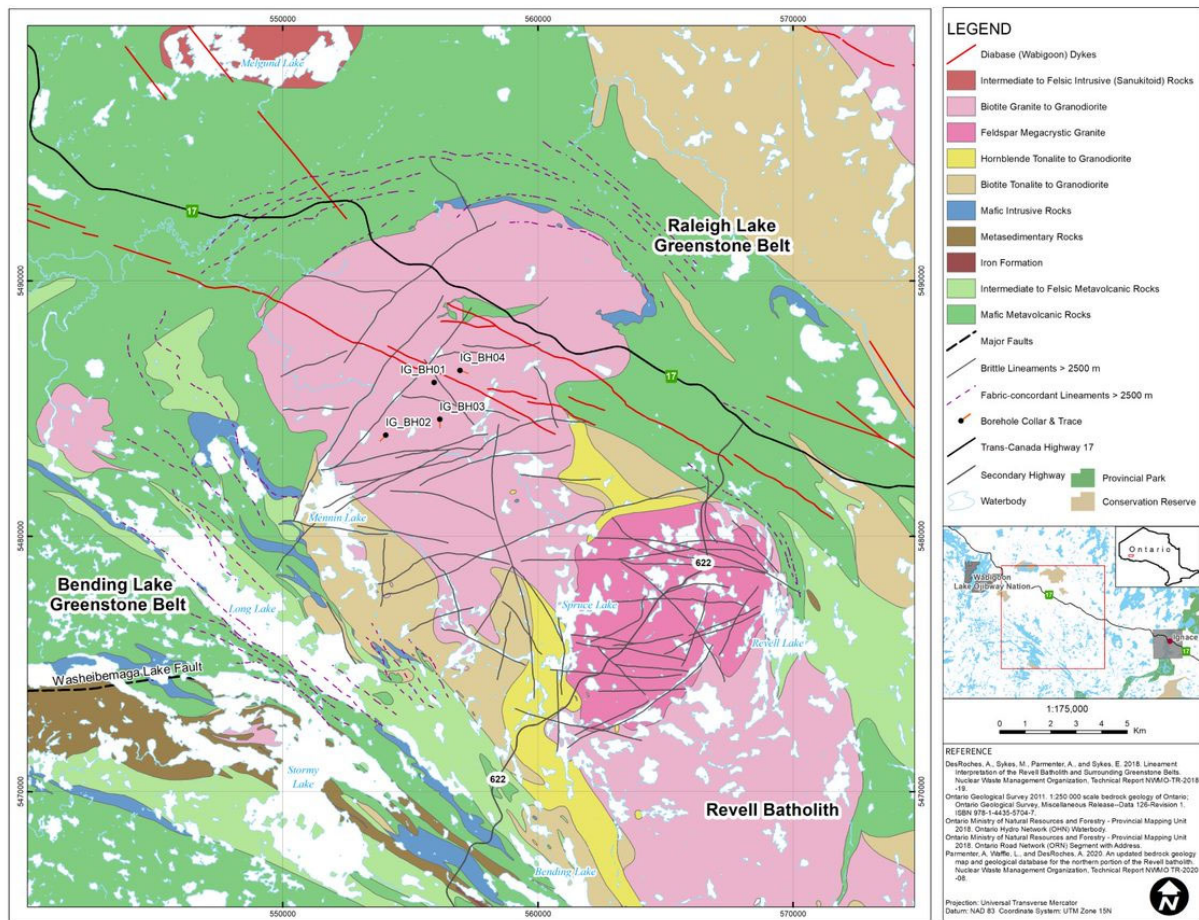


Figure 2: Geological Setting of the Northern Portion of the Revell Batholith (Parmenter et al., 2020)

2.2 Work Package Technical Objectives

The technical objectives of WP03 include:

- Provision of geological and geotechnical core logging of IG_BH04 along with a photographic library of the recovered core (split tubes, core boxes, samples, and core details); and
- Provision of high quality, preservation of core samples for conducting laboratory core testing and analyses; the majority of these tests are described in the individual WP04 test plans listed in PLN-007 I04 WP03 Core Logging (Wood, 2019b); additional testing such as microbiological will be completed outside of the main scope of work of Wood for IG_BH04.

The core logging data collected during drilling, and reported in this document, has been archived in an acQuire database. Ultimately, the data set provided is to aid in the assessment and delineation of initial subsurface geological and geotechnical domains. It can also complement surface-based information

(e.g., geological mapping and lineament interpretation), hydrogeological characterization, geophysical vertical seismic profiling and interpretation, and serve as a foundation for the development of an initial three-dimensional conceptual geological model.

3.0 Description of Work Procedures

The WP03 activities were carried out at the same time as WP02 (Borehole drilling and Coring) activities between November 19, 2019 and March 14, 2020. Full details of drilling progress will be documented in the WP02 Data Report- SCB1912026-REP-007_WP02 Drilling and Coring (Wood, 2021a).

Work Package WP03 included several geological and geotechnical work procedures, intended to provide safe, efficient, comprehensive, and traceable handling, observing, and documentation of continuous recovered drill core from IG_BH04. An overview of work procedures for WP03 is provided below:

- Geological and geotechnical core logging (Section 3.3) included marking the structural features and collecting core orientation data, core run data, structural feature information, lithological information, alteration observed, and rock strength quality information.
- Core sampling (Section 3.4) occurred throughout the drilling of the borehole. Core sampling was conducted at specific locations and in specific rock types as outlined in the sampling matrix. The various steps involved in core sampling, preservation, packaging, and shipping to temporary storage areas (at site / Ignace Warehouse) or to the laboratory are summarized within.
- Core photography (Section 3.5) included split tube photography (front and back photographs in split tubes), core box photography (front dry and wet photographs of 4 sequential core boxes), and structure feature and sample photography (front and back photographs of unmarked core samples).

Additional details relating to specific geological and geotechnical guidelines can be found in WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b).

3.1 Health and Safety

Mandatory health and safety toolbox meetings were conducted at the start of each shift (day and night) for all personnel on site. These meetings outlined all the activities planned for the current shift and identified potential hazards associated with the work, as well as mitigation actions that should be taken to reduce risk. Any personnel on site who did not attend the health and safety meeting (including visitors) were required to review and acknowledge the meeting report prior to performing any work on site. All applicable health and safety standards were adhered to for the duration of the program.

3.2 Work Flow

Wood provided a qualified Drill Supervisor to monitor and supervise the retrieval of the HQ3-sized drill core from the core barrel. The core was retrieved from the borehole by the drillers, oriented using a Reflex Act III core orientation tool, and the core tube was brought into the “wet shack” (Wood, 2019b) to pump the core splits out of the core barrel. The drill supervisor recorded the time (t_0) each core run was

extracted from the core barrel. Once the core was extracted, the split tubes were immediately brought into the logging trailer or “dry shack” (Wood, 2019b) by the driller, driller helper and/or the drill supervisor. The core logger then immediately began WP03 activities.

The core logging trailer contained a designated area to receive the core splits and conduct core split photography. If time sensitive samples were to be collected in the core run, sampling would occur immediately after the top split was removed. In non-time sensitive core, the core splits were photographed (2x180° photographs front and back). The drill core was then transferred to a V-tray, pieced together (to best represent solid core in fractured zones), oriented using the mark from the Reflex ACT III and the edge of the V-tray, and logged for geological and geotechnical parameters following core logging procedures as detailed in WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b).

Wood provided a qualified Core Logger to undertake core logging, core photography, and sampling of the drill core. The Core Logger recorded the time the splits arrived in the logging trailer, which would occur with a slight delay following the retrieval of the splits from the core barrel. An overview of the workflow that was followed during the geological and geotechnical core logging, photography and sampling activities is presented in Figure 3.

Geological and geotechnical sampling, logging, and photography were performed during drilling on a 24/7 basis. Two core loggers, working on alternating 12-hour shifts (dayshift and nightshift) ensured constant supervision during field work activities. A cross over shift period allowed time (approximately 15 mins) to exchange relevant logging features encountered or information obtained during the previous shift.

At the beginning of each shift, the incoming core logger would perform a quality check on the geological and geotechnical logging, photography, and sampling recorded during the previous shift. The logger then consulted the sampling matrix to be prepared for possible time-sensitive samples to be collected during the shift.

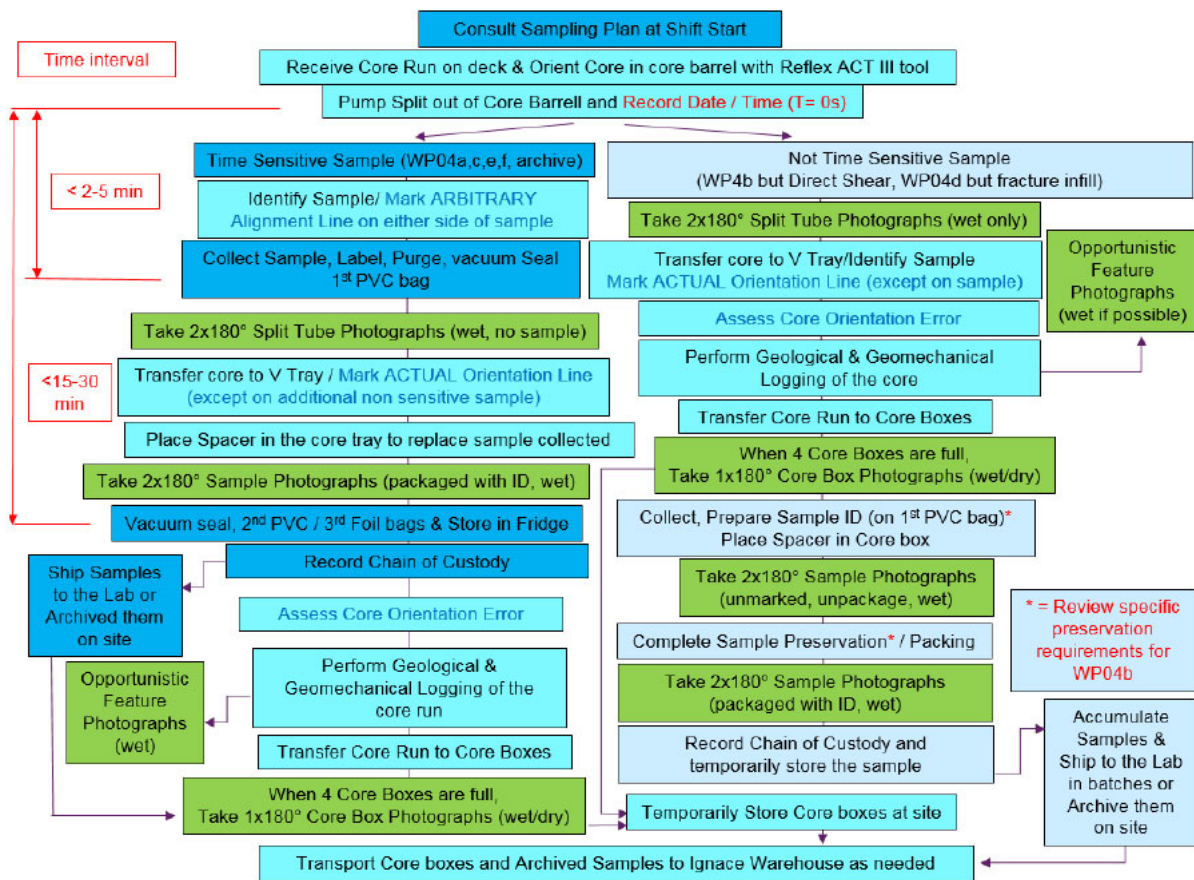


Figure 3: Workflow followed for WP03 tasks (Wood, 2019b)

3.3 Core Logging Procedures

Core logging procedures, as described in Appendix B of the WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b), were performed on a per run basis.

For each run, the core logger marked the core following project specific guidelines. When available, the logger drew an actual orientation line on the core using the ACT III orientation results for the current run or by transferring the orientation line from the previous run (i.e., back oriented). When core orientation was lost, an arbitrary reference line was used, as instructed by NWMO. The logger measured the length of the drill core and recorded the core run depths. The core logger also marked the downhole depth by meter on the core and then identified the various structures (mechanical breaks, broken structures, and intact or partially intact structures) and their corresponding depths.

All core logging details were captured in an acQuire database customized for this project. All required fields in the database were highlighted in red in the database software and data were entered on various tabs. The core logger recorded the core run data as follows: Drilled From (m), Drilled To (m), Core Run

Number, Retrieval Time (24hr), Logged By, Photo By, and Sampled By. For each run the logger measured the Total Core Recovery (TCR), Rock Quality Designation (RQD), Solid Core Recovery (SCR), Count of Mechanical Breaks, and Count of Natural Fractures and entered the data in the core run tab.

The core logger then populated the Reference Line tab. The Reference Line tab contains information pertaining to the orientation of each core run and the orientation error measured relative to the former run by the logger.

The core logger then entered all geological and geomechanical features observed into the Structure tab. The logger measured the depth of each structure (at the mid-point of the feature), identified the type of structure, and recorded specific information relating to the feature in the acQuire database (Figure 4), such as its orientation (alpha and beta angles) and mechanical/physical properties (aperture, shape, roughness, alteration, infill type etc.).

The screenshot shows the 'Structure' tab in the Acquire database. At the top, there's a 'Short Cuts' section with F9 = Accept, F11 = Change Entry Mode, F7 = Previous Sheet, and F8 = Next Sheet. A green 'Insert Mode' button is also present. The main form is divided into several sections: 'Borehole ID' (IG_BH04), 'Depth (m)' (redacted), 'Core Run', 'Type' (redacted), 'Sub Type', 'Broken/Intact', 'Intensity', and 'Toggle 'on' if Structure Detail photo(s) collected:' with checkboxes for 'Photo File Name - Structure Detail #1' and 'Photo File Name - Structure Detail #2'. Below this are 'Width (cm)', 'Alpha Angle', and 'Beta Angle'. The 'DEFINING MINERALS' section has 'Mineral 1' and 'Mineral 2' dropdowns. The 'LINEATION' section has 'Is there lineation?' (dropdown), 'Lineation Sub Type', 'Delta Angle', 'Lineation Defining Mineral', and 'Gamma Angle'. The 'MECHANICAL PROPERTIES' section includes 'Aperture (mm)', 'Shape', 'Roughness', 'Weathering', 'Joint Alteration', 'Infill Character', 'Infill Type 1', 'Infill Type 2', 'Infill Type 3', 'Infilling Thickness (mm)', 'Infill Gouge Desc', 'Discontinuity Length', 'Ja Num.', 'Jr', and 'JCR'. A 'Comments' text area is at the bottom, with 'Accept (F9)' and 'Cancel' buttons.

Figure 4: AcQuire database displaying the Structure Tab

A summary of the various structure types and occurrences recorded in the borehole are presented in Section 4.4.

After all the structural data was collected, the core logger identified every distinct lithological unit in the drill core. The lithological units within the core run were recorded in the Lithology tab, with each distinct unit greater than 5 cm in width recorded as an individual lithological unit. The core logger entered the contact depths or run depths if the lithology did not change. The core logger then identified specific information relating to the lithological unit including rock type, textures observed, minerals identified, upper contact information, ground mass classification, grain size, and color of the unit. If the lithological unit contained phenocrysts / porphyroblasts, their grain size and mineral type were identified. On average, gamma readings were recorded in the lithological tab once every couple of runs or at every change in

lithology to distinguish different phases of granitoid units. The main lithology encountered was tonalite and is described below in Section 4.1.1.

Following the lithology identification, the core logger recorded alteration and weathering in their respective tabs. The borehole was dominantly unaltered and unweathered, as described below in Section 4.2. Weathering and rock strength classifications were based on the International Society of Rock Mechanics guidelines (ISRM, 1981). To minimize mechanical breaks in the core, rock strength was often measured when the core logger broke the core to fit into the core box and / or while breaking longer lengths of core during sampling.

The core sample tab was filled out for every single core sample collected. The From (m) and To (m) depths, Test Type, Sampled Date & Time (24hr format), Sampled By, Sample Weight (kg), and Comments for each sample were recorded in the sample tab.

The core logger moved the drill core from the V-tray to a core box after the core run was logged. The final tab filled by the core logger in the acQuire database was Boxed Core Photos. The core logger populated the photo banner and photographed 4 consecutive full boxes of core (wet and dry) in similar lighting and setting. The boxes were then labelled, wrapped, and placed in temporary storage prior to shipping to the respective locations outlined in the sample matrix.

The core log can be found in Appendix A and the field data findings are summarised in Section 4.

3.4 Laboratory Core Sampling Procedures

Two categories of core samples were collected during this project: Non-Time Sensitive, and Time-Sensitive. There was no time restriction during the collection, sampling, or preservation of Non-Time Sensitive Samples. However, Time-Sensitive Samples were collected, sampled, and preserved specifically to maintain the integrity of the sample analysis over a specific period of time.

3.4.1 Non Time-Sensitive Sampling

Three categories of Non-Time Sensitive samples were collected, including: 1) Geomechanical under WP04B (Wood 2019c), 2) Microbiology, and 3) Mineralogy and Geochemical Samples under WP04D (Wood, 2019e).

Geomechanical samples were collected for the following tests: Uniaxial Compressive Strength (UC, minimum 20 cm long sample), Indirect Tensile Strength (Brazilian, BR, minimum 20 cm long sample), Triaxial Compressive Strength (Triaxial, TC, minimum 20 cm long sample), and Thermal testing samples (TH, minimum 25 cm long sample). The core was first photographed (2x180° split tube core photography) prior to sampling. The logger selected the desired piece of core and broke it to the specified sample length with a rock hammer when required. Samples were collected adjacent to one another and all from the same lithological unit. The logger wiped the core samples clean with a blue paper towel. The core samples were each individually photographed under wet conditions (front and back) with a detailed photo banner and color charts. The logger then weighed the sample, placed it into a Ziplock bag and labelled the bag (IG-BH04_XX_YYY, depth from, depth to, date, time, where XX is a short form letter code for the test and YYY is a sequential number). The core logger updated the photo banner and

photographed the sample again displaying the packaged sample and label. Next, the logger wrapped the sample in plastic wrap, followed by aluminum foil. Ultimately, the logger sealed the foil with hot wax ensuring the wax did not get onto the core sample. The sealed/waxed core sample was then placed into a Ziplock bag. The bag was labelled with the core sample details using a Wood sticker. For additional protection, the sample was wrapped in bubble wrap, relabeled with a permanent black marker and placed in an up-right position in a 5-gallon pail for transportation.

Microbiology core samples were photographed (2×180° split tube core photography) prior to sampling. The logger wore a new pair of latex gloves during sampling to prevent microbial contamination. The selected core sample was broken to the desired lengths (20–30 cm) using a geological hammer, if required. The samples were individually placed in Ziplock bags and photographed (front & back). Afterwards, the sample information was entered in acQuire. The logger completed the preservation steps by writing the Sample ID on the Ziplock bag with a Sharpie and placing the samples in a freezer at site for temporary storage.

Mineralogy and Geochemical Samples were photographed (2×180° split tube core photography) prior to sampling. The core sample was broken to the desired minimum length of 20 cm. The logger wiped the core clean with a blue paper towel, then photographed the sample under wet conditions (front and back) with detailed photo banner and color chart. The logger then weighed the sample and placed it in a Ziplock bag. The logger labelled the bag with the core sample details using a Wood sticker. The logger then photographed the core sample with the packaging information displayed.

3.4.2 Time-Sensitive Sampling

Time-Sensitive Samples included: Effective Diffusion (ED, 20 cm long sample) under WP04E (Wood 2019f), Petrophysical Samples (PS, 35 cm long sample) under WP04A, Porewater Extraction Samples [1 sample and 2 replicates (PW 35 cm long sample, PW 35 cm long sample, PW 15 cm long sample)] under WP04C (Wood 2019d), Sorption Samples (SO, 45–50 cm long sample), Specific Surface Area & Cation Exchange Capacity Samples (SA, 35 cm long sample) under WP04F (Wood 2019g), and General Archived Samples (AR, 35 cm long sample). Prior to sampling, the logger consulted the sampling matrix, cut, weighed, and partially labelled the first polyethylene bag(s), ensuring there was enough extra-length for re-opening and re-sealing the bag. The logger always entered samples into acQuire in an increasing order of depth. At the time of sampling, the core logger began by putting on gloves and starting a timer when the top split was removed from the core run. If needed, the logger broke the sample using a rock hammer to obtain the required length. The logger drew an arbitrary alignment line on both sides of the sample without touching the sample to recover the orientation of the core on the rest of the run. The sample was wiped clean with a blue paper towel, parafilm was placed on the top and bottom of the sample, and the sample was transferred into a polyethylene (PE) bag (pre weighed and partially labelled, IG-BH04_XX_YYY, depth from, depth to, date, time, where XX is a short form letter code for the test and YYY is a sequential number). The logger then vacuum sealed the sample in the PE bag. The logger recorded the time of sampling for each individual sample bag. To ensure the sample was preserved in its original state, these steps needed to be completed in less than 5 minutes.

Afterwards, the logger re-opened the PE bag by cutting an edge with scissors and placing the excess material back into the bag. Following flushing of the sample with Nitrogen for a minimum of 10 seconds, the bag was resealed and labelled (Test Type, Depth, Date, Time). The sample was weighed in the bag and

the weight of the sample was back calculated by subtracting the weight of the bag itself; this weight was recorded on the Wood Label. The package was then photographed (front and back) with a detailed photo banner and color charts.

Next, the logger put the sample in a second PE bag and vacuum sealed the bag. Ultimately, a third foil film bag was placed over the second sealed PE bag, vacuum sealed and labelled with a Wood Sticker. The logger photographed the third bag displaying the Wood sticker and placed the samples in a refrigerator.

The logger cut a PVC tube about the length of the sample and placed it in the core box where each individual sample was collected. The sample details were written on the PVC tube. The core sample Chain of Custody (COC) log, summarizing the full list of samples collected, can be found in Appendix B.

3.5 Core Photography Procedures

Four different types of core photographs were taken during this project. They include 2x180° split-tube, 2x180° core sample, detailed structure feature, and 1x180° boxed core photographs. Examples can be found in section 4.5. All photographs were taken in the logging trailer using the camera set-up as seen in Figure 5.



Figure 5: Core logging trailer, left side displays core split photography setup, far right side displays core box photograph set up and front right side shows sample and detailed structure photography setup (Light box)

Split-tube Photography (2×180°) was completed first and performed as soon as the core was brought into the core logging trailer. The core logger filled out a core run banner and placed a measuring tape below the length of the drill core, ensuring the start of the measuring tape was aligned with the start of the drill core. The core logger wet the core if needed to ensure the photographs were taken under wet conditions. The logger then captured 24 consecutive photographs of the back of the core run (displaying the orientation line) by sliding the camera carriage along a ceiling mounted track and using pre-spaced markers to ensure a consistent photo overlap between successive photos. The camera setup for split photos is shown on the left side of the photo in Figure 5. The logger then checked the quality of the photos and photo banner. If the photos were clear and visible, the logger rotated the core split 180° to capture another set of 24 photographs, this time of the front of the core. The core logger verified the quality of the photos, re-named all the photos, and uploaded them to Wood SharePoint / ProjectWise. Split-tube photographs for the front and back of the core were stitched in the office by support staff and shared with NWMO as they became available.

After the logger completed the 2x180° split-tube photography, the logger collected any non-time sensitive samples. Core sample photographs (2x180°) were taken of each sample, from a portable folding light box (front right, Figure 5). The core logger turned on the LED lights, placed the sample in a wooden core holder, positioned the sample photo banner and color chart, and took a picture of the core from an opening in the top of the light box. The logger rotated the sample 180° to capture the back of the sample, adjusted the photo banner, and took another picture. After ensuring the quality and clarity of the sample photos, the photos were re-named and uploaded onto the Wood SharePoint / ProjectWise site.

Detailed structure feature photography was performed on an opportunistic basis. These photographs were taken using a measuring tape, photo banner, and the split tube camera set up. The logger collected these photographs to outline features not seen in the split photographs, such as fracture surfaces.

Boxed core photographs were taken when 4 consecutive core boxes were full. The logger would ensure the orientation line was visible, the tape measure, photo banner and color charts were in place and would photograph the core boxes dry. After ensuring the quality of the photo was acceptable, the core box photos were saved on the computer and renamed for upload to Sharepoint / ProjectWise site. These steps were repeated by the core logger after wetting the core and adjusting the photo banner. All core photography information was subsequently entered into acQuire.

3.6 Quality Confirmation

A series of quality confirmation procedures were established and implemented for the duration of the drilling program. At the drill site, daily cross-over shifts were held for approximately 10-15 minutes at each shift change to pass along any information or progress that occurred on the previous shift. The cross-shifts lengths were extended as necessary to ensure all relevant additional information was relayed. In addition, every 2 to 3 weeks, when a core logger staff rotation occurred, 6 to 12 hour cross-over shifts were carried out to maintain consistency in the logging and coring procedures.

On site, daily quality confirmation (DQC) forms were completed by the core logger on duty. The site coordinator and the day shift core logger were in charge of filing the forms for the work done both on their shift and the former night shift, so each daily form covered the prior 24 hour period. This process included calibration checks, and reviewing the previous core photos, core sampling and core logging

sheets. These forms were included in the WP02-03 daily report submitted to NWMO. They were also compiled as part of the WP03 Data Delivery.

In parallel, from the office the WP03 lead, supported by a team of experienced geologists and engineers, would perform an extensive daily review of the core logging data base either directly in acQuire or via csv export files on a run-by-run basis. This review also included a review of the core photographs, core sampling logs, core tracking sheets and chain of custody documents. Further reviews of the core logging data were completed, following reception of NWMO's comments based on their data review. Ultimately, a Master compilation QAQC table was produced summarizing the comments of both parties as well as implementations of any changes made in the core logging data base (acQuire). The Master compilation QAQC table can be consulted as part of WP03 final data delivery.

4.0 Summary of Field Data Collection

IG_BH04 was drilled to a depth of 1000.20 m. At the borehole collar, 0.67 m of construction gravel, followed by 0.94 m of PQ core was drilled initially to seat the PWT casing. Then a total of 998.59 m (1000.2 m - 0.67 m - 0.94 m) of HQ3 rock core was drilled over 359 core runs. Both the PQ and HQ3 core were logged as part of WP03 for a total drilled core length of 999.53 m (= 998.59 m + 0.94 m). The borehole dip was 70 degrees, and the average core run length was 3m. A full description of the drilling and coring process can be found in WP02 Data report - SCB1912026-REP-007_WP02 Drilling and Coring (Wood, 2021a). An additional 26.6 m of core was logged (raw data only), sampled and photographed for IG_BH04A and 12.4 m of core was photographed for IG_BH04B. These were short borehole branches developed as a result of wedging through the requirement to maintain trajectory of the main hole within a ± 5 degrees cone.

The following section provides a summary of the core logging orientation and rock / features observed for IG_BH04 only as the other 2 partial holes were essentially considered a duplicate of the main hole. Information on the lithology encountered and logged in IG_BH04 is presented in (Section 4.1), followed by weathering and alteration (Section 4.2), geotechnical logging (Section 4.3), and structural data (Section 4.4) logging observations. The core logging data for the entire borehole is presented in a comprehensive strip log in Appendix A.

4.1 Lithology

Lithology was logged continuously on all recovered core during the drilling of IG_BH04. Lithological descriptions below are based on initial visual inspection of the drill core. Petrographic and geochemical analysis were conducted to provide supplemental data and to refine the mineral phases identified.

Any lithology changes greater than 5 cm in length were described as an individual lithological unit. A Gamma Ray Spectrometry spot analysis was utilized during drilling operations to help distinguish between granitoid phases. The distribution of the distinct rock units encountered in IG_BH04 is shown in Table 1.

The predominant rock type encountered was tonalite (0.67-883.96 m), followed by feldspar-phyric tonalite (883.96-1000.20 m), biotite-rich tonalite, amphibolite (mafic), a second mafic unit, and several phases of

felsic dykes, including: feldspar-phyric, quartzolite, quartz monzonite, and aplite. Some of the amphibolite occurrences may also be dykes; however, that is only a field-level interpretation.

Within the core, the majority of the lithological contacts observed (upper contact considered) were intact (not broken or partially intact).

Note that the total lithology length (999.53 m) is short by 0.67 m of the total drilled depth (1000.20 m) because the surface construction gravel (0.67 m) drilled at the collar of the hole was excluded from logging. Additionally, the total recovered core length (999.72 m) is 19 cm longer than the total drilled core (999.53 m) due to the rounding of core recovery depth measurements during logging, which corresponds to a 2% difference over the entire length of the borehole.

Table 1: Summary of Rock Units Encountered in IG_BH04

Rock Type	Texture	Fabric	Total Length of Core ** Logged (m)	% of Total Length of Core Logged	Upper Contact (#)*		
					BR	IN	PIN
Tonalite	Equigranular	Massive	853.63	85.40	2	21	0
Feldspar-phyric Tonalite	Porphyritic	Massive	110.30	11.04	4	5	0
Biotite-rich Tonalite	Equigranular	Massive	22.58	2.26	0	9	0
Amphibolite	Aphanitic / equigranular	Massive / foliated	9.82	0.98	5	4	0
Feldspar-phyric Felsic	Porphyritic	Massive	1.99	0.20	0	2	0
Mafic	Equigranular	Foliated	0.56	0.06	0	1	0
Quartzolite	Equigranular	Massive	0.44	0.04	0	2	1
Quartz Monzonite	Equigranular	Massive	0.16	0.02	0	1	0
Aplite	Equigranular	Massive	0.05	0.01	0	1	0
Total			999.53	100.00	11	47	1

* BR = Broken, IN = Intact, PIN = Partially Intact

** PQ core and HQ3 core combined

4.1.1 Tonalite

As indicated above, 85% of the total length of logged core of IG_BH04 was tonalite (853.63 m). The tonalite is a massive to weakly foliated, equigranular, light to medium white-grey, medium grained (1-5 mm) unit. The three main minerals observed were quartz, feldspars (alkali-feldspar and plagioclase), and biotite. The very weak foliation was defined by the biotite minerals below 780 m depth (Figure 6A).

A biotite-rich tonalite was identified and represents 22.58 m (2%) of the total logged core. The biotite-rich tonalite was described as a massive, equigranular, medium to dark grey, fine to medium grained unit with approximately 20-25% biotite (Figure 6B).

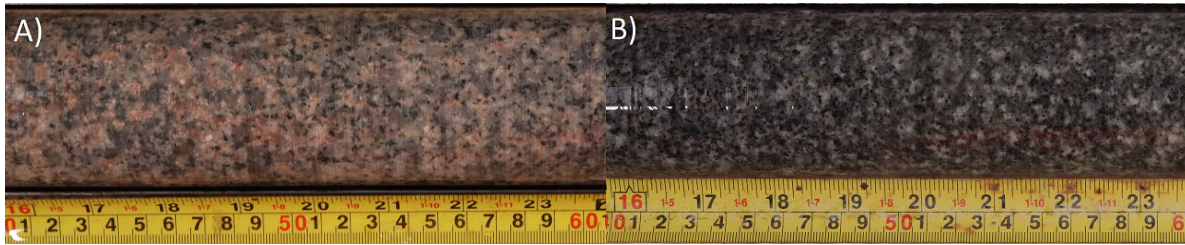


Figure 6: Tonalite types observed in IG_BH04: A) Tonalite unit from approximately 153 m depth, and B) Biotite-Rich Tonalite unit from approximately 834.5 m depth

The biotite-rich tonalite was logged in nine occurrences, ranging in length from 0.22 m to 7.84 m, and representing approximately 2% of the logged core. The biotite-rich tonalite was distinguished from the tonalite by the decrease in grain size, increase in biotite content, and the darker color of the unit. The contact between the tonalite and the biotite-rich tonalite was mainly intact and varied between sharp and gradational. The typical K values for tonalite and biotite rich tonalite combined ranged between 0.1 and 0.7% K, the Uranium (U) and Thorium (Th) content ranged from 0.1 to 4.9 ppm (U) and from 0.1 to 3.5 ppm (Th).

4.1.2 Additional rock Types Encountered in IG_BH04

In IG_BH04, the remaining rock types encountered represent a total of 13% of the total recovered core (Table 1). Examples of each rock type are shown below in Figure 7, and their distribution along the length of the borehole is displayed in Appendix A. All the additional rock types, along with their main characteristics, are described below.

Feldspar-phyric tonalite: Nine occurrences of Feldspar-phyric tonalite were logged in IG_BH04, accounting for 11% (110.30 m) of the total recovered core. The Feldspar-phyric tonalite was present after 883 m depth to the end of the borehole (Figure 7A) (939.54-939.74 m, all depths are based on split photos). The Feldspar-phyric tonalite is described as massive, porphyritic, medium grained, medium to dark grey-black, contain 45-50% quartz, 40-45% plagioclase, and 5-10% biotite. The porphyroblasts were subhedral, white, up to 1 cm plagioclase grains.

Amphibolite: Nine occurrences of amphibolite were logged in IG_BH04, accounting for 1% (9.81 m) of the total recovered core. Two of these occurrences were logged as being metamorphic between 616–621 m and the remaining amphibolite was logged as dykes below 905.00 m. The metamorphic amphibolite was black, massive, fine grained, and contained 50% amphibole, 40% hornblende, and 10% calcite (Figure 7B, 619.51–619.71 m). The upper and lower contacts of the metamorphic amphibolite with the tonalite are mainly sharp and are moderately altered for approximately 0.5 m. The metamorphic amphibolite unit was intruded by a quartz monzonite creating two separate units.

The amphibolite dykes occurred below 905 m depth and intruded the Feldspar-phyric tonalite. The amphibolite dykes ranged from 0.09 to 3.69 m in length. Amphibolite dykes were observed as dark grey-green, massive to foliated and usually fine-grained (<1 mm) (Figure 7C, 905.44–9.5.64 m). The main mineral phases in the amphibolite dykes included amphibole and plagioclase feldspar. Biotite, epidote,

hornblende, and chlorite may have also present. The amphibolite dykes consistently exhibit a sharp upper and lower contact. Within the amphibolite transitions from massive to moderately foliated were often sharp.

Feldspar-phyric felsic dykes: Two occurrences of feldspar-phyric felsic dykes were logged, one from 434.78–435.78 m and from 740.55–741.54 m. Figure 7D below is from 435.51–435.71 m. The occurrences combined have a total length of 1.99 m representing less than 1% of the recovered core. These dykes are medium to dark grey with a very fine matrix composed of quartz and plagioclase with 3–5% medium grained feldspar phenocrysts up to 7 mm wide. These dykes display very sharp contacts with the adjacent tonalite.

Mafic: One occurrence of a mafic unit was observed from 575.78 to 576.34 m. Figure 7E captures the mafic unit from 575.91–576.11 m. The mafic unit is dark brown to dark green, fine grained, highly foliated and composed of 40% amphibole, 40% Chlorite, and 20% Calcite. This unit has a faulted broken lower contact with the tonalite. It may be that this mafic unit represent a very strongly deformed equivalent of the metamorphic amphibolite described above.

Quartzolite dykes: Two occurrences of quartzolite dykes were observed with lengths of 0.10 and 0.29 m respectfully. One of the quartzolites are displayed in Figure 7F) from 989.14–989.34 m. These dykes are milky white to smoky grey, massive, medium grained (5–10 mm) and composed almost entirely of quartz with minor occurrences of the host rock infilling fractures. These contacts are oriented at low angles relative to the core axis.

Quartz Monzonite: One occurrence of quartz monzonite was observed with a total length of 0.16 m (Figure 9Figure 7G). The quartz monzonite was observed to contain 75% plagioclase, 20% quartz, and 5% biotite minerals. The unit is rusty to red, massive, equigranular, and medium to fine grained. The unit was moderately silicified and contained moderate potassic alteration.

Aplite dyke: One aplite dyke of 0.05 m occurred at 761.60 m (Figure 7H). The aplite dyke was light grey, equigranular, and fine grained (<1 mm) to aphanitic. The aplite is rich in quartz and alkali feldspar with minor biotite. The contacts with the adjacent tonalite were intact, at a relatively high angle, and sharp with a slight silicified alteration halo of approximately 1 cm.

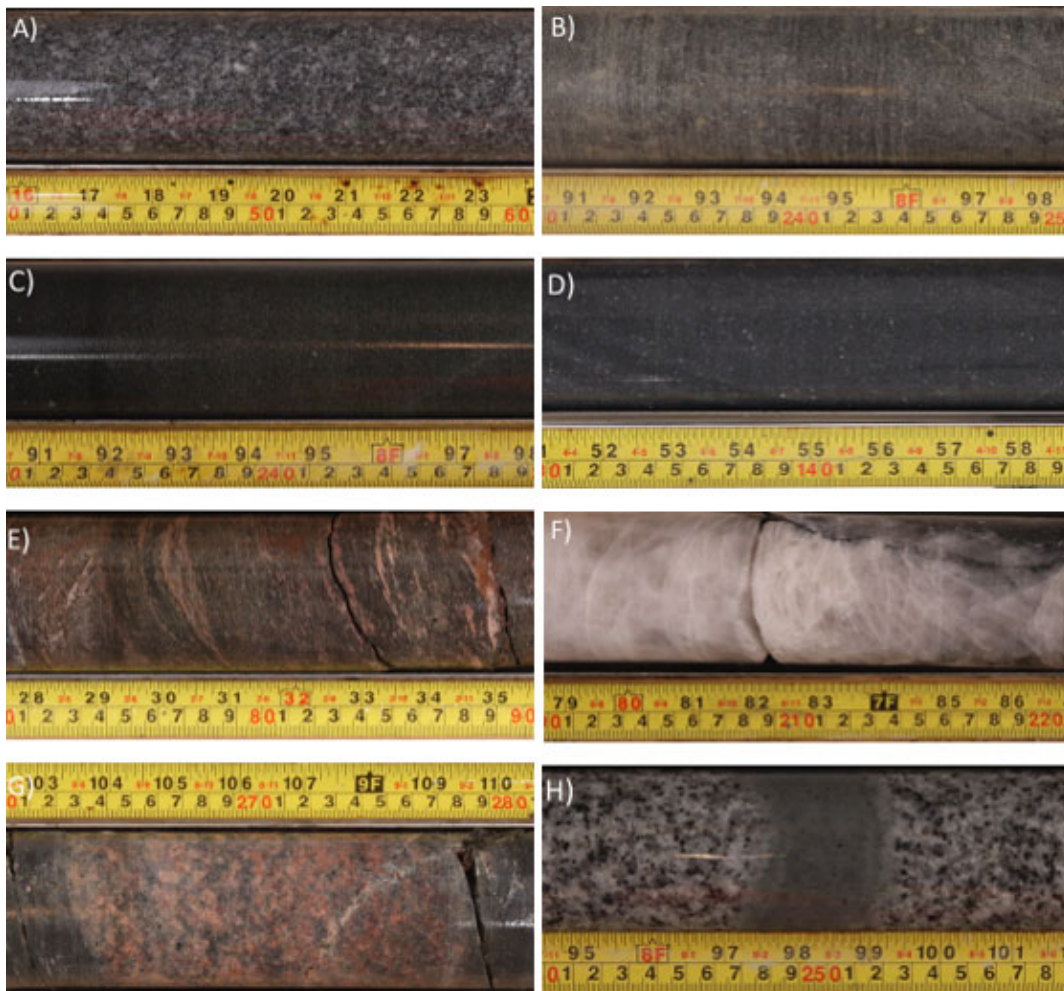


Figure 7: A) Feldspar-phyric tonalite (939.54-939.74 m), B) Amphibolite (metamorphic 619.51-619.71 m), C) Amphibolite dyke (905.44-905.64 m), D) Feldspar-phyric felsic (435.51-435.71 m), E) Mafic (575.91-576.11 m), F) Quartzolite dyke (989.14-989.34 m), G) Quartz Monzonite (616.79-616.95 m), and H) Aplite dyke (761.60-761.65 m)

4.2 Weathering and Alteration

Weathering and alteration of the rock mass were logged along the entire length of the recovered core using the alteration index (Wood, 2019b) and weathering classification (ISRM, 1981). Weathering refers to a destructive process by which rock, on exposure to atmospheric agents at or near the Earth's surface, is changed in colour, texture, composition or form. The majority of the core (87%) was found to be fresh, with no visible sign of rock material weathering (W1), while the reminder showed either slight signs (W2) or moderate signs (W3) of weathering. The highest level of weathering was found in two locations over the length of IG BH04. These correspond to faulted zones encountered at the following depths: 575.78–576.34 m, and 906.36–906.51 m (Figure 8).

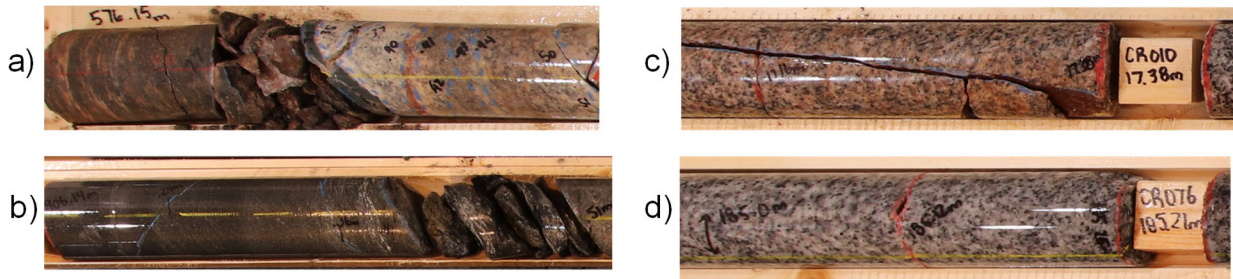


Figure 8: Examples of weathering levels observed in IG_BH04: (a) Moderately weathered (W3) horizons at 575.78-576.34 m; (b) and at 906.36-906.51 m; (c) slightly weathered horizon at 17.38 m and (d) not weathered horizon at 185.21 m

Alteration refers to any change in the mineralogical composition of the rock caused by hydrothermal solutions interacting with and changing the chemical composition of the minerals in the rock mass. Most of the recovered drill core (894.65 m) was unaltered (A1) to slightly altered (A2). A breakdown of the various degrees and types of alteration is summarized below.

In total, 523.31 m or 52% of core was found to be altered to varying degrees. Approximately 40% (402.50 m) of the recovered drill core was slightly altered (A2) with the alteration concentrated on fractured surfaces and adjacent to infilled fractures. Approximately 11% of the recovered drill core was identified as being moderately altered (A3) and 1% of the recovered drill core was logged as highly altered (A4). No occurrences of completely altered rock (A5) were identified. Note, an occurrence of alteration is defined for this report as consecutive sections of rock with the same alteration type. For example, a potassic alteration that spans from the end of one run to the start of the next will have been logged twice in acquire but will count as one occurrence. The distribution of each alteration type is shown in Appendix A. The main characteristics of each alteration type are described below, photographs are represented in Figure 9, depths in photo were estimated using split photos.

- Potassic:** Potassic alteration was identified in 84 occurrences, and is the predominant alteration observed in the recovered core. Approximately 33% (331.52 m) of the core was logged with some degree of potassic alteration, the majority of which is described as slightly altered. Potassic alteration is due to the formation of new k-feldspar and is pink to orange in color, as shown in Figure 9A. Potassic alteration was observed forming halos around quartz and feldspar crystals, as fracture filling from hairline fractures to 1 mm infill, as patchy alteration, and as pervasive in some areas. Potassic alteration mainly occurs between 86 m and 589 m depth.
- Chloritization:** Chloritization was described in 77 occurrences, ranging in lengths from hairline zones to 32.21 m of the recovered core. Approximately 27% (274.71 m) of the recovered core displayed chloritic alteration, the majority of which is described as slightly altered. The appearance of blue-green to dark-green minerals and mineral strength were the main diagnostic characteristics of the alteration type. Chloritization occurs mainly below 876 m depth. Figure 9B displays 2 epidote fracture infills, with minor iron oxide, and weak bleaching around the fractures in tonalite.
- Hematization:** Hematization was identified in 19 occurrences, representing approximately 8% (75.57 m) of the recovered core. The altered rock mass was primarily described as slightly to

moderately altered with less than 1% described as being highly altered. Individual occurrences of hematization range in lengths from hairline to 9 m. This alteration is characterized by rust, red, brown staining of the rock and/or coating around mineral grains. Hematization was mainly observed in the upper 75 m of the borehole. Figure 9C is a contact between a tonalite unit and the mafic unit; on the left side of the photo hematite alteration has altered the minerals of the tonalite to a reddish / rusty color. The mafic unit displays chlorite alteration; the chlorite is partially to completely replacing biotite.

- **Silicification:** Silicification was identified in 66 occurrences, representing approximately 5% (46.71 m) of the recovered core. This alteration was characterized by a light to medium grey discoloration of the drill core, increase in rock strength, and reduced clarity to the rock texture (Figure 9D). Silicification occurs sporadically between 359 m to 890 m. Individual occurrences range in length from 0.01 to 2.23 m and most of the silicified zones were described as slightly altered.
- **Carbonatization:** Carbonatization was identified in 15 occurrences, representing approximately 4% (37.52 m) of the recovered core. Carbonate alteration was occasionally associated with silicification in the lithological units. Figure 9E displays the contact between a tonalite and an amphibolite, the foliated, light grey, altered contact of the amphibolite displays pervasive carbonate alteration. Silicification and carbonatization were distinguished by the hardness of the minerals and by using hydrochloric acid to verify if the minerals effervesced. The altered drill core was primarily described as slightly to moderately altered with 1% described as highly altered.
- **Bleaching:** Bleaching was observed in 20 occurrences, ranging in length from 0.2 m to 3 m and representing approximately 3% (31.38 m) of the recovered core. Bleaching caused a whitening to the minerals in the drill core (Figure 9F). Bleaching was mainly observed between 745 m and 900 m depth.
- **Sericitization:** Sericitization was observed in 3 occurrences, ranging in length from 0.2 m to 3 m and representing 7.69 m (less than 1%) of the recovered core. Sericite alteration was mainly concentrated from 900.14-909.14 m. This alteration was characterized by white alteration patches and the presence of white mica on the drill core (Figure 9G).
- **Albitization:** Albitization was observed in 4 occurrences representing 1.94 m (less than 1%) ranging in length from 0.09 m to 1.48 m and were all described as being slightly altered. Albite was observed to partially to completely replace plagioclase feldspar (Figure 9H).

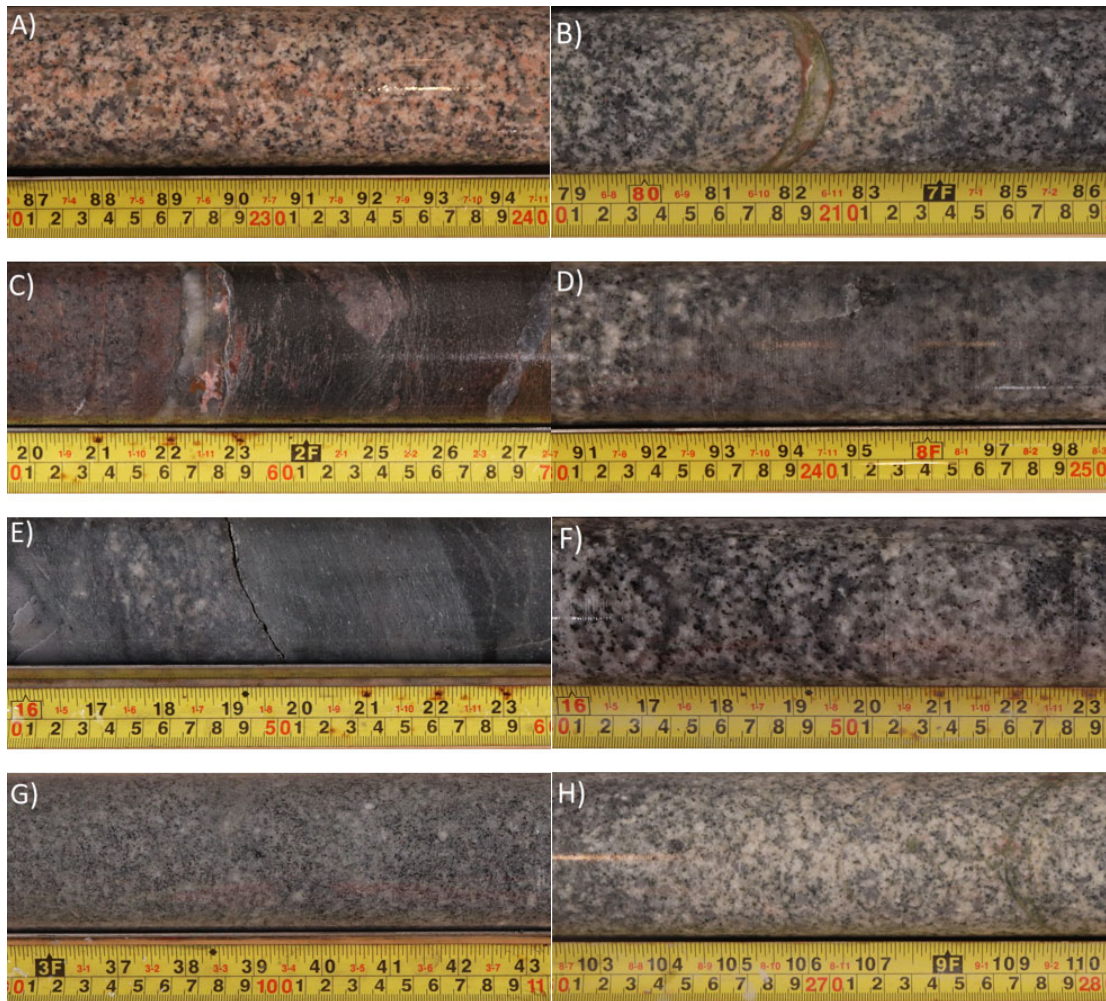


Figure 9: A) Potassic alteration, B) Chloritization, C) Hematization, D) Silicification, E) Carbonatization, F) Bleaching, G) Sericitization, H) Albitization

4.3 Geotechnical Logging

Geotechnical parameters were assessed to provide an overall rock quality and rock strength.

Total core recovery (TCR), solid core recovery (SCR), and rock quality designation (RQD) were determined for the entire interval, whereas discontinuity properties were recorded for each individual discontinuity observed. Fracture frequency was determined by assessing the count of broken features per run (i.e., not intact or partially intact features). Rock strength data was recorded opportunistically, typically when sampling (non-sensitive samples) or when fitting the core into the core boxes, to preserve the integrity of the core as much as possible.

4.3.1 TCR, SCR, RQD

As defined in the WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b), TCR records the total amount of core recovered over the measured length drilled for each core run. The length of any lost core zones, broken or gouge filled material was estimated/back calculated as fine particles would have been washed away during drilling. These estimates were included in the total core recovery length. The majority of the runs (97%) had a TCR above 95% and the lowest recorded TCR was 72% in CR089 (221m).

SCR involved recording the cumulative length of all core pieces, regardless of individual length, that were recovered at full axial diameter (full circumference). More than 75% of the core runs recorded measured a SCR of 90% or more. Areas with poor SCR were often associated with shear zones or areas of difficult drilling.

RQD values determined after Deere (1989), record the total cumulative length of intact core recovered in lengths greater than 10 cm from discontinuity to discontinuity over the run length. Total cumulative lengths were measured from midpoint to midpoint of natural broken discontinuities, along the center line axis of the core.

The results for IG_BH04 indicate that the overall rock quality is excellent, averaging 98% RQD, and ranging between 0% and 100%, along the length of the borehole. The minimum RQD value recorded is approximately 60%, with the exception of two core runs showing values less than 20%: 125 m (0%) and 325 m (17%). These lower values were associated with shear zones or broken core zones.

The RQD statistics for the four main rock types are summarized in Table 2 and the overall RQD per core run is shown in Figure 10.

Table 2: Statistics for Rock Quality Designation (RQD) for IG_BH04 by Main Rock Types

Rock Type	# Runs (3m)	Min (%)	Average (%)	Max (%)	Std Deviation (%)
Tonalite	307	0	97	100	9
Biotite-rich Tonalite	50	65	97	100	7
Amphibolite	2	92	95	97	2
Feldspar-phyrlic Felsic	1	99	99	99	0

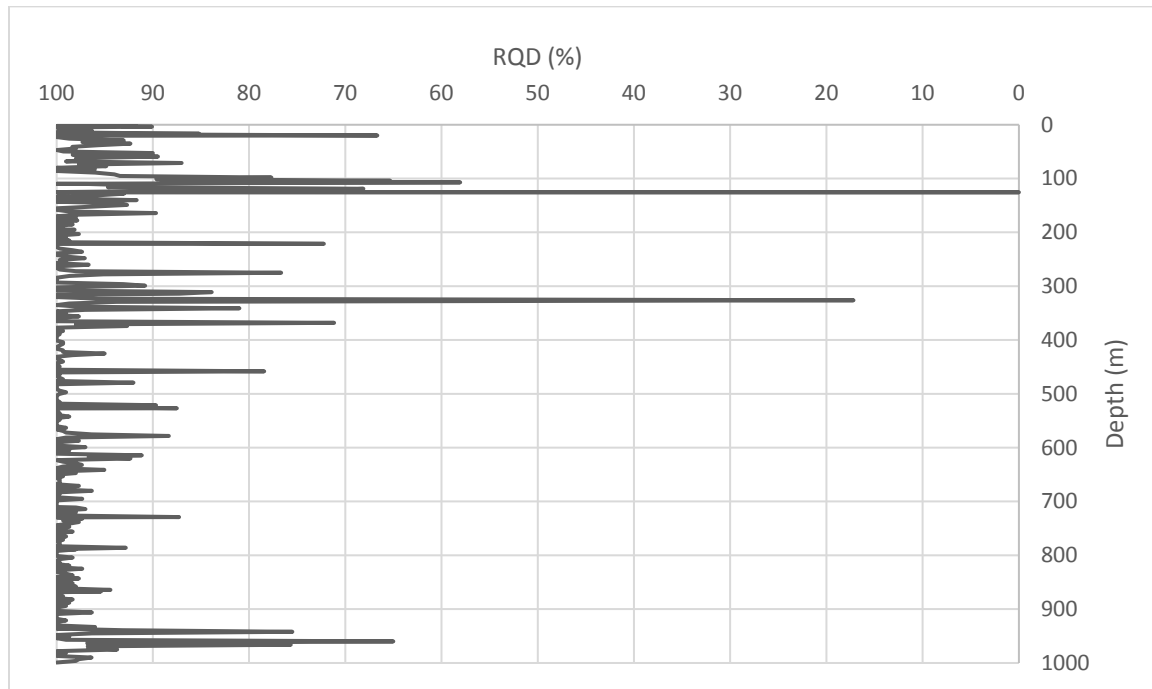


Figure 10: Rock Quality Designation per Core Run (3 m intervals) by Depth

4.3.2 Fracture Frequency (Broken Features)

A fracture count captured the number of naturally occurring non-cohesive (completely broken) discontinuities over the length of the core run and includes broken core and lost core zones. The fracture count excluded mechanical breaks, intact or partially intact fractures. When broken or lost core zones were encountered, the maximum number of fractures applied was 1 fracture per 1 cm of broken or lost core.

AcQuire calculated Fracture Spacing (fracs/m) based on the recorded Fracture Count. A QA step was included in the acQuire database to confirm that the total number of broken structures logged in the Structure Tab was consistent with the count of fractures made in the Core Run tab. This step ensured more consistency in the data collection process.

The fracture frequency is generally very low with an average of 0.88 fracture / m. The first 100 m of the borehole tends to have slightly higher fracture frequency; isolated areas (typically shear zones) have the highest fracture frequencies throughout the borehole.

The fracture frequency statistics per the main rock types are summarized in

Table 3 and the fracture frequency is shown per depth in Figure 11.

Table 3: Statistics for fracture frequency (fractures/m) for IG_BH04 by Main Rock Types

Rock Type	# Runs (3m)	Min	Avg (fracture/m)	Max	Standard Deviation
Tonalite	307	0.00	0.86	50.67	3.16
Biotite-rich Tonalite	50	0.00	1.01	8.67	1.53
Amphibolite	2	0.67	2.17	3.67	1.50
Feldspar-phyric Felsic	1	0.00	0.00	0.00	N/A

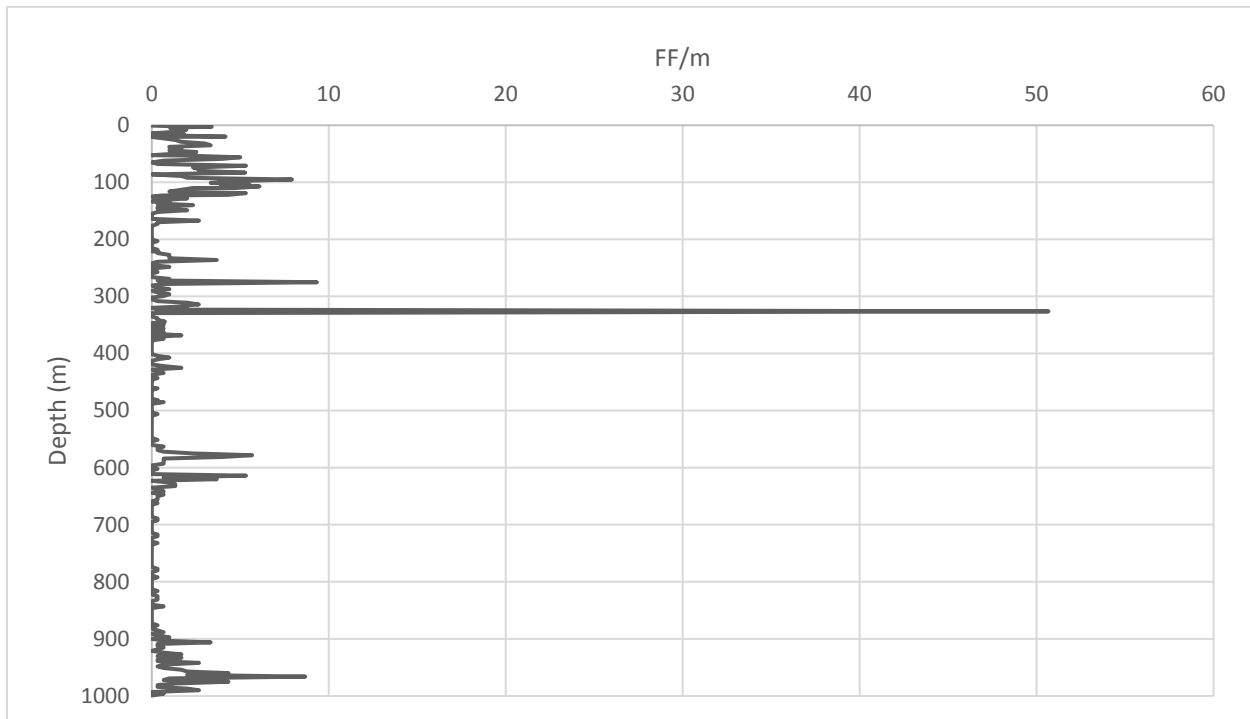


Figure 11: Fracture Frequency per Meter by Depth

4.3.3 Rock Field Strength

Rock field strength data was logged into acQuire using the Field Hardness Estimation tests as defined by the International Society of Rock Mechanics or ISRM Standards (1981). Rock strength data was recorded on a per run basis, using a series of simple tests (knife peeling, knife cutting, hammer pick, and hammer blow) to determine the rock mass classification. As indicated earlier, to reduce the number of mechanical breaks, the core logger assessed the rock strength when sampling the core, or when fitting the core into the core boxes. For greater accuracy, rock field strength tests should be compared and when possible correlated to available Uniaxial Compressive Strength (UCS) results) found in WP04B Data Report – SCB1912026-REP-TBD I04_ IG-BH04 Core Geomechanical Testing (Wood, 2021b).

4.4 Structural Data

A total of 4255 structures were logged during the data collection of IG_BH04. Table 4 provides a breakdown of the recorded structural data. The list below includes the field information recorded, where applicable, for each identified structure. Rock Core Logging Procedures are outlined in WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b) and a comprehensive reproduction of the collected dataset is included in Appendix A.

The following Structure data was recorded (as applicable) in the Structure tab within the acQuire database:

- Structure Depth (m);
- Structure Type, Sub-type, Width, Depth and Intensity;
- Broken/Intact/Partially Intact Structure;
- Defining Mineral(s) present in the matrix;
- Joint Infill Hardness (Arbitrary Hardness Ratings: 1 = Hard, 2 = Soft);
- Joint / Discontinuity Wall Weathering (Scale W0 to W6);
- Shape and Roughness (see description provided below for Jr);
- Infill Character, Type and Thickness / Aperture (See description provided below for Ja);
- Planar Structure Orientation (Alpha and Beta Angles); and
- Linear Structure Orientation (Gamma and Delta Angles).

Table 4: Summary of Structure type, by number of occurrences, observed in IG_BH04

Structure Type	# Occurrences Logged in IG_BH04
Joint (JN)	2300
Mechanical Break (MB)	1711
Vein (VN)	154
Brittle-Ductile Shear Zone (SHR)	20
Broken Core Zone (BCZ)	15
Foliation (FO)	10
Fault (FLT)	8
Ductile Shear Zone (SHRD)	10
Lost Core Zone (LCZ)	2
Igneous Primary Structure (IPS)	25
Total	4255

Characteristics of individual structural feature types (e.g., foliation, fault, vein, joint, etc.), including their widths (where applicable), angles to the core axis (Alpha) and angles of the maximum dip vector to the reference line (Beta), measured clockwise, on a downhole structure, was entered in the acQuire Structure tab (see Figure 4**Error! Reference source not found.**).

4.4.1 Orientation Data from Core Logging

The recovered drill core was oriented during the coring process using the Reflex ACT III System (see section 3.0).

Three (3) types of core orientation were recorded over the course of the drilling programme depending on the circumstances. Figure 12 illustrates the differences between each of the reference lines marked on the core: Arbitrary line (red) or Actual line from the current core run (full yellow) or carried forward from the former core run (Back Oriented core, dashed yellow).

The most common orientation line used was the actual line from the current core run (77%), followed by the back oriented (14%). Together, they represent more than 91% of the core run logged (HQ3 core only) according to the Reference tab (see acQuire or WP03 final data delivery). For the few occasions (less than 9% of the length drilled), when the core orientation was lost due to ACT III tool failures or drilling blockages (i.e., presence of faults / shear zones, and broken/lost core zones), an arbitrary line was used to recover the orientation (alpha, beta angles) of the features logged (joints, veins etc.).

The convention of 180° was used for successful orientation of the core using the ACT III (i.e., marking the lowest point on the core). This angle represents the position of the reference line (drawn on the back of the core) with respect to the top of the core. By contrast, a convention of 0° indicated that no actual orientation was available for the entire run and an arbitrary line had to be used.

Core orientation error was assessed, where possible, by matching the last piece of oriented core from the previous run to the first oriented piece of core from the subsequent core run. The difference between the respective reference lines were measured in degrees using the same measurement system used to measure the beta angle. The Core Orientation Error field was populated in the acQuire database for every full or partial run to provide an appreciation of the level of confidence of the structural data collected for further data integration.

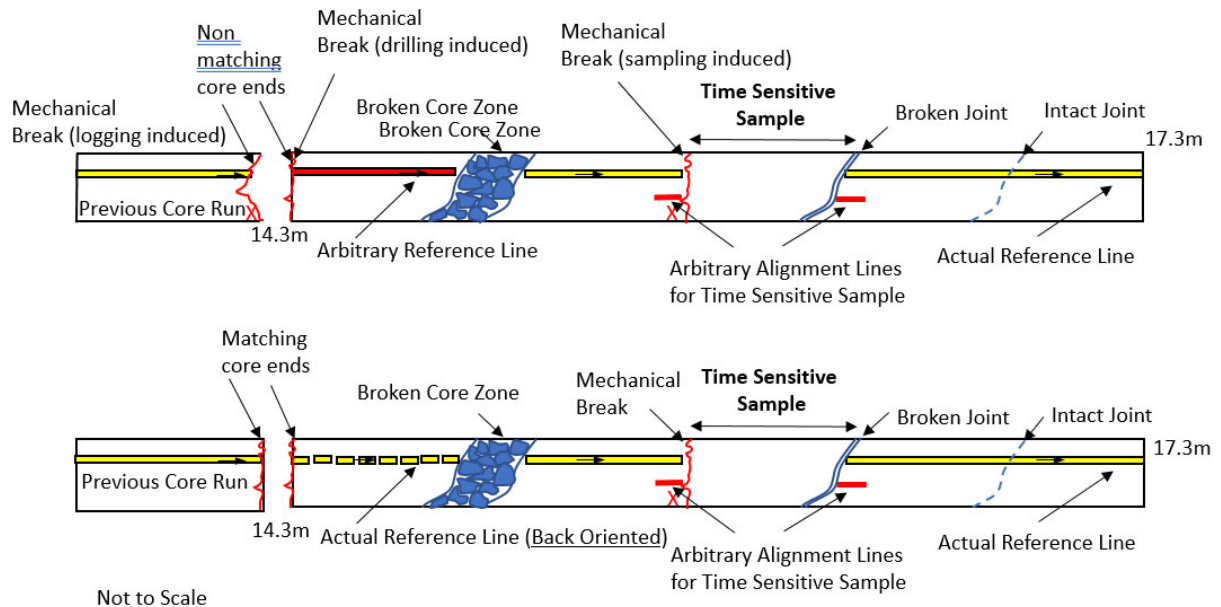


Figure 12: Reference Lines: Arbitrary (red), Actual (yellow) and Back Oriented (dashed yellow)

To facilitate logging, the core was placed in a V-shaped tray. The core pieces were rotated to best fit together and the reference line was marked along the entire length of the core run. When core from the core run could not be confidently fit together, the core was preferentially back oriented or was not oriented. In the latter case, an arbitrary line was drawn on the core.

The orientation of the features logged ($0^\circ < \alpha < 90^\circ$ and $0 < \beta < 359^\circ$) were assessed in the borehole referential. At the next stage, they will be converted into true dip / dip direction for comparison with OTV/ATV data to obtain the final structure log. The results of this analysis (data reconciliation / integration) will be performed following completion of WP05 scope of work (geophysics downhole surveys over the full length of IG_BH-04) described in WP05 Test Plan – SCB1912026-PLN-013 I04_ Geophysical borehole logging for IG-BH04 and presented under WP10 data report (Single Borehole Data Integration to be completed by NWMO).

Therefore, the structure log presented in Appendix A of this report, consists of the final QAQC oriented core data log as collected / recorded in acQuire, reviewed post drilling (see Master Compilation QAQC Table) and delivered under WP03. The following subsections describe in more detail the observations pertaining to the main categories of structure logged: mechanical breaks, intact and partially intact features, broken features, and other relevant structures encountered.

4.4.2 Mechanical Breaks

Mechanical breaks occurred during drilling process, while retrieving the core barrel, while pumping the core out of the core barrel, or during handling of the core by the core logger. Mechanical breaks characteristically display a clean, fresh, irregular surface that is usually at a high angle or perpendicular to

the core axis. The core logger used their best judgement while logging mechanical breaks; when in doubt, the logger adopted a conservative approach and logged the break as a natural feature. A total of 1711 mechanical breaks-single breaks (MB-SB) were identified (Table 2). Mechanical breaks could be reclassified as clean joints or broken core zones, where appropriate, in the final structure log for IG-BH04. This reclassification would be based on interpretation of the optical and acoustic televiewer logs.

4.4.3 Intact and Partially Intact Features

Intact or partially intact features were generally characterized by the infilling of a joint by a secondary mineral phase or by localized alteration. Where a feature was identified as being intact or partially intact, there is more uncertainty associated with identifying the occurrence and the type of mineral phase(s) that may be present, as the observation is limited to the portion of the structure surface that is exposed. The most common mineral phases identified as a stain, slight alteration, coat or infill on the surface logged joints, veins and faults included 694 (22.9%) occurrences of chlorite, 693 (22.9%) occurrences of quartz, 453 (15.0%) occurrences of calcite, 417 (13.8%) occurrences of epidote, 361 (11.9%) occurrences of alkali feldspar, and 257 (8.5%) occurrences of iron oxide. Other mineral phases were logged but each was less than 2% of occurrences throughout the borehole.

4.4.4 Broken Features

Broken structures, in the context of geotechnical characterization, refer to all-natural fractures that break the core into separate pieces. They are non-cohesive. The shape and roughness of each natural discontinuity was described and recorded in the acQuire database.

4.4.4.1 Joint Roughness, Joint Alteration and Joint Condition Rating (Jr, Ja, JCR)

The joint roughness (Jr) and joint alteration (Ja) numbers were qualitatively assessed for naturally broken structures according to Barton's classification system (1974) and further field tests (Milne *et. al.*, 1992; Nickson *et. al.*, 2001) to refine assigned ratings. These two parameters were used to statistically assess the strength of discontinuities as summarized in Table 5.

Table 5: Summary of Joint Properties sorted by main rock types and fault/shear zones.

Rock Type	# of Features	Ja				Jr				JRC			
		Min	Avg	Max	Std Dev	Min	Avg	Max	Std Dev	Min	Avg	Max	Std Dev
Tonalite	3268	0.8	1.0	4.0	0.4	1.0	3.5	4.0	1.0	10.0	27.3	30.0	4.8
Biotite-rich Tonalite	881	0.8	1.0	3.0	0.2	1.0	3.6	4.0	1.0	11.0	28.0	30.0	4.6
Amphibolite	43	1.0	1.0	1.0	0.0	1.3	3.1	4.0	1.1	16.0	25.2	30.0	5.8
Feldspar-phyric Felsic	19	N/A	N/A	N/A	N/A	4	4	4	0	30	30	30	0
Shear/Ductile Shear/Fault	30	1.5	3.9	10.0	3.0	1.0	2.8	4.0	2.4	9.0	22.2	30.0	12.9

For both Jr and Ja, tonalite and Biotite-rich tonalite have very similar values with average Jr around 3.5 and average Ja around 1.0. This corresponds to rough and irregular, undulating surfaces and hard unaltered joint walls with some surface staining. Faults and shear zones have slightly more degraded conditions as expected with average Jr ranging from 1 to 4 and Ja ranging from 1.5 to 10. For shear and fault zones, this combination corresponds to discontinuous joints and softening mineral coatings (clay, chlorite, etc.) due to possible movement along the plane. See Appendix B for the occurrences (depths) of shear and fault zones.

4.4.5 Other Relevant Structures Encountered

4.4.5.1 Fault and Shear Zones

A fault (FLT) is a fracture or a zone of fractures that occur as a result of brittle deformation and within which there is relative displacement (> 5cm) parallel to the fracture surfaces. A shear zone (SHR) is a planar zone of strong deformation surrounded by rocks with a lower state of finite strain. Both shear zones and fault zones are features that are interpreted to have formed due to deformation in the rock. There are 38 occurrences of fault or shear zones (8 faults, 30 shear zones) logged in IG_BH04. These zones were identified by the decrease in rock quality as well as the pervasive jointing along a particular plane. Faults were identified by visible movement or discontinuity along the shear plane as well as the presence of gouge and slickenlines. Examples encountered in IG_BH04 are illustrated in

Figure 13:

- A) Is a faulted (FLT) contact between a mafic dyke and a tonalite. The mafic dyke is brittle, contains fault gouge, broken rock fragments and has been altered by chlorite, clay, and calcite.
- B) Is a brittle ductile shear zone (SHR), defined by a network of hairline fractures infilled with quartz and calcite minerals. The deformed zone exhibits brittle and ductile characteristics.
- C) Is a ductile shear zone (SHRD) displaying only ductile characteristics, the shear is defined by biotite and quartz crystals which have been elongated defining the shear.
- D) Is a major fault encountered between 327.24 m and 328.95 m, with intense broken core zones but minimal gouge.

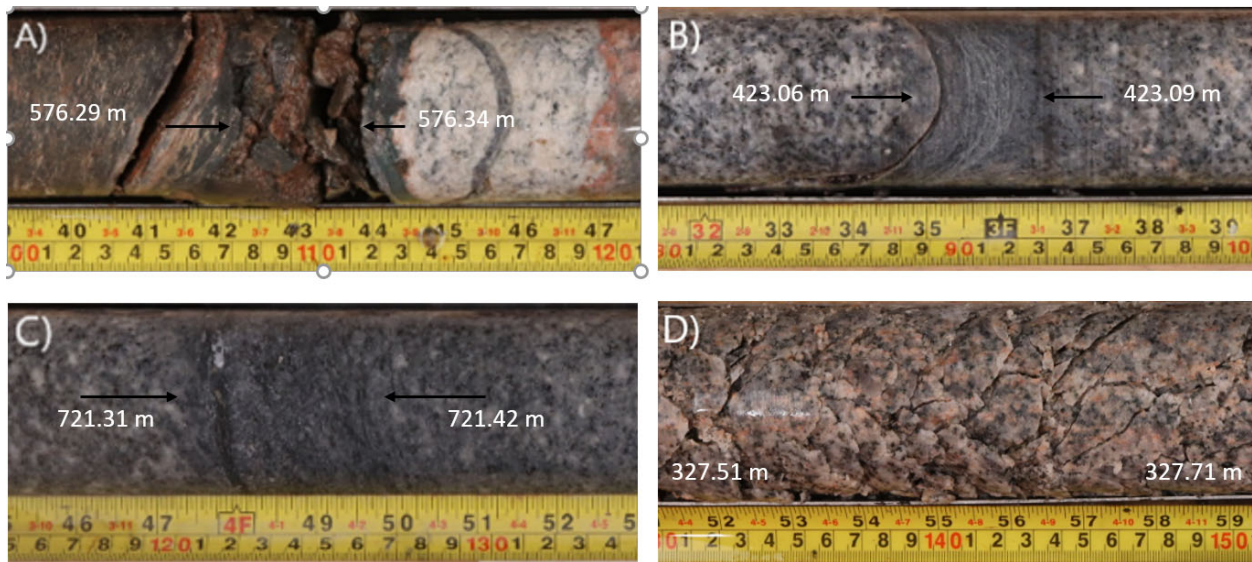


Figure 13: A) Fault with fault gouge from 576.29-576.34 m, B) Shear (SHR) zone from 423.06-423.09 m, C) Ductile shear zone (SHRD) from 721.34-721.42 m D) Portion of fault zone from 327.51-327.71 m

Note that the faults as shown in

Figure 13A) and D), showing evidence of either thick clay gouge or heavily broken core zones, are critical in core logging for future geomechanical design (i.e., stability of underground openings).

4.4.5.2 Broken Core Zones

A broken core zone (BCZ) is a naturally occurring feature characterized by core pieces that do not form full circumferential segments (e.g., not disks or cylinders). Broken core generally consists of angular to sub-angular fragments. Broken core shows intact rock strength equal to or lower than the surrounding core, depending on weathering and alteration levels. One fracture per BCZ was added to the natural fracture count. Figure 14 shows various examples encountered in this hole:

- A) Is a broken core zone observed in a very weakly altered tonalite, the fragments are blocky and there is relatively very little infill material.
- B) Is a broken core zone observed in a highly altered tonalite, broken rock fragments, hematite and quartz are infilling the broken core zone. The broken tonalite fragments have had a quartz fluid partially to fully heal the fractures in the core.
- C) Is an exception, where numerous mechanical breaks forming a broken core zone, where encountered (Wood, 2019b). The example shown has at mid-point at 99.61 m.

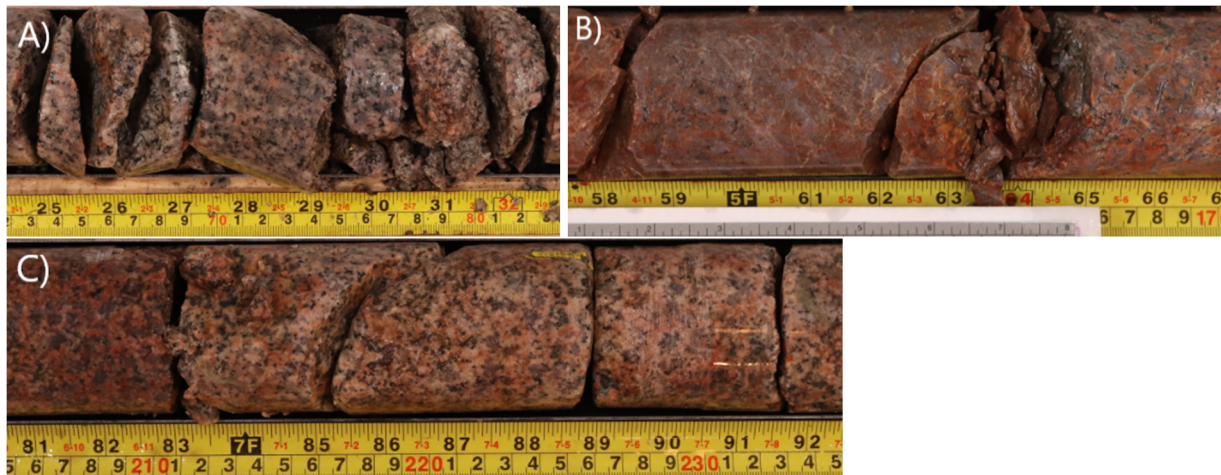


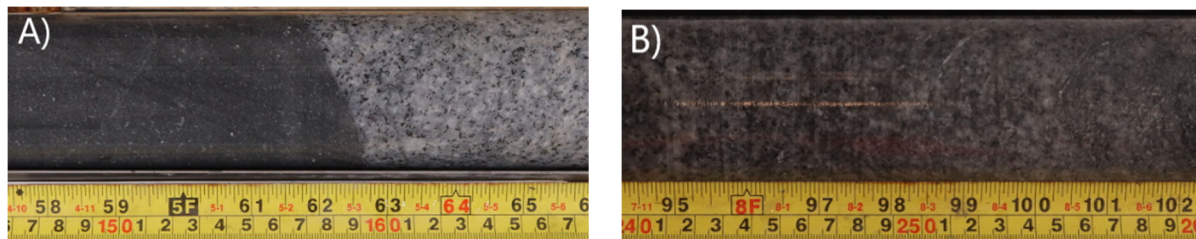
Figure 14: A) Natural Broken core zone from 95.81-96.00 m in a slightly altered tonalite. B) Natural Broken core zone from 277.26-277.40 m in a highly altered tonalite. C) MB-BCZ at 99.61 m (15 cm long)

4.4.5.3 Contacts

Top and bottom contacts were logged for each lithological unit described in Section 4.1. In total, 59 contacts (CO) were logged. Table 1, including a summary of their distribution per type (Broken, Intact, Partially intact) and lithology. Most of the contact observed were intact (80%), followed by broken (19%) and partially broken (1%). All upper contacts were intact for the Feldspar-phyric Felsic, Mafic, Quartz Monzonite, and Aplite units, while this proportion dropped to 91% for the tonalite, 67% for the Quartzolite and 56% for both the amphibolite and Feldspar-phyric Tonalite.

Figure 15 below displays the 4 sub-types of contacts found in IB_BH04 for intact and broken core:

- A) Is a sharp contact at 65° to the core axis displayed between a Feldspar-phyric Felsic and a Tonalite.
- B) Is a gradational contact observed between a biotite-rich tonalite and a tonalite.
- C) Is a sheared contact between a tonalite and amphibolite. The sheared contact is displayed at the upper contact of the amphibolite and is defined by calcite and chlorite minerals.
- D) Is a faulted contact between an amphibolite and a Feldspar-phyric tonalite. The amphibolite is weaker and the deformation is observed to be concentrated in this more malleable unit as the Feldspar-phyric tonalite is harder with a higher strength index.



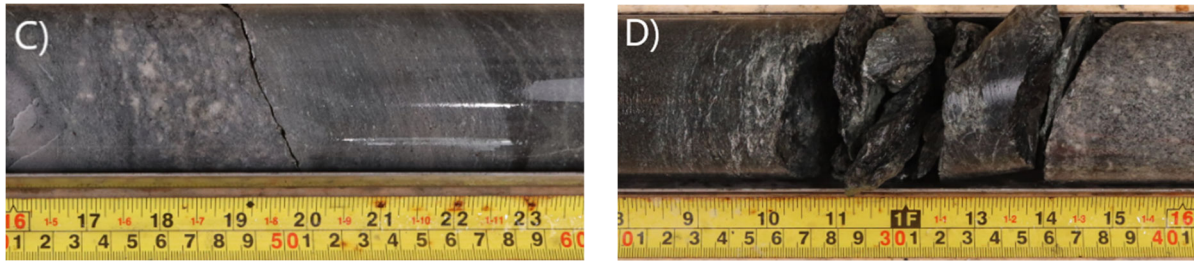


Figure 15: Contacts A) Intact Sharp at 434.78 m. B) Intact Gradational at 839.64 m. C) Broken Sheared at 434.78 m. D) Broken Faulted at 906.51 m

4.4.5.4 Primary Igneous Structures

An igneous primary structure (IPS) is a structure found in an igneous rock that originated with the formation of the rock before its final consolidation. This structure varies with the nature of the magma and cooling temperatures involved. In IG_BH04, 25 occurrences were identified and were characterized by a sharp to gradational change in the concentration of the mineral components or a change in grain size. There are two sub-types: Igneous layering (IL) and Igneous Flow Foliation (IFF). The biotite grains are concentrated in bands (Figure 16 A) when displaying igneous layering sub-type or showing a gradational change in grain size (Figure 16 B) when displaying Igneous Flow Foliation sub-type. In the figure below (Figure 16 B), the size and content of biotite grains increases downhole.

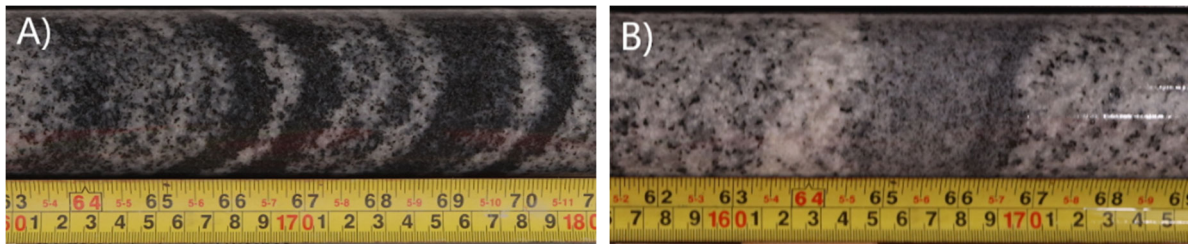


Figure 16: A) IPS IL at 817.67 m. B) IPS IFF at 805.78 m

4.5 Core Photography Library

As explained in Section 3.5, four different types of core photography were completed during the drilling of IG_BH04. They are as follows: 2x180° split tube, 2x180° core sample, detailed structure feature, and 1x180° boxed core photos. All core photographs taken in IG_BH04 have been provided to NWMO as part of WP03 final data delivery. A listing is also available through the data delivery check list. Typical examples of the main category of core photographs taken on this project are shown below.

A figure 1 stitched image of a split tube core photograph (back of core run 154) is shown on Figure 17.



Figure 17: Split tube photograph of CR154_B (407.21-410.21m)

An example of a non-time sensitive core sample (IG_BH04_BR007) photographs are shown in Figure 18.

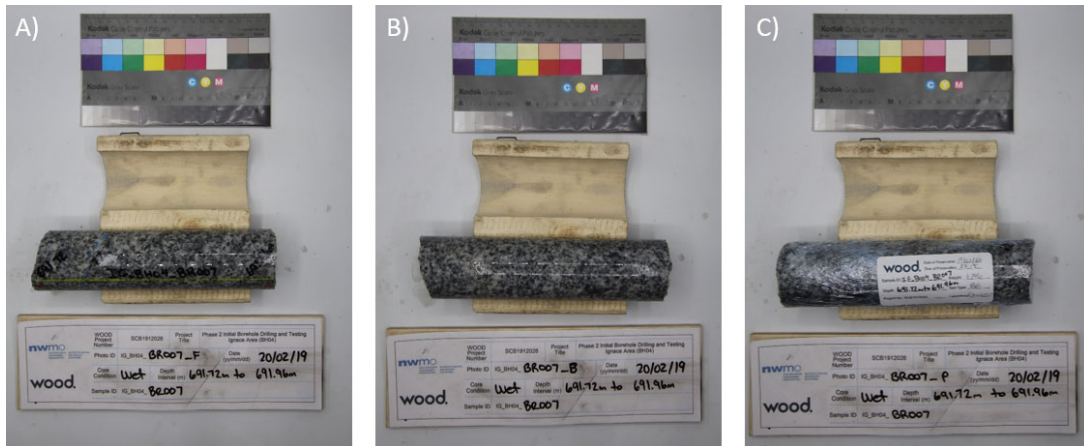


Figure 18: Sample photographs of IG_BH04_BR007. [A) Front, B) Back, and C) Packaged sample

Figure 19 shows an example of a detailed structure feature photograph in an area of interest at 410.34 m deep where a ductile sheared zone containing calcite, quartz, and minor hematite infill was encountered. The structure has an angle to the core axis (alpha) of 50° and a beta angle of 40°.

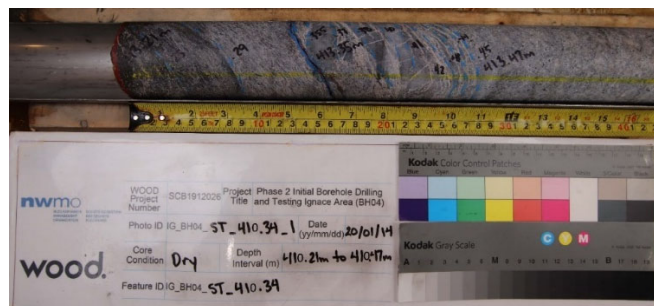


Figure 19: Detailed Structure Feature Photograph of SHRD from 410.21-410.47 m

Core box photographs incorporating four consecutive full boxes of logged core are shown in Figure 20. The white PVC tubes represent samples that were removed from the core run for further laboratory testing.



Figure 20: Boxed core photography of core boxes 209-212 (526.55-538.24 m). A) Dry and B) Wet

4.6 Core Samples Log

Core samples were taken at specific locations for specific purposes during the drilling of IG_BH04 according to the sampling plan instructed by NWMO and documented in WP03 Test Plan - SCB1912026-PLN-007 I04_WP03 Core Logging, Photography and Sampling (Wood, 2019b).

In total, 212 core samples were collected. Table 6 summarizes the number of samples collected per test category.

Table 6: Core Samples Time-Sensitive vs Non Time-Sensitive

Time-Sensitive	Number of Samples	Non-Time Sensitive	Number of Samples
Archive Samples (AR)	30	Brazilian (BR)	8
Effective Diffusion Coefficients (ED)	10	Microbiology (MB)	6
Petrophysics Suite (PS)	11	Mineralogical & Geochemical Analysis (MG)	30
Porewater Extraction (PW)	93	Thermal Samples (TH)	10
Specific Surface Area (SA)	1	Triaxial Samples (TS)	3
Sorption (SO)	2	UC	8
Total	147	Total	65

A full core sample log, also used as an overall Chain of Custody, can be consulted in Appendix B. It provides sample details such as: samples depth, weight, type of testing, date, time as well as sample destinations. Figure 21 shows an example of a fully packaged time sensitive sample.

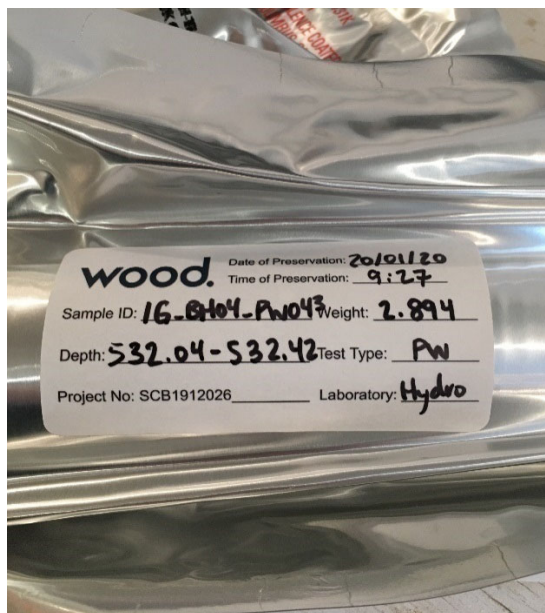


Figure 21: Example of Fully Packaged Time Sensitive Sample

Note that the count of samples in the log (218) include a description for 6 extra samples, 4 sampled post drilling by NWMO and 2, not sampled as planned.

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Appendix A

IG_BH04 Core Log – Gint

Lithological and Geotechnical Rock Description Terminology

Full rock core logging details can be found in the WP3 Test Plan Appendix B.

Core Logging Parameters: Abbreviations and Definitions

TCR	Total Core Recovery: The total length of core recovered over the measured length drilled for each core run.
SCR	Solid Core Recovery: The length of solid cylindrical core recovered in a run. Cylindrical core is defined as core that does not contain any broken fractures.
RQD	Rock Quality Designation: The total cumulative length of core recovered in pieces greater than 10cm measured along the center line axis of the core from the mid-point of one natural fracture to the next.
Jr	Joint Roughness: Number determination after Barton (1974); Hutchinson and Diederichs (1996)
Ja	Joint Alteration: Number determination after (Milne <i>et al.</i> , 1992; Nickson <i>et al.</i> , 2001).
JCR	Joint Condition Rating: Conditions of discontinuity after Bienwasky (1989).

Note: Fracture index per m refers to natural broken fractures logged by core run and does not include intact fractures.

Legend

Lithology

	Amphibolite
	Aplite
	Bt-rich Tonalite
	Fsp-phyric Felsic
	Fsp-phyric Tonalite
	Mafic
	Quartz Monzonite
	Quartzolite
	Tonalite

Feature Type

FO	Foliation
CL	Cleavage
SCH	Schistosity
GNG	Gneissosity
IPS	Igneous Primary Structure
MYL	Mylonite Zone
SHRD	Shear Zone Ductile
SHR	Shear Zone Brittle-Ductile
FAX	Fold Axial Plane
LIN	Lineation
VN	Vein
JN	Joint
FLT	Fault
BCZ	Broken Core Zone
IFZ	Intact Fracture Zone
LCZ	Lost Core Zone
MB	Mechanical Break

Feature Status

BK	Broken
IN	Intact
PIN	Partially Intact

Shape

CU	Curved
IR	Irregular
PL	Planar
ST	Stepped
UN	Undulated

Roughness

GO	Gouge filled >5mm
K	Slickensided
SM	Smooth
SR	Slightly Rough
RO	Rough
VR	Very Rough

Infill type

CL	Clean
ST	Staining
SA	Slightly Altered
CT	Continuous Coating
IN	Continuous Infill

Infill Minerals

Afs	Alkali-Feldspar
Am	Amphibole
And	Andalusite
Ap	Apatite
Bc	Breccia
Br	Broken Rock
Bt	Biotite
Ca	Calcite
Chl	Chlorite
Cl	Clay
Crd	Cordierite
Crd-P	Cordeirite (Pinite)
Ep	Epidote
Fe	Iron Oxide
Go Sw	Clay Gouge (Swelling)
Go So	Clay Gouge (Soft)
Go St	Clay Gouge (Stiff)
Gr	Graphite
Grt	Garnet
Hbl	Hornblende
Ky	Kyanite
Mag	Magnetite
Ms	Muscovite
Ol	Olivine
Oz	Quartz
Phl	Phlogopite
Pl	Plagioclase
Px	Pyronxene
Sil	Silimanite
Talc	Talc
Tur	Tourmaline

Alteration Rating

A1	Unaltered
A2	Slightly Altered
A3	Moderately Altered
A4	Highly Altered
A5	Completely Altered

Weathering Rating

W1	Fresh
W2	Slightly Weathered
W3	Moderately Weathered
W4	Highly Weathered
W5	Completely Weathered
W6	Residual Soil

Strength Rating

R0	Extremely Weak Rock
R1	Very Weak Rock
R2	Weak Rock
R3	Medium Strong Rock
R4	Strong Rock
R5	Very Strong Rock
R6	Extremely Strong Rock

Sample Types

AR	Archive Samples
BR	Brazilian
ED	Effective Diffusion Coefficients
MB	Microbiology
MG	Mineralogical & Geochemical Analysis
PS	Petrophysics Suite
PW	Porewater Extraction
SA	Specific Surface Area
SO	Sorption
TH	Thermal Samples
TS	Triaxial Samples
UC	Uniaxial Compression

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 1 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY										R %Q.D. 20 40 60 80 20 40 60 80 20 40 60 80 5	10 FRACTURE INDEX PER 1 m 15 20	ROCK STRENGTH INDEX R 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95	WEATHERING INDEX W 10 20 30 40 50 60 70 80 90 100	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
								TOTAL CORE % 20 40 60 80	SOLID CORE % 20 40 60 80	Depth (m)	Type	Broken/Intact	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill					Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 3 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 4 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION : Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size		DESCRIPTION	ROCK TYPE	ALTERATION	ELEV.		SAMPLE ID	CORE RUN	RECOVERY				R.Q.D.				FRACTURE INDEX		ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
						DEPTH (m)				TOTAL CORE %	RECOVERY %	SOLID CORE %	RECOVERY %	20 %	40 %	60 %	80 %	5	10			15	20	25	30	35	40	45	50	55	60	65	70	75	80		85	90	95	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 6 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY										FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA										NOTES
								TOTAL CORE %		SOLID CORE %		R.Q.D.		FRACTURE INDEX		ROCK STRENGTH		WEATHERING													
								20	40	60	80	20	40	60	80	20	40	60	80	5	10	15	20	25	30	35	40	45	50	55	60
Depth (m)	Type	Broken/Intact	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																		
59.86	MB	BR		PL	VR	CL			0	1	1.75	0.75	23																		
60.15	JN	IN	20	307		CT	Fe	0.5	0	4		30																			
60.31	MB	BR		IR	VR	CL			0	1	4	0.75	23																		
60.46	MB	BR		UN	VR	CL			0	0.3	3	0.75	23																		
60.72	JN	BR	65	0	CU	VR	CL		0	0.5	3	1	23																		
60.9	JN	IN	20	280	UN	RO	CT	Fe	0.5	0	4	0.75	30																		
60.91	MB	BR	24	327	UN	VR	ST	Fe	0.1	1	2.5	1	20																		
60.93	MB	PIN	15	240			CT	Chl	0	1	4		30																		
60.9301	JN	IN	22	177			CT	Chl	0.3	0	4		30																		
60.96	JN	IN	11	162			CT	Chl	0.2	0	4		30																		
60.98	MB	IN	20	265	UN		IN	Chl	1	0	4		30																		
61.12	JN	IN	20	318	UN	VR	IN	Chl	1	0	4	1	30																		
61.17	JN	IN	12	132	UN	RO	IN	Chl	3	0	4	1	30																		
61.21	JN	BR	60	172		SA	Fe	0.1	0.3	3		21																			
61.28	JN	IN	15	144		ST	Fe	0.1	0	4		30																			
61.37	JN	BR	33	184		SA	Chl	0.1	1	2.5		18																			
61.41	JN	IN	30	259	UN	VR	ST	Fe	0.1	0	4	0.75	30																		
61.44	JN	IN	10	119	UN		IN	Chl	1.5	0	4		30																		
61.48	JN	BR	58	154		CL		0	0.5	3		23																			
61.4801	MB	BR	78	48	UN	VR	CL		0	0.5	3	0.75	23																		
61.54	MB																														
61.82	JN																														
61.89	JN																														
61.91	JN																														
62.11	JN																														
62.21	MB	BR	75	180	CU	SR	CL		0	2	2	0.75	18																		
62.63	JN																														
62.97	MB																														
63.58	MB																														
64.46	JN	BR	61	170	PL	SR	CL		0	2	1.25	0.75	18																		
65.18	MB																														
65.6	MB																														
67	JN	PIN	25	0						0	4		30																		
67.13	MB																														
67.87	MB																														
68.17	MB																														
68.68	MB																														
69.17	MB																														
69.63	MB																														

wood.

DATUM: NAD83 UTM Z15N

SHEET 8 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 9 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

SHEET 14 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 16 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 17 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 18 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 19 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

SHEET 20 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 21 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 22 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

SHEET 24 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 25 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION : Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R.Q.D. % Q.D. 20 40 60 80	FRACTURE INDEX PER 1 m 5 10 15 20	ROCK STRENGTH INDEX 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	WEATHERING INDEX 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	DISCONTINUITY DATA															NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
								TOTAL CORE % 20 40 60 80	SOLID CORE % 20 40 60 80					Depth (m)	Type	Broken/Intact	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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SHEET 27 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION : Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R. Q. D. % Q. D.	FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
								TOTAL CORE %	SOLID CORE %					Depth (m)	Type	Broken/fract	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
					20			40	60	80				20	40	60	80	20	40	60	80	5	10	15	20	25	30		35	40	45	50	55	60	65	70	75	80	85	90	95	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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wood

DATUM: NAD83 UTM Z15N

SHEET 30 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 31 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 33 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 34 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 35 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 36 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 37 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 38 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 39 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 40 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

[illegible]

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

SHEET 44 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 45 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 46 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 48 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 49 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 51 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 52 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 53 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV.	SAMPLE ID	CORE RUN	RECOVERY				R.Q.D.				FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA															NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
					DEPTH (m)			TOTAL CORE %	SOLID CORE %	R %	Q %	D %	Depth (m)	Type	Broken/Intact				Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
532	20/01/20 HQ3	Tonalite Massive, Igneous, Equigranular,		A1	941.69	CR198																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 55 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 57 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 58 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY				R.O.D. % 20 40 60 80 20 40 60 80	FRACTURE INDEX PER 1 m 5 10 15 20	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY			R.Q.D. % 20 40 60 80	FRACTURE INDEX PER 1 m 5 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95	ROCK STRENGTH INDEX 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95	WEATHERING INDEX 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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wood.

DATUM: NAD83 UTM Z15N

SHEET 62 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 66 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

-688

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION : Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R. Q. D.	FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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wood.

DATUM: NAD83 UTM Z15N

SHEET 73 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 74 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

-748

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 76 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 78 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 79 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 80 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R. Q. D.		FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 82 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 83 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

CLIENT : Nuclear Waste Management Organisation

NAME / : IG_BH04

LOCATION Ignace, ON

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY			R.O.D. % 20 40 60 80 20 40 60 80 20 40 60 80	FRACTURE INDEX PER 1 m 5 10 15 20 5 10
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RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION : Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R. %Q.D.	FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 86 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

SHEET 87 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 88 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

CLIENT : Nuclear Waste Management Organisation

NAME / : IG_BH04

LOCATION Ignace, ON

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV.	SAMPLE ID	CORE RUN	RECOVERY			R.Q.D. % 0 20 40 60 80	FRACTURE INDEX PER 1 m 5 15 20	ROCK STRENGTH INDEX 20 30 40 50 60 70 80 90 100	WEATHERING INDEX 1 2 3 4 5 6 7 8 9 10	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					DEPTH (m)			Type	Broken/fract	Alpha angle (deg.)					Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
882	07/03/20 HQ3	Tonalite Massive, Igneous, Equigranular,		A2 A1	1272.40	CR319																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

wood.

DATUM: NAD83 UTM Z15N

SHEET 90 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DATUM: NAD83 UTM Z15N

SHEET 91 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 92 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY		R. % Q.D.	FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA														NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
								TOTAL CORE %	SOLID CORE %					Depth (m)	Type	Broken/fract	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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922	10/03/20 HQ3	Fsp-phyrlic Tonalite Massive, Igneous, Porphyritic,	A1	1309.05	CR332																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

wood

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 94 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 95 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 96 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 97 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

DRILLING DATE : Nov 19-2019 - Mar 14-2020

INCLINATION (Deg.) : 70.0

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

SHEET 98 of 101

NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

wood.

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY			R.Q.D. % 0-20 20-40 40-60 60-80	FRACTURE INDEX PER 1 m 5 15 20	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA													NOTES
								TOTAL CORE % 0-20 20-40 40-60 60-80	SOLID CORE % 0-20 20-40 40-60 60-80	Type					Broken/fract	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCQND		

982	13/03/20	HQ3	Fsp-phyrlic Tonalite Massive, Igneous, Porphyritic, Chloritization alteration	A2	1365.43	CR352																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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NOTE: ALL FEATURE DEPTHS MEASURED TO MIDPOINT

RECORD OF BOREHOLE No. IG_BH04



PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY										R.Q.D. % 20 40 60 80 100	5 10 FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA												NOTES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
								TOTAL CORE % 20 40 60 80	SOLID CORE % 20 40 60 80	Depth (m)	Type	Broken/fract	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill Type					Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
992	14/03/20 HQ3	Fsp-phyrlic Tonalite Massive, Igneous, Porphyritic, Chloritization alteration	A3	A2	990.14		CR356																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

RECORD OF BOREHOLE No. IG_BH04

wood.

PROJECT No. : SCB1912026

DRILLING LOCATION : E:556957.25 N:5486488.05 Elev:443.46

CLIENT : Nuclear Waste Management Organisation

DRILLING DATE : Nov 19-2019 - Mar 14-2020

NAME / : IG_BH04

INCLINATION (Deg.) : 70.0

LOCATION Ignace, ON

AZIMUTH (Deg.) : 110.0

DATUM: NAD83 UTM Z15N

DEPTH SCALE (metres)	Core Date/Size	DESCRIPTION	ROCK TYPE	ALTERATION	ELEV. DEPTH (m)	SAMPLE ID	CORE RUN	RECOVERY										FRACTURE INDEX PER 1 m	ROCK STRENGTH INDEX	WEATHERING INDEX	DISCONTINUITY DATA												NOTES			
								TOTAL CORE %		SOLID CORE %		R %Q.D.										Depth (m)	Type	Broken/Intact	Alpha angle (deg.)	Beta angle (deg.)	Shape	Roughness	Infill	Infill Type	Infill Thickness (mm)	Aperture (mm)	Jr	Ja	JCOND	
								20	40	60	80	20	40	60	80	20	40	60	80	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	
					1383.34																	1000.11	MB													
					1000.20																	1000.20	MB													

Appendix B

Core Sample Log

IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_AR001	144.055	144.42	AR	Archive Sample	Y	2.844	Y	NWMO	20-Dec-19	3:56	SD
IG_BH04_AR002	248.21	248.62	AR	Archive Sample	Y	3.184	Y	NWMO	27-Dec-19	17:04	FG
IG_BH04_AR003	302.97	303.37	AR	Archive Sample	Y	2.802	Y	NWMO	30-Dec-19	4:25	SR
IG_BH04_AR004	356.21	356.69	AR	Archive Sample	Y	3.724	Y	NWMO	01-Jan-20	4:35	SR
IG_BH04_AR005	406.17	406.52	AR	Archive Sample	Y	2.762	Y	NWMO	13-Jan-20	17:03	cl
IG_BH04_AR006	436.07	436.42	AR	Archive Sample	Y	2.754	Y	NWMO	15-Jan-20	14:42	cl
IG_BH04_AR007	462.53	462.93	AR	Archive Sample	Y	3.222	Y	NWMO	17-Jan-20	11:39	cl
IG_BH04_AR008	462.93	463.29	AR	Archive Sample	Y	2.81	Y	NWMO	17-Jan-20	11:41	cl
IG_BH04_AR009	489.21	489.6	AR	Archive Sample	Y	2.932	Y	NWMO	18-Jan-20	14:15	cl
IG_BH04_AR010	489.6	489.98	AR	Archive Sample	Y	2.93	Y	NWMO	18-Jan-20	14:16	cl
IG_BH04_AR011	515.21	515.61	AR	Archive Sample	Y	3.072	Y	NWMO	19-Jan-20	22:30	SR
IG_BH04_AR012	515.61	516.03	AR	Archive Sample	Y	3.17	Y	NWMO	19-Jan-20	22:33	SR
IG_BH04_AR013	542.64	543.01	AR	Archive Sample	Y	2.838	Y	NWMO	20-Jan-20	16:43	cl
IG_BH04_AR014	543.01	543.38	AR	Archive Sample	Y	2.876	Y	NWMO	20-Jan-20	16:44	cl
IG_BH04_AR015	567.95	568.32	AR	Archive Sample	Y	2.878	Y	NWMO	21-Jan-20	14:22	cl
IG_BH04_AR016	567.95	568.32	AR	Archive Sample	Y	2.878	Y	NWMO	21-Jan-20	14:22	cl
IG_BH04_AR017	596.62	597.02	AR	Archive Sample	Y	3.122	Y	NWMO	16-Feb-20	23:32	FG
IG_BH04_AR018	597.02	597.42	AR	Archive Sample	Y	3.056	Y	NWMO	16-Feb-20	23:35	FG
IG_BH04_AR019	627.34	627.81	AR	Archive Sample	Y	3.682	Y	NWMO	17-Feb-20	23:04	SR
IG_BH04_AR020	628.52	628.95	AR	Archive Sample	Y	3.386	Y	NWMO	17-Feb-20	23:08	SR
IG_BH04_AR021	649.44	649.82	AR	Archive Sample	Y	2.954	Y	NWMO	18-Feb-20	13:20	KC
IG_BH04_AR022	674.97	675.37	AR	Archive Sample	Y	3.082	Y	NWMO	19-Feb-20	8:33	kc
IG_BH04_AR023	700.72	701.11	AR	Archive Sample	Y	3.066	Y	NWMO	20-Feb-20	3:47	SR
IG_BH04_AR024	728.61	729.01	AR	Archive Sample	Y	3.096	Y	NWMO	22-Feb-20	0:52	SR
IG_BH04_AR025	755.68	756.04	AR	Archive Sample	Y	2.776	Y	NWMO	1-Mar-20	13:45	cl
IG_BH04_AR026	782.2	782.58	AR	Archive Sample	Y	2.942	Y	NWMO	2-Mar-20	11:45	cl
IG_BH04_AR027	835.86	836.27	AR	Archive Sample	Y	3.182	Y	NWMO	5-Mar-20	9:27	cl
IG_BH04_AR028	898.88	899.28	AR	Archive Sample	Y	2.95	Y	NWMO	09-Mar-20	8:13	CL
IG_BH04_AR029	942.14	942.52	AR	Archive Sample	Y	3.06	Y	NWMO	11-Mar-20	23:12	SD
IG_BH04_AR030	966.47	966.84	AR	Archive Sample	Y	2.94	Y	NWMO	13-Mar-20	0:57	SD
IG_BH04_BR001	447.74	447.97	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	1.74	N	WOOD/CANMET	16-Jan-20	14:49	cl
IG_BH04_BR002	480.93	481.18	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	1.912	N	WOOD/CANMET	18-Jan-20	4:00	FG
IG_BH04_BR003	510.78	511.05	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	2.006	N	WOOD/CANMET	19-Jan-20	17:30	cl
IG_BH04_BR004	553.19	553.45	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	1.956	N	WOOD/CANMET	21-Jan-20	4:14	FG
IG_BH04_BR005	619.76	620.01	BR	Indirect Tensile Strength (Brazilian)	Y, first secondary layer	2.106	N	WOOD/CANMET	17-Feb-20	16:30	KC
IG_BH04_BR006	624.53	624.78	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	1.878	N	WOOD/CANMET	18-Feb-20	1:13	FG
IG_BH04_BR007	691.72	691.96	BR	Indirect Tensile Strength (Brazilian)	Y, Intact	1.796	N	WOOD/CANMET	19-Feb-20	22:15	FG
IG_BH04_BR008	890.1	890.33	BR	Indirect Tensile Strength (Brazilian)	N, second secondary layer below 800m (in excess)	1.802	N	WOOD/CANMET	09-Mar-20	2:04	CL
IG_BH04_BR009	435.42	435.73	BR	Indirect Tensile Strength (Brazilian)	Samples collected post drilling by NWMO	n/a	N	CANMET	13-Aug-20	n/a	BM
IG_BH04_BR010	741.36	741.59	BR	Indirect Tensile Strength (Brazilian)	Samples collected post drilling by NWMO	n/a	N	CANMET	13-Aug-20	n/a	n/a

IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abbreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_ED001	239.94	240.35	ED	Effective Diffusion Coefficients	Y, Intact	3.136	N	NWMO	27-Dec-19	12:07	SR
IG_BH04_ED002	320.21	320.58	ED	Effective Diffusion Coefficients	Y, Intact	2.898	N	NWMO	31-Dec-19	2:33	SR
IG_BH04_ED003	398.47	398.71	ED	Effective Diffusion Coefficients	Y, Intact	1.812	N	NWMO	13-Jan-20	12:48	cl
IG_BH04_ED004	452.61	453.02	ED	Effective Diffusion Coefficients	Y, Intact	3.122	N	NWMO	16-Jan-20	9:03	FG
IG_BH04_ED005	507.19	507.41	ED	Effective Diffusion Coefficients	Y, Intact	1.732	N	NWMO	19-Jan-20	14:38	cl
IG_BH04_ED006	559.12	559.34	ED	Effective Diffusion Coefficients	Y, Intact	1.712	N	NWMO	21-Jan-20	7:25	cl
IG_BH04_ED007	622.08	622.29	ED	Effective Diffusion Coefficients	Y, Intact, depth change to accommodate for dyke	1.636	N	NWMO	17-Feb-20	17:43	KC
IG_BH04_ED008	714.53	714.75	ED	Effective Diffusion Coefficients	Y, Intact	2.506	N	NWMO	21-Feb-20	16:42	KC
IG_BH04_ED009	828.51	828.74	ED	Effective Diffusion Coefficients	Y, Intact	1.66	Y	NWMO	5-Mar-20	2:28	sd
IG_BH04_ED010	934.84	935.16	ED	Effective Diffusion Coefficients	Y, Intact	2.35	N	NWMO	11-Mar-20	11:00	kc
IG_BH04_MB001	110.903	111.155	MB	Microbiology	Y	1.814	N	NWMO	18-Dec-19	12:00	KC
IG_BH04_MB002	111.59	111.835	MB	Microbiology	Y	1.794	N	NWMO	18-Dec-19	12:00	KC
IG_BH04_MB003	211.55	211.77	MB	Microbiology	Y, OGW was done at approx 110m	1.74	N	NWMO	25-Dec-19	15:20	SR
IG_BH04_MB004	211.77	212.02	MB	Microbiology	Y, OGW was done at approx 110m - (requirement was below 213m)	1.958	N	NWMO	25-Dec-19	15:25	SR
IG_BH04_MB005	534.81	535.06	MB	Microbiology	Y, OGW was done at approx 110m - (requirement was below 213m)	1.95	N	NWMO	20-Jan-20	11:38	cl
IG_BH04_MB006	535.06	535.32	MB	Microbiology	Y, OGW was done at approx 575m	2.004	N	NWMO	20-Jan-20	11:38	cl
IG_BH04_MG001	163.83	164.09	MG	Mineralogy and Geochemistry	Y	2.38	N	Queen's University	22-Dec-19	23:34	SD
IG_BH04_MG002	210.5	210.75	MG	Mineralogy and Geochemistry	Y	1.9	N	Queen's University	25-Dec-19	15:15	SR
IG_BH04_MG003	240.58	240.83	MG	Mineralogy and Geochemistry	Y	1.946	N	Queen's University	27-Dec-19	12:20	SR
IG_BH04_MG004	268.11	268.37	MG	Mineralogy and Geochemistry	Y	2.042	N	Queen's University	28-Dec-19	15:15	FG
IG_BH04_MG005	292.97	293.22	MG	Mineralogy and Geochemistry	Y	1.974	N	Queen's University	29-Dec-19	10:40	FG
IG_BH04_MG006	319.86	320.12	MG	Mineralogy and Geochemistry	Y	2.08	N	Queen's University	31-Dec-19	2:30	FG
IG_BH04_MG007	345.2	345.46	MG	Mineralogy and Geochemistry	Y	2.026	N	Queen's University	31-Dec-19	23:25	FG
IG_BH04_MG008	372.4	372.61	MG	Mineralogy and Geochemistry	Y	1.662	N	Queen's University	01-Jan-20	14:47	SD
IG_BH04_MG009	396.81	397.04	MG	Mineralogy and Geochemistry	Y	1.826	N	Queen's University	13-Jan-20	10:15	cl



IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abbreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_MG010	424.32	424.54	MG	Mineralogy and Geochemistry	Y	1.728	N	Queen's University	14-Jan-20	13:36	cl
IG_BH04_MG011	450.46	450.69	MG	Mineralogy and Geochemistry	Y	1.708	N	Queen's University	16-Jan-20	17:29	cl
IG_BH04_MG012	478.95	479.23	MG	Mineralogy and Geochemistry	Y	2.14	N	Queen's University	18-Jan-20	0:10	FG
IG_BH04_MG013	505.81	506.03	MG	Mineralogy and Geochemistry	Y	1.686	N	Queen's University	19-Jan-20	9:12	cl
IG_BH04_MG014	532.61	532.83	MG	Mineralogy and Geochemistry	Y	1.666	N	Queen's University	20-Jan-20	10:11	cl
IG_BH04_MG015	558.87	559.12	MG	Mineralogy and Geochemistry	Y	1.93	N	Queen's University	21-Jan-20	8:15	cl
IG_BH04_MG016	587.3	587.51	MG	Mineralogy and Geochemistry	Y	1.672	N	OOD/Queen's University	14-Feb-20	5:24	FG
IG_BH04_MG017	623.21	623.46	MG	Mineralogy and Geochemistry	Y, with slight depth change because of dyke (623m instead of 617m)	1.904	N	OOD/Queen's University	18-Feb-20	1:16	FG
IG_BH04_MG018	637.58	637.83	MG	Mineralogy and Geochemistry	Y	1.928	N	OOD/Queen's University	18-Feb-20	3:50	sr
IG_BH04_MG019	664.96	665.2	MG	Mineralogy and Geochemistry	Y	1.89	N	OOD/Queen's University	19-Feb-20	1:07	FG
IG_BH04_MG020	691.96	692.21	MG	Mineralogy and Geochemistry	Y	1.956	N	OOD/Queen's University	19-Feb-20	22:19	FG
IG_BH04_MG021	719.74	719.98	MG	Mineralogy and Geochemistry	Y	1.87	N	OOD/Queen's University	21-Feb-20	20:45	FG
IG_BH04_MG022	740.7	740.96	MG	Mineralogy and Geochemistry	Y	1.992	N	OOD/Queen's University	1-Mar-20	3:50	FG
IG_BH04_MG023	770.87	771.14	MG	Mineralogy and Geochemistry	Y	2.086	N	OOD/Queen's University	2-Mar-20	1:47	FG
IG_BH04_MG024	797.28	797.49	MG	Mineralogy and Geochemistry	Y	1.554	N	OOD/Queen's University	4-Mar-20	0:06	SD
IG_BH04_MG025	826.21	826.42	MG	Mineralogy and Geochemistry	Y	1.638	N	OOD/Queen's University	5-Mar-20	0:30	SD
IG_BH04_MG026	850.19	850.39	MG	Mineralogy and Geochemistry	Y	1.53	N	OOD/Queen's University	6-Mar-20	6:01	SD
IG_BH04_MG027	878.52	878.79	MG	Mineralogy and Geochemistry	Y	2.56	N	OOD/Queen's University	7-Mar-20	21:11	SD
IG_BH04_MG028	903.54	903.76	MG	Mineralogy and Geochemistry	Y	1.704	N	OOD/Queen's University	9-Mar-20	16:19	CL
IG_BH04_MG029	936.28	936.545	MG	Mineralogy and Geochemistry	Y	2.012	N	OOD/Queen's University	11-Mar-20	14:20	kc
IG_BH04_MG030	957.15	957.4	MG	Mineralogy and Geochemistry	Y	2.05	N	OOD/Queen's University	12-Mar-20	14:30	kc
IG_BH04_PS001	239.21	239.6	PS	Petrophysics	Y, intact	3.28	N	NWMO	27-Dec-19	12:05	SR
IG_BH04_PS002	320.58	320.95	PS	Petrophysics	Y, intact	2.896	N	NWMO	31-Dec-19	2:35	SR
IG_BH04_PS003	398.71	399.08	PS	Petrophysics	Y, intact	2.962	N	NWMO	13-Jan-20	12:50	cl
IG_BH04_PS004	452.21	452.61	PS	Petrophysics	Y, intact	3.092	N	NWMO	16-Jan-20	9:00	FG
IG_BH04_PS005	506.81	507.19	PS	Petrophysics	Y, intact	2.96	N	NWMO	19-Jan-20	14:42	cl
IG_BH04_PS006	559.34	559.7	PS	Petrophysics	Y, intact	2.778	N	NWMO	21-Jan-20	7:27	cl



IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abbreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_PS007	621.64	622	PS	Petrophysics	Y, intact with slight depth change because of dyke (621m instead of 612m)	2.786	N	NWMO	17-Feb-20	17:43	KC
IG_BH04_PS008	714.14	714.53	PS	Petrophysics	Y, intact	3.258	N	NWMO	21-Feb-20	16:40	KC
IG_BH04_PS009	828.14	828.51	PS	Petrophysics	Y, intact	2.666	Y	NWMO	5-Mar-20	2:26	sd
IG_BH04_PS010	888.64	889.01	PS	Petrophysics	N, second secondary layer below 800m (in excess)	2.892		NWMO	08-Mar-20	23:40	SD
IG_BH04_PS011	934.39	934.84	PS	Petrophysics	Y, intact	3.456	N	NWMO	11-Mar-20	10:58	kc
IG_BH04_PS012	n/a	n/a	PS	Petrophysics	N, not sampled, geology / depth requirements not met (in loss)	n/a	n/a	n/a	n/a	n/a	n/a
IG_BH04_PS013	n/a	n/a	PS	Petrophysics	N, not sampled, geology / depth requirements not met (in loss)	n/a	n/a	n/a	n/a	n/a	n/a
IG_BH04_PW001	162.2	162.7	PW	Pore Water	Y	3.52	N	Hydroisotop	22-Dec-19	18:35	KC
IG_BH04_PW002	162.81	163.26	PW	Pore Water	Y	3.744	N	Hydroisotop	22-Dec-19	18:37	KC
IG_BH04_PW003	163.58	163.83	AQ	Aqueous Extraction	Y	1.88	N	Hydroisotop	22-Dec-19	18:40	KC
IG_BH04_PW004	167.21	167.57	PW	Pore Water	N, RETAKE (in excess)	2.818	N	Hydroisotop	23-Dec-19	9:24	FG
IG_BH04_PW005	167.57	167.94	PW	Pore Water	N, RETAKE (in excess)	2.862	N	Hydroisotop	23-Dec-19	9:22	FG
IG_BH04_PW006	167.94	168.21	AQ	Aqueous Extraction	N, RETAKE (in excess)	2.12	N	Hydroisotop	23-Dec-19	9:20	FG
IG_BH04_PW007	213	213.38	PW	Pore Water	Y	2.934	N	Hydroisotop	25-Dec-19	16:21	SR
IG_BH04_PW008	213.38	213.79	PW	Pore Water	Y	3.078	N	Hydroisotop	25-Dec-19	16:23	SR
IG_BH04_PW009	213.79	214.02	AQ	Aqueous Extraction	Y	1.778	N	Hydroisotop	25-Dec-19	16:25	SR
IG_BH04_PW010	236.21	236.65	PW	Pore Water	Y	3.47	N	Hydroisotop	27-Dec-19	9:00	SR
IG_BH04_PW011	237.87	238.08	PW	Pore Water	Y	1.73	N	Hydroisotop	27-Dec-19	9:03	SR
IG_BH04_PW012	238.15	238.55	AQ	Aqueous Extraction	Y	3.4	N	Hydroisotop	27-Dec-19	9:06	FG
IG_BH04_PW013	267.06	267.48	PW	Pore Water	Y	3.302	N	Hydroisotop	28-Dec-19	14:20	FG
IG_BH04_PW014	267.48	267.88	PW	Pore Water	Y	3.98	N	Hydroisotop	28-Dec-19	14:15	FG
IG_BH04_PW015	267.88	268.11	AQ	Aqueous Extraction	Y	1.796	N	Hydroisotop	28-Dec-19	14:17	FG
IG_BH04_PW016	293.21	293.62	PW	Pore Water	Y	3.228	N	Hydroisotop	29-Dec-19	23:18	FG
IG_BH04_PW017	293.62	294.03	PW	Pore Water	Y	3.136	N	Hydroisotop	29-Dec-19	23:20	FG
IG_BH04_PW018	294.39	294.59	AQ	Aqueous Extraction	Y	1.564	N	Hydroisotop	29-Dec-19	23:24	FG
IG_BH04_PW019	317.21	317.59	PW	Pore Water	Y	3.016	N	Hydroisotop	31-Dec-19	0:33	SR
IG_BH04_PW020	317.59	318	PW	Pore Water	Y	3.19	N	Hydroisotop	31-Dec-19	0:35	SR
IG_BH04_PW021	318	318.24	AQ	Aqueous Extraction	Y	1.862	N	Hydroisotop	31-Dec-19	0:39	SR
IG_BH04_PW022	347.21	347.62	PW	Pore Water	Y	3.192	N	Hydroisotop	01-Jan-20	1:03	SR
IG_BH04_PW023	347.62	348.01	PW	Pore Water	Y	3.098	N	Hydroisotop	01-Jan-20	1:05	SR
IG_BH04_PW024	348.01	348.34	AQ	Aqueous Extraction	Y	2.52	N	Hydroisotop	01-Jan-20	1:08	SR
IG_BH04_PW025	371.52	371.87	PW	Pore Water	Y	2.692	N	Hydroisotop	01-Jan-20	13:38	SD
IG_BH04_PW026	371.87	372.04	AQ	Aqueous Extraction	Y	1.32	N	Hydroisotop	01-Jan-20	13:37	SD
IG_BH04_PW027	372.04	372.4	PW	Pore Water	Y	2.9	N	Hydroisotop	01-Jan-20	13:34	SD
IG_BH04_PW028	397.64	398.03	PW	Pore Water	Y	3.2	N	Hydroisotop	13-Jan-20	9:41	cl
IG_BH04_PW029	397.24	397.64	PW	Pore Water	Y	3.088	N	Hydroisotop	13-Jan-20	9:42	cl
IG_BH04_PW030	397.04	397.24	AQ	Aqueous Extraction	Y	1.382	N	Hydroisotop	13-Jan-20	9:44	cl
IG_BH04_PW031	423.43	423.8	PW	Pore Water	Y	2.942	N	Hydroisotop	14-Jan-20	12:56	cl
IG_BH04_PW032	423.8	424.17	PW	Pore Water	Y	2.82	N	Hydroisotop	14-Jan-20	12:57	cl
IG_BH04_PW033	424.17	424.32	AQ	Aqueous Extraction	Y	1.248	N	Hydroisotop	14-Jan-20	12:58	cl
IG_BH04_PW034	450.69	451.06	PW	Pore Water	Y	2.9	N	Hydroisotop	16-Jan-20	17:06	cl
IG_BH04_PW035	451.06	451.44	PW	Pore Water	Y	2.976	N	Hydroisotop	16-Jan-20	17:07	cl
IG_BH04_PW036	451.44	451.62	AQ	Aqueous Extraction	Y	1.364	N	Hydroisotop	16-Jan-20	17:08	cl
IG_BH04_PW037	477.91	478.31	PW	Pore Water	Y	3.054	N	Hydroisotop	18-Jan-20	0:03	FG



IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abbreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_PW038	478.31	478.71	PW	Pore Water	Y	3.036	N	Hydroisotop	18-Jan-20	0:05	FG
IG_BH04_PW039	478.71	478.95	AQ	Aqueous Extraction	Y	1.834	N	Hydroisotop	18-Jan-20	0:07	FG
IG_BH04_PW040	504.9	505.28	PW	Pore Water	Y	2.898	N	Hydroisotop	19-Jan-20	8:50	cl
IG_BH04_PW041	505.28	505.64	PW	Pore Water	Y	2.794	N	Hydroisotop	19-Jan-20	8:51	cl
IG_BH04_PW042	505.64	505.81	AQ	Aqueous Extraction	Y	1.336	N	Hydroisotop	19-Jan-20	8:52	cl
IG_BH04_PW043	532.04	532.42	PW	Pore Water	Y	2.894	N	Hydroisotop	20-Jan-20	9:27	cl
IG_BH04_PW044	531.66	532.04	PW	Pore Water	Y	2.854	N	Hydroisotop	20-Jan-20	9:24	cl
IG_BH04_PW045	532.42	532.61	AQ	Aqueous Extraction	Y	1.448	N	Hydroisotop	20-Jan-20	9:25	cl
IG_BH04_PW046	561.08	561.45	PW	Pore Water	Y	2.888	N	Hydroisotop	21-Jan-20	9:07	cl
IG_BH04_PW047	561.45	561.81	PW	Pore Water	Y	2.798	N	Hydroisotop	21-Jan-20	9:11	cl
IG_BH04_PW048	561.81	561.98	AQ	Aqueous Extraction	Y	1.35	N	Hydroisotop	21-Jan-20	9:09	cl
IG_BH04_PW049	586.01	586.4	PW	Pore Water	Y	3.038	N	Hydroisotop	14-Feb-20	1:07	FG
IG_BH04_PW050	586.4	586.8	PW	Pore Water	Y	3.142	N	Hydroisotop	14-Feb-20	1:09	FG
IG_BH04_PW051	585.79	586.01	AQ	Aqueous Extraction	Y	1.686	N	Hydroisotop	14-Feb-20	1:12	FG
IG_BH04_PW052	614.21	614.61	PW	Pore Water	Y	3.05	N	Hydroisotop	17-Feb-20	13:25	KC
IG_BH04_PW053	614.65	615.06	PW	Pore Water	Y	2.87	N	Hydroisotop	17-Feb-20	13:25	KC
IG_BH04_PW054	615.26	615.51	AQ	Aqueous Extraction	Y	1.938	N	Hydroisotop	17-Feb-20	13:25	KC
IG_BH04_PW055	636.62	637.03	PW	Pore Water	Y	3.188	N	Hydroisotop	18-Feb-20	3:08	sr
IG_BH04_PW056	637.03	637.43	PW	Pore Water	Y	3.088	N	Hydroisotop	18-Feb-20	3:10	sr
IG_BH04_PW057	637.43	637.58	AQ	Aqueous Extraction	Y	1.152	N	Hydroisotop	18-Feb-20	3:12	sr
IG_BH04_PW058	665.21	665.61	PW	Pore Water	Y	3.08	N	Hydroisotop	19-Feb-20	2:03	SR
IG_BH04_PW059	665.61	666.02	PW	Pore Water	Y	3.216	N	Hydroisotop	19-Feb-20	2:06	SR
IG_BH04_PW060	666.02	666.2	AQ	Aqueous Extraction	Y	1.394	N	Hydroisotop	19-Feb-20	2:09	FG
IG_BH04_PW061	692.21	692.6	PW	Pore Water	Y	3.104	N	Hydroisotop	20-Feb-20	0:04	SR
IG_BH04_PW062	692.6	692.99	PW	Pore Water	Y	3.054	N	Hydroisotop	20-Feb-20	0:07	SR
IG_BH04_PW063	692.99	693.2	AQ	Aqueous Extraction	Y	1.618	N	Hydroisotop	20-Feb-20	0:10	SR
IG_BH04_PW064	711.14	711.55	PW	Pore Water	Y	3.19	N	Hydroisotop	21-Feb-20	14:32	KC
IG_BH04_PW065	711.55	711.94	PW	Pore Water	Y	2.946	N	Hydroisotop	21-Feb-20	14:32	KC
IG_BH04_PW066	711.94	712.28	AQ	Aqueous Extraction	Y	2.71	N	Hydroisotop	21-Feb-20	14:32	KC
IG_BH04_PW067	746.14	746.54	PW	Pore Water	Y	3.178	N	Hydroisotop	1-Mar-20	5:34	FG
IG_BH04_PW068	746.54	746.94	PW	Pore Water	Y	3.146	N	Hydroisotop	1-Mar-20	5:36	FG
IG_BH04_PW069	746.94	747.14	AQ	Aqueous Extraction	Y	1.562	N	Hydroisotop	1-Mar-20	5:40	FG
IG_BH04_PW070	771.42	771.82	PW	Pore Water	Y	3.048	N	Hydroisotop	2-Mar-20	3:17	FG
IG_BH04_PW071	771.82	772.24	PW	Pore Water	Y	3.24	N	Hydroisotop	2-Mar-20	3:20	FG
IG_BH04_PW072	772.24	772.44	AQ	Aqueous Extraction	Y	1.544	N	Hydroisotop	2-Mar-20	3:25	FG
IG_BH04_PW073	795.14	795.5	PW	Pore Water	Y	2.66	N	Hydroisotop	3-Mar-20	21:21	SD
IG_BH04_PW074	795.5	795.87	PW	Pore Water	Y	2.65	N	Hydroisotop	3-Mar-20	21:30	SD
IG_BH04_PW075	795.87	796.03	AQ	Aqueous Extraction	Y	1.174	N	Hydroisotop	3-Mar-20	21:28	SD
IG_BH04_PW076	825.14	825.5	PW	Pore Water	Y	2.608	N	Hydroisotop	4-Mar-20	23:43	SD
IG_BH04_PW077	825.5	825.86	PW	Pore Water	Y	2.596	N	Hydroisotop	4-Mar-20	23:56	SD
IG_BH04_PW078	825.86	826.02	AQ	Aqueous Extraction	Y	1.15	N	Hydroisotop	4-Mar-20	23:57	SD
IG_BH04_PW079	849.14	849.49	PW	Pore Water	Y	2.638	N	Hydroisotop	6-Mar-20	0:49	SD
IG_BH04_PW080	849.49	849.87	PW	Pore Water	Y	2.898	N	Hydroisotop	6-Mar-20	0:51	SD
IG_BH04_PW081	850.01	850.19	AQ	Aqueous Extraction	Y	1.412	N	Hydroisotop	6-Mar-20	0:54	SD
IG_BH04_PW082	877.56	877.94	PW	Pore Water	Y	2.908	N	Hydroisotop	7-Mar-20	18:39	cl
IG_BH04_PW083	877.94	878.32	PW	Pore Water	Y	2.91	N	Hydroisotop	7-Mar-20	18:38	cl
IG_BH04_PW084	878.32	878.52	AQ	Aqueous Extraction	Y	1.534	N	Hydroisotop	7-Mar-20	18:37	cl
IG_BH04_PW085	903.76	904.17	PW	Pore Water	Y	3.186	N	Hydroisotop	09-Mar-20	13:24	cl
IG_BH04_PW086	904.17	904.56	PW	Pore Water	Y	3.302	N	Hydroisotop	09-Mar-20	13:20	cl
IG_BH04_PW087	904.56	904.74	AQ	Aqueous Extraction	Y	1.408	N	Hydroisotop	09-Mar-20	13:19	CL
IG_BH04_PW088	930.855	931.34	PW	Pore Water	Y	3.674	N	Hydroisotop	11-Mar-20	7:53	kc

IG_BH4											
Chain of Custody Log											
Sample ID	Sample From	Sample To (mbgs)	Sample Type (Abbreviation)	Sample Type (Description)	Sampled as Planned (Y/N/Comments)	Sample Weight (Kg)	Archive Flag	Labs Samples Sent To	Sample Date	Sample Time	Sample By
IG_BH04_PW089	931.34	931.8	PW	Pore Water	Y	3.484	N	Hydroisotop	11-Mar-20	7:55	kc
IG_BH04_PW090	931.9	932.23	AQ	Aqueous Extraction	Y	2.478	N	Hydroisotop	11-Mar-20	7:57	kc
IG_BH04_PW091	958.39	958.74	PW	Pore Water	Y	2.67	N	Hydroisotop	12-Mar-20	14:04	kc
IG_BH04_PW092	958.74	959.17	PW	Pore Water	Y	3.32	N	Hydroisotop	12-Mar-20	14:06	kc
IG_BH04_PW093	959.17	959.41	AQ	Aqueous Extraction	Y	1.91	N	Hydroisotop	12-Mar-20	14:08	kc
IG_BH04_SA001	565.18	565.54	SA	Specific Surface area and cation exchange capacity	Y	2.786	N	Hydroisotop	21-Jan-20	12:27	cl
IG_BH04_SO001	563.91	564.39	SO	Sorption	Y	3.754	N	Hydroisotop	21-Jan-20	12:28	cl
IG_BH04_SO002	565.54	566.02	SO	Sorption	Y	3.734	N	Hydroisotop	21-Jan-20	12:29	cl
IG_BH04_TH001	322.25	322.53	TH	Thermal Properties	Y, Intact	2.23	N	RESPEC	31-Dec-19	5:05	FG
IG_BH04_TH002	372.61	372.88	TH	Thermal Properties	Y, Intact	2.92	N	RESPEC	01-Jan-20	14:56	SD
IG_BH04_TH003	447.97	448.19	TH	Thermal Properties	Y, Intact	1.724	N	RESPEC	16-Jan-20	14:54	cl
IG_BH04_TH004	481.18	481.49	TH	Thermal Properties	Y, Intact	2.362	N	RESPEC	18-Jan-20	4:05	FG
IG_BH04_TH005	511.31	511.54	TH	Thermal Properties	Y, Intact	1.774	N	RESPEC	19-Jan-20	17:38	cl
IG_BH04_TH006	553.45	553.76	TH	Thermal Properties	Y, Intact	2.246	N	RESPEC	21-Jan-20	4:16	FG
IG_BH04_TH007	617.81	618.09	TH	Thermal Properties	Y, first secondary layer	2.352	N	RESPEC	17-Feb-20	16:30	KC
IG_BH04_TH008	624.78	625.07	TH	Thermal Properties	Y, Intact	2.236	N	RESPEC	18-Feb-20	1:14	FG
IG_BH04_TH009	850.39	850.65	TH	Thermal Properties	Y, Intact	2.5	N	RESPEC	6-Mar-20	2:35	SD
IG_BH04_TH010	889.62	889.9	TH	Thermal Properties	N, second secondary layer below 800m (in excess)	2.252	N	RESPEC	09-Mar-20	1:55	CL
IG_BH04_TS001	447.53	447.74	TS	Triaxial Compressive Strength	Y, Intact	1.598	N	WOOD/CANMET	16-Jan-20	14:43	cl
IG_BH04_TS002	511.05	511.31	TS	Triaxial Compressive Strength	Y, Intact	2.008	N	WOOD/CANMET	19-Jan-20	17:35	cl
IG_BH04_TS003	624.27	624.53	TS	Triaxial Compressive Strength	Y, Intact	2.014	N	WOOD/CANMET	18-Feb-20	1:11	FG
IG_BH04_UC001	447.31	447.53	UC	Uniaxial Compressive Strength	Y, Intact	1.744	N	WOOD/CANMET	16-Jan-20	14:38	cl
IG_BH04_UC002	480.68	480.93	UC	Uniaxial Compressive Strength	Y, Intact	1.93	N	WOOD/CANMET	18-Jan-20	3:57	FG
IG_BH04_UC003	510.51	510.78	UC	Uniaxial Compressive Strength	Y, Intact	2.114	N	WOOD/CANMET	19-Jan-20	17:26	cl
IG_BH04_UC004	552.93	553.19	UC	Uniaxial Compressive Strength	Y, Intact	2.056	N	WOOD/CANMET	21-Jan-20	4:12	FG
IG_BH04_UC005	617.42	617.63	UC	Uniaxial Compressive Strength	Y, first secondary layer	1.766	N	WOOD/CANMET	17-Feb-20	16:30	KC
IG_BH04_UC006	624.01	624.27	UC	Uniaxial Compressive Strength	Y, Intact	1.958	N	WOOD/CANMET	18-Feb-20	1:07	FG
IG_BH04_UC007	691.47	691.72	UC	Uniaxial Compressive Strength	Y, Intact	2.022	N	WOOD/CANMET	19-Feb-20	22:14	FG
IG_BH04_UC008	889.9	890.1	UC	Uniaxial Compressive Strength	N, second secondary layer below 800m (in excess)	1.57	N	WOOD/CANMET	09-Mar-20	1:51	SD
IG_BH04_UC009	435.14	435.42	UC	Indirect Tensile Strength (Brazilian)	Samples collected post drilling by NWMO	n/a	N	CANMET	13-Aug-20	n/a	BM
IG_BH04_UC010	741.14	741.59	UC	Indirect Tensile Strength (Brazilian)	Samples collected post drilling by NWMO	n/a	N	CANMET	13-Aug-20	n/a	BM

