Technical Report

Title:	***Drilling, Logging and Sampling of DGR-5 and DGR-6***
Document ID:	**TR-09-01**
Authors:	**Sean Sterling, Glen Briscoe and Michael Melaney**
Revision:	**0**
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DGR Site Characterization Document
Geofirma Engineering Project 08-200

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Geofirma Engineering DGR Site Characterization Document		
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QA Review:	John Avis	
Approved by:	 Kenneth Raven	

Document Revision History		
Revision	Effective Date	Description of Changes
0	April 6, 2011	Initial Release

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1 Introduction

Geofirma Engineering Ltd. (formerly Intera Engineering Ltd.) has been contracted by the Nuclear Waste Management Organization (NWMO) on behalf of Ontario Power Generation to implement the Geoscientific Site Characterization Plan (GSCP) for the Bruce nuclear site near Tiverton Ontario. The purpose of this site characterization work is to assess the suitability of the Bruce nuclear site to construct a Deep Geologic Repository (DGR) to store low-level and intermediate-level radioactive waste. The GSCP is described by Intera Engineering Ltd. (2006 and 2008).

This Technical Report summarizes the results of the drilling and core processing activities completed at two deep inclined bedrock boreholes (DGR-5 and DGR-6) as part of Phase 2B of the GSCP.

Work described in this Technical Report was completed in accordance with Test Plan TP-08-20: DGR-5 and DGR-6 Drilling and Casing Installation (Intera Engineering Ltd., 2010a), Test Plan TP-08-21: DGR-5 and DGR-6 Drilling Fluid Management (Intera Engineering Ltd., 2009a), Test Plan TP-09-01: DGR-5 and DGR-6 Core Photography and Logging (Intera Engineering Ltd., 2009b), and Test Plan TP-09-02: DGR-5 and DGR-6 Core Sampling and Distribution (Intera Engineering Ltd., 2010b). Work described in this Technical Report was completed following the general requirements of the DGR Project Quality Plan (Intera Engineering Ltd., 2009c).

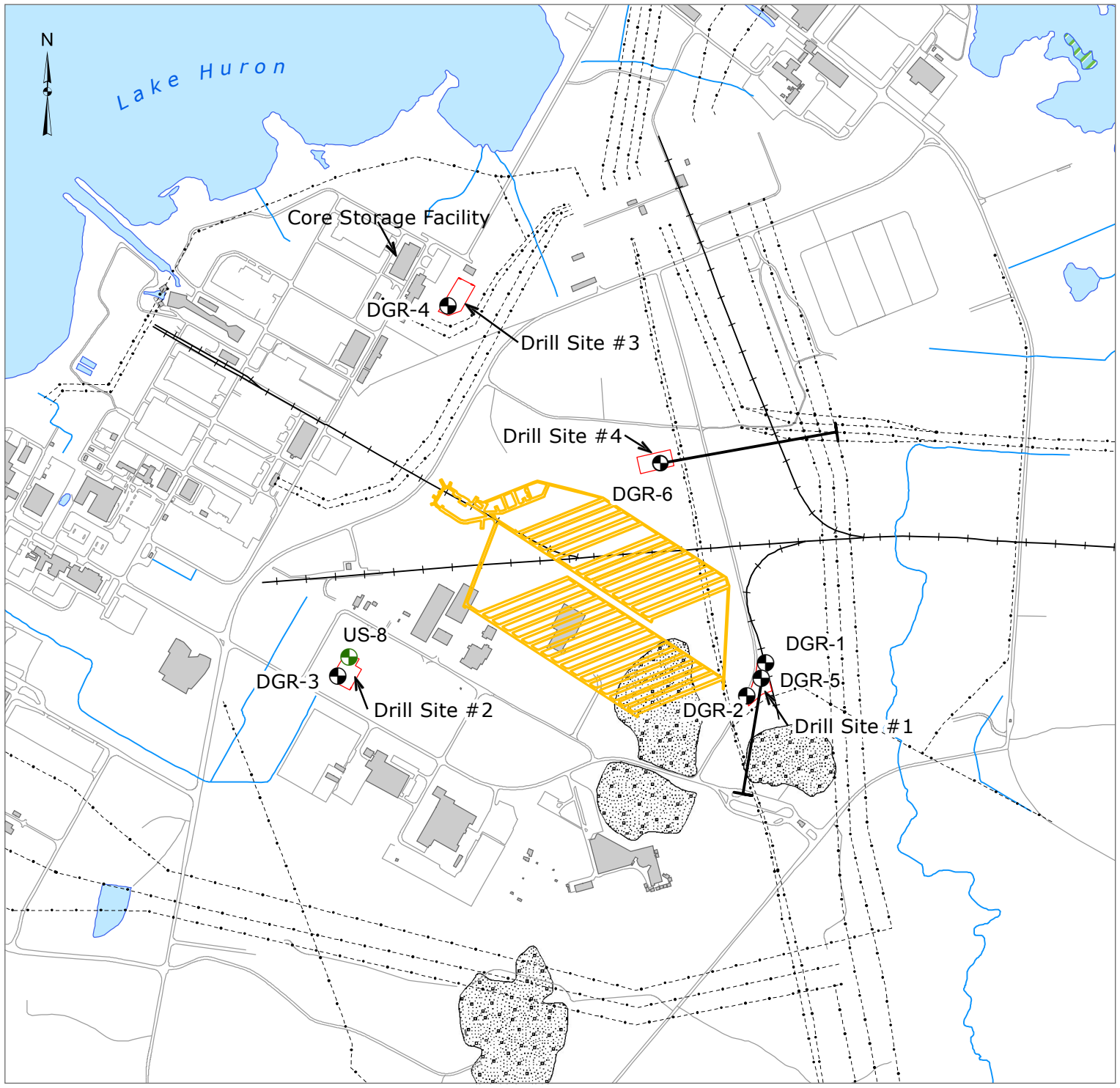
2 Background

The GSCP comprises three phases of borehole drilling and investigations. The Phase 1 GSCP is described by Intera Engineering Ltd. (2006) and included the drilling, logging and testing of two deep vertical 159 mm diameter boreholes (DGR-1 and DGR-2) to total depths of 462.9 and 862.3 metres below ground surface (mBGS) respectively, and the drilling and testing of one shallow borehole, US-8, to a total depth of 200 mBGS. Both of the first two DGR boreholes were drilled at one location (Drill Site # 1) approximately 40 metres apart from each other, while the shallow borehole (US-8) was drilled at a second location (Drill Site # 2); both drill sites are located at the Bruce nuclear site as shown on Figure 1. Phase 1 drilling and testing was completed between December 2006 and December 2007. TR-07-06: Drilling, Logging and Sampling of DGR-1 and DGR-2 (Intera Engineering Ltd., 2010c) summarizes the Phase 1 drilling and core logging activities.

The Phase 2 GSCP is described by Intera Engineering Ltd. (2008). Phase 2 is divided into two sub-phases, 2A and 2B. Phase 2A consisted of drilling, logging and testing of two deep vertical 143 mm diameter boreholes, DGR-3 (Drill Site #2) and DGR-4 (Drill Site #3) to total depths of 869.2 and 857.0 mBGS, respectively. Phase 2A was completed between March 2008 and September 2009. TR-08-13: Drilling, Logging and Sampling of DGR-3 and DGR-4 (Intera Engineering Ltd., 2010d) summarizes the Phase 2A drilling and core logging activities.

Phase 2B comprised the drilling, logging and testing of two deep inclined 143 mm diameter boreholes, DGR-5 (Drill Site #1) and DGR-6 (Drill Site #4). The Phase 2B drilling and core logging activities are described below. Phase 2B work was completed between December 2008 and June 2010.

The purpose of drilling DGR-5 and DGR-6 was to complement the information that was collected from DGR-1 to DGR-4, confirm the predictability of the strike/dip of strata around and below the proposed DGR location, provide information on sub-vertical fracture networks (fracture orientation) and to further investigate specific areas identified during the 2D seismic study (TR-07-15, Intera Engineering Ltd., 2009d) showing seismic anomalies. Therefore, similar to Phase 1 and Phase 2A, drilling at DGR-5 and DGR-6 provided additional information on bedrock stratigraphy, core for additional laboratory, geological, geomechanical, hydrogeological and geochemical testing, and access for borehole geophysical testing and borehole hydraulic testing. The information gathered from DGR-5 and DGR-6 will assist with developing descriptive geosphere site models.



LEGEND

- DGR Boreholes
- US Well
- Proposed Repository Outline
- Drilling Direction
- Transmission Line
- Roads
- Stream or Drainage
- Railways
- Drill Sites
- Buildings
- Waterbody
- Wetland Area, Permanent
- Pits or Landfills

Figure 1
DGR-1 through DGR-6 and US 8 Site Location

Scale 1:15,000

0 100 200 400 600 800
Meters

PROJECTION: UTM NAD 83 Zone 17N
SOURCE: NRVIS/OBM, MNR, OPG, NWMO

PROJECT No. 08-200 TR 09-01

PROJECT NWMO DGR
Site Characterization Project

DESIGN: GDB
CAD/GIS: NMP
CHECK: GDB
REV: 0A

DATE: 18/05/2010

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3 Drilling Program

Davidson Drilling Limited (Davidson), based out of Wingham, Ontario, and Layne Christensen Canada Ltd. (Layne) based in Capreol, Ontario were retained as Geofirma Engineering Ltd. subcontractors to complete the borehole drilling and permanent casing installation at DGR-5 and DGR-6.

The Phase 2B drilling program took into account the geological and hydrogeological conditions encountered during Phase 1 and Phase 2A drilling of DGR-1 through DGR-4. DGR-5 and DGR-6 were designed to provide two separate boreholes on either side of the proposed DGR with open bedrock intervals from the Silurian dolostones and shales through the deeper Ordovician shales and limestones. Both boreholes were rotary drilled from surface to the Salina Formation F Unit shale for casing installation, then continuously cored to depth. The angled boreholes had target plunges of 65° (DGR-5) and 60° (DGR-6) from horizontal and target azimuths of 190° (DGR-5) and 80° (DGR-6) from true north. DGR-5 was completed at Drill Site # 1, adjacent to DGR-1 and DGR-2 and DGR-6 was drilled at Drill Site # 4 (Figure 1).

During the drilling program of DGR-5 and DGR-6, Davidson had difficulty maintaining the required borehole orientation (azimuth and plunge) and as a result the objectives of borehole DGR-6 would not be met without directional drilling correction. Consequently, Geofirma contracted with Layne, based in Capreol Ontario, in conjunction with International Directional Services (IDS), also based in Capreol Ontario, to complete DGR-6 below a depth of 516.3 metres length along the borehole axis below ground surface (mLBGS) near the top of the Queenston Formation. Layne used conventional mineral exploration drilling equipment with the assistance of directional coring equipment (IDS) as necessary to meet the objectives of DGR-6.

DGR-5 was completed with an open bedrock interval from 206.0 mLBGS (13.5 metres length below the top of the Salina Formation F Unit shale) to 807.2 mLBGS (40.7 metres length into the Kirkfield formation) or 752.2 metres total vertical depth (TVD), expressed as mBGS. DGR-6 was completed with an open bedrock interval from approximately 212.5 mLBGS (9.5 metres length below the top of the Salina Formation F Unit shale) to 903.2 mLBGS (6.0 metres length into the Gull River formation) or 785.5 mBGS (TVD).

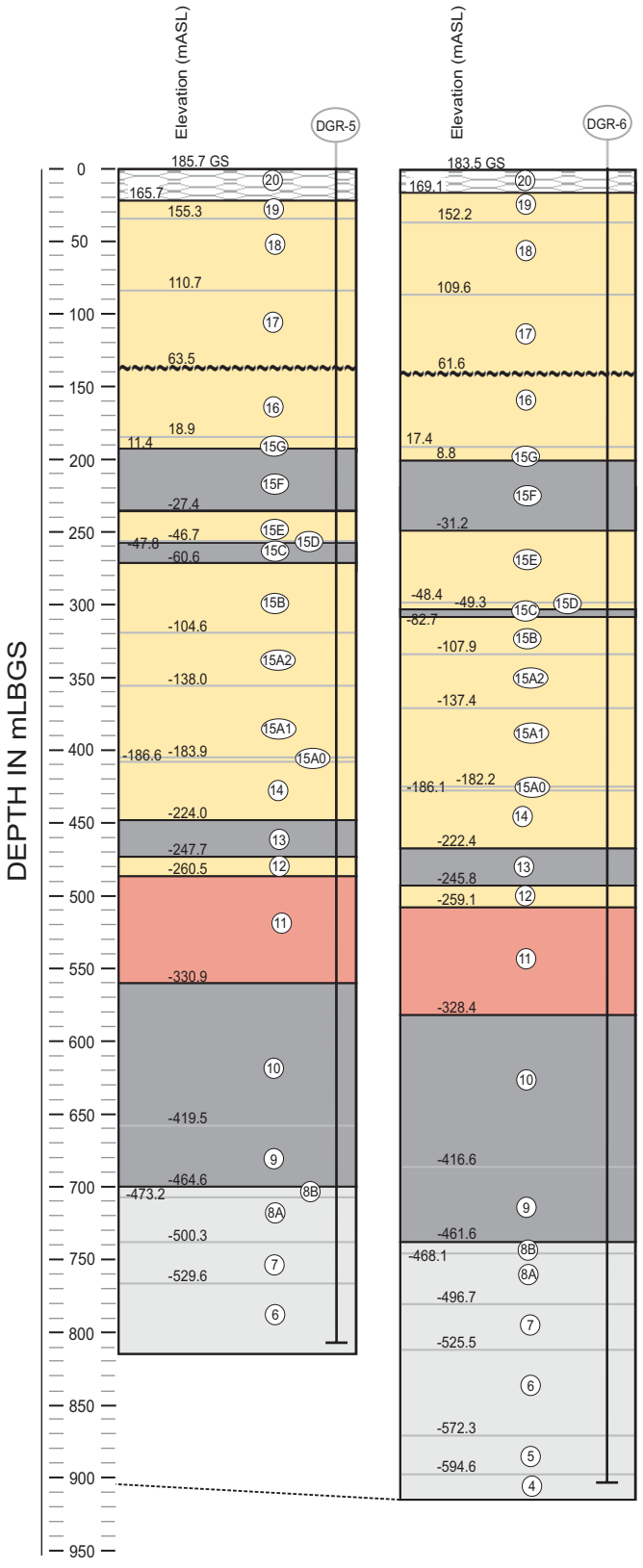
Figure 2 shows the interpreted bedrock formation contact depths/elevations and subsurface nomenclature for the Bruce nuclear site based on the drilling and core logging activities completed at DGR-5 and DGR-6. The rational for these formation picks are described in TR-09-11: Bedrock Formations in DGR-1 to DGR-6 (Geofirma Engineering Ltd., 2011a).

3.1 Ontario Ministry of Natural Resources Drilling Regulations

All work associated with this drilling program was completed in accordance with the Ontario Ministry of Natural Resources (MNR) Oil, Gas and Salt Resources of Ontario, Provincial Operating Standards, Version, 2.0 (MNR Standards) which covers Well Drilling and Works regulated by the Oil, Gas and Salt Resources Act (OGSRA). As such, blow-out prevention (BOP) equipment was utilized for all drilling activities below the top of the Salina Formation F Unit shale to address the possibility of potential gas-pressurization issues; however, no significant oil or gas was encountered while drilling DGR-5 and DGR-6.

DGR-5 was drilled under Ministry of Natural Resources (MNR) Well License No. 11926 and is located at NAD83 UTM Zone 17N, 4907742.1 m Northing and 454221.8 m Easting with a ground surface elevation of 185.70 metres above sea level (ASL). Similarly, DGR-6 was drilled under MNR Well License No. 11942 and is located at NAD83 UTM Zone 17N, 4908317.0 m Northing and 453953.0 m Easting with a ground surface elevation of 183.50 mASL. Copies of the MNR Well Licences are included in Appendix A.

All depths of core runs and sub-sample locations were measured from a common reference point which was selected prior to the start of drilling each borehole. For both DGR-5 and DGR-6, the reference datum was ground surface, which was surveyed using geodetic benchmarks identified during the surveying of DGR-5 and DGR-6.



LEGEND - BRUCE SITE STRATIGRAPHY

PLEISTOCENE
- 20 SURFICIAL DEPOSITS

MIDDLE DEVONIAN
- 19 LUCAS FORMATION - DOLOSTONE
- 18 AMHERSTBURG FORMATION - DOLOSTONE

LOWER DEVONIAN
- 17 BOIS BLANC FORMATION - CHERTY DOLOSTONE
- ~~~~~~ SILURIAN / DEVONIAN DISCONTINUITY

UPPER SILURIAN
- 16 BASS ISLANDS FORMATION - DOLOSTONE
- 15 SALINA FORMATION
- 15G G UNIT - ARGILLACEOUS DOLOSTONE
- 15F F UNIT - DOLOMITIC SHALE
- 15E E UNIT - BRECCIATED DOLOSTONE AND DOLOMITIC SHALE
- 15D D UNIT - ANHYDRITIC DOLOSTONE
- 15C C UNIT - DOLOMITIC SHALE AND SHALE
- 15B B UNIT - ARGILLACEOUS DOLOSTONE AND ANHYDRITE
- 15A2 A2 UNIT - DOLOSTONE AND ANHYDRITIC DOLOSTONE
- 15A1 A1 UNIT - ARGILLACEOUS DOLOSTONE AND ANHYDRITIC DOLOSTONE
- 15A0 A0 - BITUMINOUS DOLOSTONE

MIDDLE SILURIAN
- 14 GUELPH, GOAT ISLAND, GASPORT, LIONS HEAD AND FOSSIL HILL FORMATIONS - DOLOSTONE AND DOLOMITIC LIMESTONE

LOWER SILURIAN
- 13 CABOT HEAD FORMATION - SHALE
- 12 MANITOULIN FORMATION - CHERTY DOLOSTONE AND MINOR SHALE

UPPER ORDOVICIAN
- 11 QUEENSTON FORMATION - RED SHALE
- 10 GEORGIAN BAY FORMATION - GREY SHALE
- 9 BLUE MOUNTAIN FORMATION - DARK GREY SHALE

MIDDLE ORDOVICIAN
- 8 COBOURG FORMATION
- 8B COLLINGWOOD MEMBER - BLACK CALCAREOUS SHALE AND ARGILLACEOUS LIMESTONE
- 8A LOWER MEMBER - ARGILLACEOUS LIMESTONE
- 7 SHERMAN FALL FORMATION - ARGILLACEOUS LIMESTONE
- 6 KIRKFIELD FORMATION - ARGILLACEOUS LIMESTONE
- 5 COBOCONK FORMATION - BIOTURBATED LIMESTONE
- 4 GULL RIVER FORMATION - LITHOGRAPHIC LIMESTONE
- 3 SHADOW LAKE FORMATION - SILTSTONE AND SANDSTONE

CAMBRIAN
- 2 CAMBRIAN SANDSTONE

NOTE:
1. SUBSURFACE STRATIGRAPHIC NOMENCLATURE AFTER ARMSTRONG AND CARTER (2006)

Interpreted Bedrock Stratigraphy at Bruce Site from DGR-5 and DGR-6 Data
Technical Report: TR-09-01 Drilling, Logging and Sampling of DGR-5 and DGR-6

Prepared by: NMP
Reviewed by: GDB
Date: 7-Apr-2011

FIGURE 2

Doc. No.: TR-09-01_Figure 2_R1.cdr

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All deliverables to the MNR (MNR Drilling License Applications, Drilling Completion Records - MNR Form 7, drill cutting chip samples) are required to express depths in units of metres below the drill rig Kelly Bushing (mBKB). The drill rig Kelly Bushing height was adjusted several times throughout the drilling programs at DGR-5 and DGR-6, each time a drilling rig was positioned onto the borehole, and therefore the appropriate vertical adjustments were incorporated into reported depth measurements. However, for reporting purposes, the ground surface reference datum is assumed to be approximately 2.7 m vertical below KB (2.93 mLBKB) of the drilling rig at DGR-5 and approximately 3.5 m vertical below KB (4.04 mLBKB) at DGR-6. These were the actual measurements of KB height above ground surface during the final stages of coring at each borehole.

3.2 Drilling Fluids

Drilling was completed using a combination of freshwater and brine-based drilling fluids, depending on the expected in-situ bedrock formation chemistry, to cool the bit and clean the cuttings from the borehole. Sodium fluorescein (NaFl), a fluorescent green dye, was added to the drilling fluid as a tracer to assess the level of impact of drilling operations during potential groundwater sampling. The details of drilling fluid preparation, management and testing are described in Technical Report TR-09-02: Drilling Fluid Management and Testing in DGR-5 and DGR-6 (Geofirma Engineering Ltd., 2011b). In general, freshwater drilling fluids were used to drill the bedrock above the Salina Formation F Unit shale and brine-based drilling fluids were used to drill the bedrock formations below this depth.

All drilling fluids were prepared using treated Lake Huron water which was obtained from a service outlet at OPG Building B-19 (Spent Solvent Treatment Facility) or OPG Building B-25 (Core Storage Facility) on the Bruce nuclear site. Treated Lake Huron water was trucked from Buildings B-19 and B-25 by the drilling contractor and pumped into mixing and holding tanks at the DGR-5 and DGR-6 drill sites. All borehole drilling fluids and cuttings were diverted from the boreholes into storage tanks such that the cuttings could be settled out and the drilling fluid re-used for drilling operations.

3.3 Drilling Methods

Three different drilling methods were used to complete DGR-5 and DGR-6 including:

- dual rotary drilling of conductor casings into bedrock,
- rotary drilling from top of bedrock to Salina Formation F Unit shale to install BOP control casing string, and
- continuous wireline coring from bottom of BOP casing to total depth of each borehole.

3.3.1 Dual Rotary Drilling

Drilling and conductor casing installation through the overburden and into shallow bedrock at DGR-5 and DGR-6 was completed by Davidson using dual-rotary technology. A truck-mounted Foremost DR-12 drilling rig was used at DGR-5 and a DR-24HD model was used at DGR-6. Dual rotary drills have a lower rotary drive that is used to advance steel casing through unconsolidated overburden. A carbide studded shoe welded to the bottom casing joint allows it to cut through the overburden material and seat into bedrock. An independent rotary top drive simultaneously advances the drill string which was equipped with a tri-cone bit. The cuttings were evacuated with air and water while drilling through the overburden.

3.3.2 Rotary Drilling

Once the conductor casings were set, both boreholes were rotary drilled by Davidson to the Salina Formation F Unit shale to allow for surface and BOP control casing installations. A Foremost DR-12 rig was used to rotary drill DGR-5 to a depth of 206.4 mLBGS (13.9 m below top of Salina Formation F Unit) in February 2009. Drilling resumed in May 2009 using a Foremost DR-24HD rig to rotary drill DGR-6 to 34.8 mLBGS. At this depth the

DR-24HD drilling rig was replaced with a truck-mounted Schramm T130XD drilling rig that was better equipped to complete the inclined rotary drilling in DGR-6 to 213.1 mLBGS (10.1 m below top of Salina Formation F Unit). Both boreholes were rotary drilled using tri-cone drill bits and freshwater-based drilling fluids traced with NaFl. Rock chip samples were collected and logged by the onsite geologist approximately every three metres throughout rotary drilling. After casing installation in DGR-5 and DGR-6, Davidson drilled out the cement plug from inside the casing using a rotary tri-cone bit which resulted in approximately 1.5 m (DGR-5) and 1.7 m (DGR-6) of bedrock that was over-drilled below the set casing depths prior to switching to continuous coring.

3.3.3 Continuous Coring

Continuous coring below the bottom of BOP control string casing in DGR-5 and DGR-6 was completed in three stages: [1] Davidson completed all of the coring in DGR-5 (approximately 600 m length) and approximately 300 m coring in DGR-6; [2] Layne Christensen Canada/IDS corrected the borehole orientation in DGR-6 using directional coring equipment over approximately 125 m; and [3] Layne completed coring the approximate 260 m length in DGR-6 to reach total depth. Each coring method is described in greater detail below.

All coring was completed using similar wireline equipment that varied slightly depending on the drilling rig and application. Coring lengths were approximately 3.00 to 3.05 m and the time to complete one core run typically ranged from 5-15 minutes for softer shale or argillaceous-rich formations such as the Salina G unit, Cabot Head, Queenston and Blue Mountain Formations, as well as for the dolostone based Lions Head Formation. Coring run times were typically longer, ranging between 1-4 hours, for harder dolostone and limestone formations such as the Cobourg, Kirkfield, and Gull River Formations. The average coring run time was around 45 minutes. Circulation time after coring prior to the core barrel arriving at surface typically ranged between 15 and 45 minutes, with an average of 30 minutes.

3.3.3.1 Davidson Drilling – Wireline Coring

All bedrock coring at DGR-5 was completed by Davidson using the truck-mounted Schramm T130XD drilling rig equipped with a quad-latch double-tube wireline coring system with a split-inner barrel, manufactured by American Diamond Tool (formerly Christensen Products Inc). This coring equipment produced high quality 76mm (3-inch) diameter core in 3.05 m lengths, although on occasion it was necessary to core a shorter length to accommodate difficult drilling conditions, and a 143mm (5 ⅝-inch) diameter borehole from 207.9 mLBGS (15.4 m below top of Salina Formation F Unit) to the total depth of 807.2 mLBGS (40.7 m below top of Kirkfield Formation). Polycrystalline diamond (PCD) bits were used for all bedrock coring in DGR-5. Throughout the drilling program, PCD bits were typically operated with a bit rotation speed of approximately 80 to 100 revolutions per minute (RPM) with a torque of approximately 1800 to 2200 foot pounds (ft*lbs).

Coring at DGR-6 was initiated by Davidson using the same drilling rig and coring equipment that was used to core DGR-5, therefore similar core and borehole diameters were produced from 214.8 mLBGS (11.8 m below top of Salina Formation F Unit) to a depth of 516.3 mLBGS (8.4 m below top of Queenston Formation). At a depth of 516.3 mLBGS the borehole was at a plunge of approximately 69° from horizontal and an azimuth of 91° clockwise from magnetic north, which corresponds to a deviation of 9° from target plunge and 11° from target azimuth. It was determined that directional coring would be required to correct the direction of DGR-6 in order to meet the characterization objectives of the borehole.

3.3.3.2 Layne Christensen / International Directional Services (IDS) – Directional Coring in DGR-6

Layne completed a borehole orientation correction in DGR-6 over approximately 125m from 516.3 mLBGS (8.4 m below top of Queenston Formation) to 641.6 mLBGS (58.5 m below top of Georgian Bay Formation) using an Atlas Copco skid-mounted drilling rig (model CS3001) and directional coring equipment and services provided

by IDS. This drilling rig was equipped with a top drive system capable of delivering a maximum torque of 3,500 ft-lb and a rotation speed up to 1,300 rpm. Layne used conventional mineral exploration drilling and wireline coring equipment with diamond impregnated bits that were typically operated with a bit rotation speed of approximately 800-900 RPM and a torque of approximately 2000 ft*lbs.

Directional coring was completed using the Devico DeviDrill™ steerable wireline core barrel that is developed for N-size (NQ) wireline coring equipment, therefore, the Devico coring system produced a 76mm diameter borehole. Due to the special design of the NQ core barrel allowing it to adjust the borehole orientation, this equipment produces a 32mm diameter high quality core. In addition to the DeviDrill™ equipment used during the directional drilling process, it was necessary to use conventional NQ coring equipment (i.e. no Devico coring system) to minimize the borehole turning radius, which produced a 42mm diameter core and 76mm diameter borehole, on the following four separate occasions:

- 516.33 to 518.15 mLBGS (1.82m);
- 534.81 to 542.55 mLBGS (7.74m);
- 559.21 to 566.95 mLBGS (7.74m);
- 599.46 to 601.91 mLBGS (1.44m).

Over the interval from 516.3 to 641.6 mLBGS (125.3m) the borehole orientation correction involved a change in plunge of approximately -11.4° (from 69° to 57.6°) and a change in azimuth of approximately -17.1° (from 91° to 73.9°).

3.3.3.3 Layne Christensen – Wireline Coring in DGR-6

Layne completed the remaining ~260m of coring in DGR-6 from 641.6 mLBGS (middle of Georgian Bay Formation) to 903.2 mLBGS (6.0 m below top of Gull River Formation) using the same Atlas Copco skid-mounted drilling rig (model CS3001) equipped with conventional mineral exploration P-size (PQ) coring equipment which produced an 83mm diameter high quality core and a 123mm diameter borehole. Diamond impregnated bits were used and operated at a typical rotation speed of 800 to 900 RPM.

3.3.4 Reaming

Reaming was not completed during the drilling of DGR-5 but was completed on two separate occasions during the drilling of DGR-6. Once directional coring was completed in DGR-6, the borehole was enlarged from 76mm diameter to 123mm diameter over the interval from 516.3 to 641.6 mLBGS to accommodate P-size coring equipment for the remainder of the borehole. The borehole enlargement was completed using a reaming tool consisting of a bullnose and progressive bit configuration.

Similarly, following completion of coring in DGR-6 to TD, the borehole was enlarged from 123mm to 143mm over the interval from 516.3 to 903.2 mLBGS to accommodate borehole geophysics and hydraulic testing equipment. The borehole enlargement was completed using a reaming tool consisting of a pilot P-size drill bit followed by a reaming bit.

3.4 Borehole and Casing Sizes

In order to meet the casing requirements of the MNR Standards, multiple telescoped-casing installations were necessary to provide a permanent seal and effectively isolate the various aquifers within the Devonian and Silurian formations and to provide suitable blow-out prevention in the event of drilling through a gas-pressurized zone. Table 1 summarizes the final borehole diameter and casing sizes for both DGR-5 and DGR-6.

Table 1 Summary of Borehole and Casing Sizes for DGR-5 and DGR-6

Casing String/Borehole	*Bottom Depth*	*Borehole Diameter*		*Casing Size (OD)*	
	(mLBGS)	*(inch)*	*(mm)*	*(inch)*	*(mm)*
DGR-5					
surface conductor casing	22.3	12 ¾	324	12 ¾	324
surface casing	37.7	11 ⅝	295	9 ⅝	245
intermediate BOP casing	206	8 ¾	222	7	178
main borehole	807.2	5 ⅝	143	open hole	
DGR-6					
Surface conductor casing	20.8	12 ¾	324	12 ¾	324
Surface casing	34.2	11 ⅝	295	9 ⅝	245
intermediate BOP casing	212.5	8 ¾	222	7	178
main borehole	903.2	5 ⅝	143	open hole	

Figure 3 and Figure 4 show the sequence of drilling sizes and permanent casing installations for DGR-5 and DGR-6, respectively. Each drilling and casing program is discussed in further detail below.

3.4.1 DGR-5 Drilling and Casing Sequencing

As shown in Figure 3, DGR-5 was drilled in the following manner:

Step 1: Dual rotary drilled and simultaneously installed a 324mm (12 ¾-inch) diameter surface conductor casing (inclined at 65° from horizontal) to 22.3 mLBGS, approximately 2.3 m into bedrock.

Step 2: Rotary drilled a 295mm (11 ⅝-inch) diameter borehole (inclined at 65° from horizontal) using air-rotary techniques with a tri-cone drill bit to 37.7 mLBGS (approximately 17.7 metres length along the borehole below top of bedrock). Installed 245mm (9 ⅝-inch) diameter surface casing from bottom of borehole (casing sitting on bottom at 37.7 mLBGS), extending above ground surface.

Step 3: Rotary drilled a 219mm (8 ⅝-inch) diameter borehole (inclined at 65° from horizontal) using traced freshwater drill fluid with a tri-cone drill bit to 206.4 mLBGS (approximately 13.9 metres length into the Salina Formation F Unit shale). Installed 178mm (7-inch) diameter steel casing (control string) for blow-out prevention (casing hung approximately 0.4 m above bottom of borehole).

Step 4: Continuously cored 143mm (5 ⅝-inch) diameter borehole from 206.4 mLBGS to total depth of 807.2 mLBGS (approximately 40.7 metres length into the Kirkfield Formation).

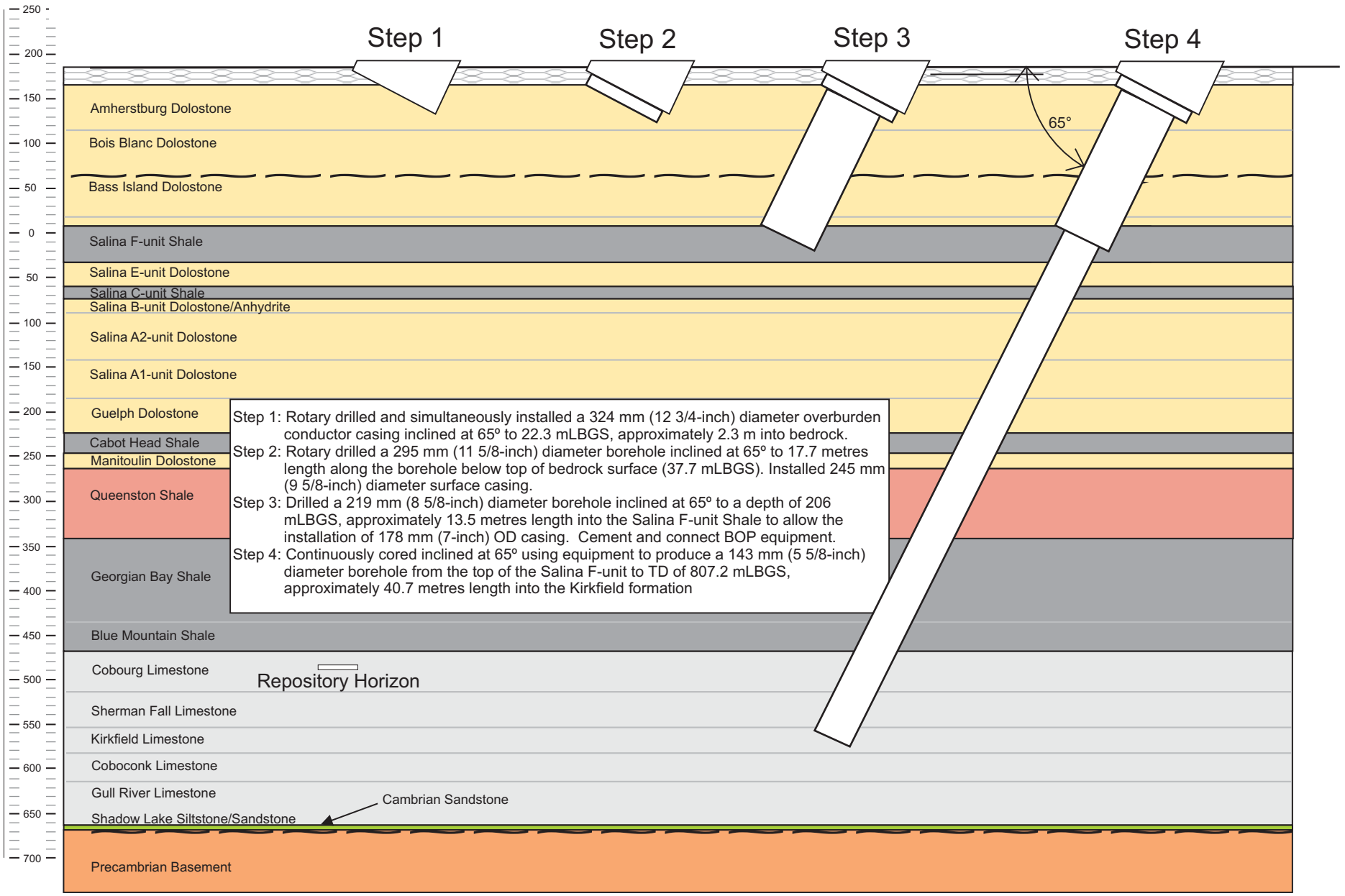
3.4.2 DGR-6 Drilling and Casing Sequencing

Similarly, Figure 4 shows the steps completed during bedrock drilling at DGR-6:

Step 1: Dual rotary drilled and simultaneously installed a 324mm (12 ¾-inch) diameter surface conductor casing (inclined at 60° from horizontal) to 20.8 mLBGS, approximately 3.9 m into bedrock.

Step 2: Rotary drilled a 295mm (11 ⅝-inch) diameter borehole (inclined at 60° from horizontal) using air-rotary techniques with a tri-cone drill bit to 34.2 mLBGS (approximately 17.3 metres length along the borehole below top of bedrock). Installed 245mm (9 ⅝-inch) diameter surface casing from bottom of borehole (casing sitting on bottom at 34.2 mLBGS), extending above ground surface.

Step 3: Rotary drilled a 219mm (8 ⅝-inch) diameter borehole (inclined at 60° from horizontal) using traced freshwater drill fluid with a tri-cone drill bit to 213.1 mLBGS (approximately 10.1 metres length into the Salina Formation F Unit shale). Installed a 178mm (7-inch) diameter intermediate casing for blow-out



Drilling and Casing Installation Sequence - Inclined Boreholes DGR-5

FIGURE 3	Doc. No.: TR-09-01_Figure 3_R0.cdr	Prepared by: NMP Reviewed by: GDB Date: Feb 18, 2010

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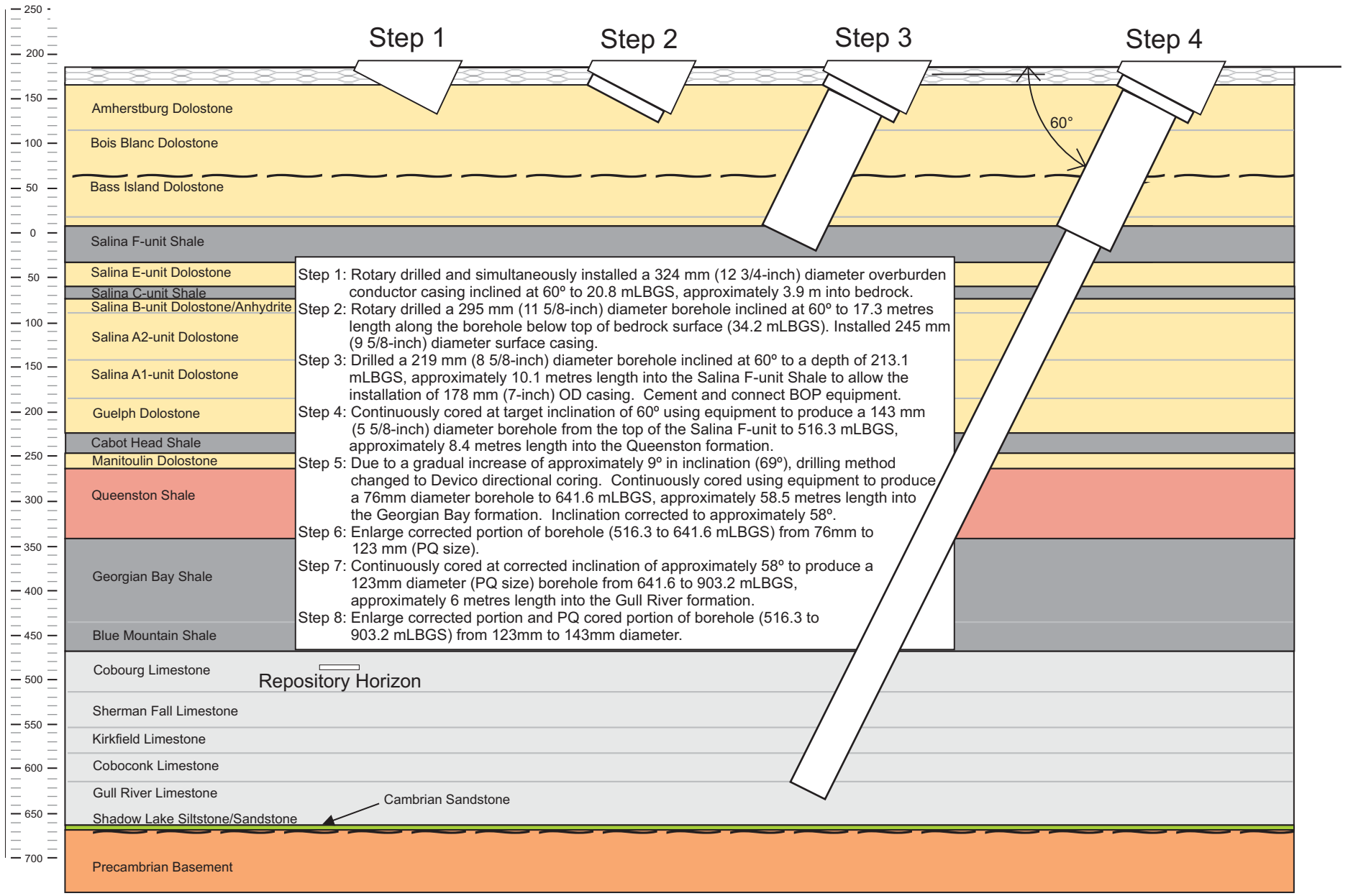

Drilling and Casing Installation Sequence - Inclined Boreholes DGR-6

FIGURE 4	Doc. No.: TR-09-01_Figure 4_R0.cdr	Prepared by: ADG Reviewed by: GDB Date: June 22, 2010

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prevention (casing hung approximately 0.6 m above bottom of borehole).

Step 4: Continuously cored 143mm (5 ⅝-inch) diameter borehole (at a target inclination of 60° from horizontal) from 213.1 mLBGS to a depth of 516.3 mLBGS (approximately 8.4 metres length into the Queenston Formation).

Step 5: Borehole orientation correction using Devico directional coring equipment. Continuously cored using equipment to produce a 76mm diameter borehole from 516.3 mLBGS to 641.6 mLBGS (approximately 58.5 metres length into the Georgian Bay formation). Final borehole correction of approximately -11.4° plunge from horizontal (69° to 57.6°) and approximately -17.1° azimuth from magnetic north (91° to 73.9°).

Step 6: Enlarge the corrected portion of the borehole (516.3 to 641.6 mLBGS) from 76mm to 123mm (PQ-size) in diameter.

Step 7: Continuously cored a 123mm diameter borehole (at the corrected plunge of approximately 58° from horizontal) from 641.6 mLBGS to a total depth of 903.2 mLBGS (approximately 6 metres length into the Gull River Formation).

Step 8: Enlarge the corrected portion and PQ cored portion of the borehole (516.3 to 903.2 mLBGS) from 123mm to 143mm diameter.

3.4.3 Casing Installation Methods

All casing strings were installed in accordance with the procedures outlined in TP-08-20 (Intera Engineering Ltd., 2010a). The following procedures apply to all casing types installed:

- Centralizers were installed at sufficient depths on the surface and intermediate casing to ensure the casing was centred in the borehole. Centralizers were not required for the surface conductor casing.
- Surface conductor and surface steel casing joints were welded. Intermediate casing was flush-jointed threaded steel casing. All casing materials were new.

The following procedures describe the installation of 324mm surface conductor casing:

- Surface conductor casing was installed using dual-rotary drilling technology by Davidson Drilling.
- The casing was fitted with a carbide-studded casing shoe, welded to the casing bottom, which cuts through the overburden and into the top of the bedrock. The casing was rotated and advanced with the drill string by a secondary lower rotary drive. No cementing of the conductor casing was required as no annular space is created using this drilling method.

The following procedures describe the installation of 245mm surface casing:

- Surface casing was installed to bottom of borehole (i.e. casing sitting on bottom) and cemented by Davidson Drilling.
- Cementing procedures involved pumping a sufficient amount of 16 lb neat Portland cement into the annulus using a stinger pipe assembly until cement was seen at surface in the borehole annulus.
- Cement samples were collected by Geofirma personnel to represent the cement at the beginning and end of the cement job. The samples were inspected for consistency and allowed to cure for 24 hours prior to a final inspection to ensure proper curing. All samples passed inspection.
- The cement in the borehole was allowed to cure for 24 hours prior to performing an annular cement level check or re-entering the borehole to commence bedrock drilling below the bottom of casing.
- The cement level in the annulus between the surface conductor casing and the surface casing was measured to determine if remedial cementing operations were required. No remedial cementing operations were required in DGR-5 or DGR-6.

The following procedures describe the installation of 178mm BOP control casing:

- The BOP control casing strings were installed by Davidson Drilling.
- The BOP casing cementing operations were completed by Schlumberger Canada Limited based in London, Ontario.
- The BOP casing cement completions were inspected by an MNR certified well examiner. Copies of each well examiner report are included in Appendix B.
- Casing was raised above bottom of borehole by approximately 0.4 m (DGR-5) and 0.6 m (DGR-6) to ensure proper cement seal below steel casing and was extended above ground surface.
- The cementing procedure involved injecting Class 'G' neat cement containing 2% $CaCl_2$ by weight with a minimum of 100% excess cement down the inside of the casing, below a wiper plug and using positive displacement methods to force cement to rise up the annulus between the casing and the borehole wall.
- Cement/grout samples were collected to represent the cement at the beginning, middle and end of the cement job. The samples were inspected for consistency and allowed to cure for 24 hours prior to a final inspection to ensure proper curing. All samples passed inspection.
- The cement in the borehole was allowed to cure for a minimum of 24 hours before performing annular cement level check or re-entering the borehole to commence bedrock drilling below the bottom of casing.
- The cement level in the annulus between the intermediate and surface casing was measured to determine if remedial cementing operations were required. No remedial cementing was required in DGR-5 or DGR-6.
- Cement bond logs (sonic borehole geophysical logs) were completed over the cemented area to assess the integrity of the cementing seal. Bond logs were completed by Weatherford Canada based in Dresden, Ontario (DGR-5) and Lotowater Technical Services Inc. based in Paris, Ontario (DGR-6). The bond logs indicated that the integrity of the cement seal was satisfactory in both DGR-5 and DGR-6.

3.5 Drilling Conditions

The overburden at DGR-5 and DGR-6 consisted of gravel fill underlain by brown/grey sandy silt till with basal gravel over the upper weathered contact of the Lucas Formation dolostone. Top of weathered bedrock was encountered at depths of 20.0 mBGS (22.3 mLBGS) and 14.4 mBGS (16.9 mLBGS) for DGR-5 and DGR-6, respectively.

3.5.1 Rock Quality

Table 2 lists the rock quality descriptions for core and bedrock formations, including RQD (Rock Quality Designation), used in this report that are determined from core logging data based on International Society for Rock Mechanics (ISRM, 1978) guidance.

Table 2 Summary of Rock Quality Descriptions and Fracture Frequency

RQD (%)	*Core Quality Description*	*Natural Fracture Frequency (/m)*	*Formation Fracture Description*
0-25	Very Poor	>10	Highly Fractured
25-50	Poor	>1.0-10	Moderately Fractured
50-75	Fair	0.5-1.0	Sparsely Fractured
75-90	Good	<0.5	Very Sparsely Fractured
90-100	Excellent	0	Unfractured

RQD values determined for the 76-mm-diameter core from DGR boreholes were calculated as the sum of lengths of core greater than 15 cm length (i.e., twice the core diameter) excluding artificial breaks (i.e. drilling-induced breaks), divided by length of hole drilled per core run (i.e. not recovery). Core recovery is defined as the length of core recovered per length of hole drilled per core run. Core runs were typically 3.00 or 3.05 m in length. Natural fracture frequency was calculated as the total number of identified natural fractures divided by the length of recovered core.

Tables 3 and 4 summarize the % recovery, RQD and natural fracture frequency data determined from core logging of DGR-5 and DGR-6, respectively, as described in Section 4.3. These tables list the minimum, maximum and arithmetic mean values for these parameters grouped by formation and unit.

Table 3 Summary of Discontinuity Logging in DGR-5

	% Recovery			*% RQD*			*Natural Fracture Frequency (/m)*		
Formation	***Min***	***Max***	***Mean***	***Min***	***Max***	***Mean***	***Min***	***Max***	***Mean***
Lucas + Amherstburg Formations	Not cored								
Bois Blanc Formation									
Bass Islands Formation									
Salina Formation - G Unit									
Salina Formation - F Unit	87%	100%	98%	76%	100%	92%	0.00	2.62	1.12
Salina Formation - E Unit	97%	100%	99%	95%	100%	98%	0.33	2.31	1.17
Salina Formation - D Unit + C Unit	89%	100%	97%	87%	100%	96%	0.00	0.00	0.00
Salina Formation - B Unit	98%	100%	100%	87%	100%	96%	0.00	2.62	1.53
Salina Formation - A2 Unit	88%	100%	99%	84%	100%	98%	0.00	0.66	0.11
Salina Formation - A1 Unit + A0 Unit	99%	100%	100%	87%	100%	97%	0.00	1.64	0.33
Guelph, Goat Island, Gasport, Lions Head, Fossil Hill Formations	100%	100%	100%	98%	100%	100%	0.00	0.98	0.28
Cabot Head Formation	19%	100%	82%	8%	100%	77%	0.00	0.77	0.14
Manitoulin Formation	98%	100%	99%	97%	100%	99%	0.00	0.00	0.00
Queenston Formation	98%	100%	100%	96%	100%	99%	0.00	0.66	0.15
Georgian Bay Formation	20%	100%	97%	0%	100%	96%	0.00	1.31	0.18
Blue Mountain Formation	100%	100%	100%	68%	100%	97%	0.00	1.31	0.21
Cobourg Formation - Collingwood Member	100%	100%	100%	98%	100%	99%	0.00	1.97	0.98
Cobourg Formation - Lower Member	100%	100%	100%	98%	100%	100%	0.00	0.66	0.23
Sherman Fall Formation	100%	100%	100%	95%	100%	99%	0.00	1.64	0.20
Kirkfield Formation	100%	100%	100%	98%	100%	100%	0.00	0.00	0.00
Coboconk Formation	Not cored								
Gull River Formation									
Shadow Lake Formation									
Cambrian Sandstone									
Precambrian									

Table 4 Summary of Discontinuity Logging in DGR-6

	% Recovery			% RQD			Natural Fracture Frequency (/m)		
Formation	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**
Lucas + Amherstburg Formations	Not cored								
Bois Blanc Formation									
Bass Islands Formation									
Salina Formation - G Unit									
Salina Formation - F Unit	25%	100%	91%	0%	100%	84%	0.00	4.92	1.39
Salina Formation - E Unit	100%	100%	100%	98%	100%	99%	0.00	0.98	0.42
Salina Formation - D Unit + C Unit	97%	100%	99%	96%	100%	98%	0.00	1.97	0.79
Salina Formation - B Unit	100%	100%	100%	96%	100%	99%	0.00	1.38	0.29
Salina Formation - A2 Unit	100%	100%	100%	71%	100%	97%	0.00	3.11	0.72
Salina Formation - A1 Unit + A0 Unit	100%	100%	100%	97%	100%	100%	0.00	1.31	0.26
Guelph, Goat Island, Gasport, Lions Head, Fossil Hill Formations	100%	100%	100%	97%	100%	99%	0.00	0.66	0.15
Cabot Head Formation	100%	100%	100%	74%	100%	96%	0.00	0.98	0.32
Manitoulin Formation	100%	100%	100%	99%	100%	100%	0.33	0.66	0.52
Queenston Formation	80%	100%	99%	47%	100%	97%	0.00	1.38	0.12
Georgian Bay Formation	90%	100%	100%	63%	100%	97%	0.00	1.33	0.22
Blue Mountain Formation	100%	100%	100%	73%	100%	98%	0.00	1.67	0.24
Cobourg Formation - Collingwood Member	100%	100%	100%	98%	100%	99%	0.00	0.00	0.00
Cobourg Formation - Lower Member	100%	100%	100%	99%	100%	100%	0.00	0.00	0.00
Sherman Fall Formation	100%	100%	100%	95%	100%	99%	0.00	0.33	0.03
Kirkfield Formation	100%	100%	100%	98%	100%	100%	0.00	0.67	0.05
Coboconk Formation	100%	100%	100%	98%	100%	100%	0.00	0.00	0.00
Gull River Formation	100%	100%	100%	100%	100%	100%	0.00	0.00	0.00
Shadow Lake Formation	Not cored								
Cambrian Sandstone									
Precambrian									

All bedrock formations continuously cored at DGR-5 and DGR-6 exhibited strong structural quality measurements. This is evidenced by the structural bedrock quality measurements (high % recovery, high rock quality designation (RQD), and low natural fracture frequency). These measurements were collected during core logging activities as discussed in Section 4.3.2 and are illustrated in the borehole logs for DGR-5 (Appendix C) and DGR-6 (Appendix D). DGR-5 and DGR-6 were rotary drilled from ground surface to the Salina Formation F Unit therefore an assessment of rock quality was not completed for that interval.

The percent core recovery for all formations cored in DGR-5 and DGR-6 typically ranged between 91-100%, with the exception of the Cabot Head Formation in DGR-5, which had an average recovery of 82%. The RQD recorded in DGR-5 and DGR-6 typically ranged between 92-100%, with the exception of the Cabot Head Formation in DGR-5, which had an RQD of 77% and the Salina Formation – F Unit in DGR-6, which had and RQD of 84%. Some low core recovery and RQD values (<10%) in the Ordovician shales and limestones are due to core grinding during drilling. The natural fracture frequencies measured in DGR-5 and DGR-6 were generally less than 0.5 natural fractures per metre. A few exceptions to this are noted below:

DGR-5

- Salina Formation – F Unit had a fracture frequency of 1.12 fractures per metre.
- Salina Formation – E Unit had a fracture frequency of 1.17 fractures per metre.
- Salina Formation – B Unit had a fracture frequency of 1.53 fractures per metre.
- Cobourg Formation - Collingwood Member had a fracture frequency of 0.98 fractures per metre.

DGR-6

- Salina Formation – F Unit had a fracture frequency of 1.39 fractures per metre.
- Salina Formation - D Unit + C Unit had a fracture frequency of 0.79 fractures per metre.
- Manitoulin Formation had a fracture frequency of 0.52 fractures per metre.

The natural fracture frequency of Silurian formations and Ordovician shales in inclined boreholes DGR-5 and DGR-6 is not noticeably different than in the vertical boreholes DGR-1 to DGR-4. This suggests the frequency of sub-vertical or inclined fractures in DGR boreholes is not significantly greater than the frequency of sub-horizontal fractures.

Although not reflected in the RQD or natural fracture frequency plots, the degree and extent of brecciation of the Salina B to E Units due to paleo-dissolution of the B and D Unit salts was observed to be greater in DGR-6 core than in other DGR cores. This increased brecciation resulted in decreased confidence in the top of formation picks in DGR-6 for the Salina B, C, D and E Units.

3.5.2 Zones of Drilling Fluid Loss

During coring activities, the volume of drilling fluids in circulation tanks at ground surface were manually monitored during each core run using a graduated measuring staff with 1-inch increments to help identify significant permeable bedrock zones where the volume in the tanks dropped. While drilling at DGR-5 and DGR-6 the only significant zones of drilling fluid loss were above the Salina Formation – G Unit during rotary drilling operations, however, drilling fluid loss into formations above the Salina - G Unit were not quantified. Drilling fluid loss below the Salina – G Unit during coring operations was typically between 0.0-0.2 m^3 in DGR-5 and DGR-6, with most of the fluid loss suspected to be the permeable aquifers found at the top of the Salina A1 Unit and the Guelph Formation.

In addition, there were two permeable intervals where drilling fluid loss was approximately 1 m^3 per core run or greater, and these include:

DGR-5:

- 357-364 mLBGS in the Salina Formation A1 Unit (up to 1 m^3 / core run);

DGR-6:

- 370-415 mLBGS in the Salina Formation A1 Unit (up to 1.5 m^3 / core run);
- 481-483 mLBGS in the Cabot Head Formation (up to 1.5m^3 / core run).

3.5.3 Hydrocarbon Occurrences

Trace amounts of oil and gas occurrence was observed during the drilling of DGR-5 and DGR-6 which is consistent with drilling results of DGR-1 through DGR-4. Also similar to DGR-1 through DGR-4, evidence of hydrocarbon within core collected from DGR boreholes was noted either as bituminous laminations, hydrocarbon odour or minor oil seepage from pores. Table 5 summarizes these observations from DGR-5 and DGR-6 and

Table 5 Summary of Hydrocarbon Evidence in DGR-5 and DGR-6 Cores

Formation, Member, Unit	*Bituminous Layering*		*Petroliferous Odour*		*Trace of Visible Oil Seepage*	
	DGR-5	*DGR-6*	*DGR-5*	*DGR-6*	*DGR-5*	*DGR-6*
Lucas Formation	No coring, no assessment					
Amherstburg Formation						
Bois Blanc Formation						
Bass Islands Formation						
Salina Formation - G Unit						
Salina Formation - F Unit						
Salina Formation - E Unit		✓				
Salina Formation - D Unit						
Salina Formation - C Unit		✓				
Salina Formation - B Unit Carbonate		✓		✓		
Salina Formation - B Unit Evaporite						
Salina Formation - A2 Unit Carbonate	✓	✓	✓			
Salina Formation - A2 Unit Evaporite						
Salina Formation - A1 Unit Carbonate	✓	✓	✓	✓	✓	✓
Salina Formation - A1 Unit Evaporite						
Salina Formation - A0 Unit	✓	✓				✓
Guelph Formation			✓		✓	
Goat Island Formation	✓	✓				
Gasport Formation	✓					
Lions Head Formation						
Fossil Hill Formation						
Cabot Head Formation						
Manitoulin Formation			✓			
Queenston Formation						
Georgian Bay Formation				✓		
Blue Mountain Formation		✓	✓	✓		✓
Cobourg Formation - Collingwood Member			✓			
Cobourg Formation - Lower Member			✓	✓		
Sherman Fall Formation			✓	✓		
Kirkfield Formation	✓	✓	✓	✓		✓
Coboconk Formation		✓		✓		✓
Gull River Formation		✓		✓		✓
Shadow Lake Formation	No coring, no assessment					
Cambrian Sandstone						
Precambrian basement						

Note: shaded areas indicate that no core was collected from this formation, therefore no assessment made

indicates that bituminous layering was observed throughout many of the carbonate bedrock units within the Salina Formations (E, C, B, A2, A1, and A0), the Guelph, Goat Island, Gasport, Manitoulin, Blue Mountain, Kirkfield, Coboconk and Gull River Formations. Hydrocarbon odours, although less diagnostic, were evidenced primarily in the lower Salina Formation carbonate units (B, A2, A1, and A0), Guelph, Manitoulin, the lower Ordovician shales (Georgian Bay and Blue Mountain Formations) and the entire sequence of Trenton and Black River Groups of limestones (Collingwood, Cobourg, Sherman Fall, Kirkfield, Coboconk and Gull River Formations). The more obvious oil seepage from pore spaces in the cores was evident in DGR-5 within the Salina Formation A1 carbonate unit and Guelph Formation and was most evident in DGR-6 within the carbonate units of the lower Salina Formation (A1 and A0), the Blue Mountain Formation shale, and the Ordovician limestones of the Kirkfield, Coboconk and Gull River Formations.

3.6 Borehole Testing

3.6.1 Borehole Orientation Measurements While Drilling

DGR-5 and DGR-6 were designed as inclined boreholes with azimuths of 190 degrees (DGR-5) and 80 degrees (DGR-6) and plunges of 65 degrees from horizontal (DGR-5) and 60 degrees from horizontal (DGR-6). To ensure each borehole maintained its targeted orientation, frequent measurements of azimuth and plunge were completed using a variety of tools depending on the type of drilling equipment being used in various sections of the borehole. All borehole orientation equipment was operated from surface using a wireline to lower the tool inside of the drill rods to the targeted depth. The tools measured the borehole azimuth (angle clockwise from magnetic north) and borehole plunge (angle below horizontal) at the measurement depth.

Figures 5 and 6 show the consistency of borehole azimuth and plunge measurements collected during drilling operations from DGR-5 and DGR-6 using the various tools. Information from these borehole orientations provided real-time data during drilling that were used to adjust the position of stabilizers within the drilling string, to determine when a borehole orientation correction was required in DGR-6, and to determine when DGR-5 and DGR-6 had passed through their target intervals. Final borehole orientations were measured using higher accuracy and precision downhole geophysical logging tools (i.e. acoustic televiewer) and are further discussed and presented in TR-09-03: Borehole Geophysical Logging of DGR-5 and DGR-6 (Geofirma Engineering Ltd., 2011c).

A summary of the borehole orientation equipment used in DGR-5 and DGR-6 includes:

- **FlexIT MultiSmart™ Tool**, an electronic tool capable of measuring borehole orientation (azimuth and plunge) in a non-magnetic environment (i.e. outside of drilling rods), manufactured by FlexIT Instruments based in Vallentuna, Sweden. FlexIT Instruments is part of the downhole instrumentation division of Imdex Limited, a Western Australian company. The FlexIT MultiSmart™ tool was operated by Geofirma staff with assistance from Davidson to lower the tool on a wireline. The FlexIT MultiSmart™ tool is capable of operating as a single-shot (one measurement per run down borehole) or multi-shot (continuous measurements at a timed interval as the tool moves up or down the borehole) tool.
    - Single-shot measurements were collected approximately every 20 to 45 m while rotary drilling the upper 206 mLBGS of DGR-5 and upper 213 mLBGS of DGR-6; above the installation depth for the intermediate BOP casing in the Salina Formation F Unit shale. These individual point measurements provided information on borehole orientation while drilling which assisted in making decisions (i.e. changing drilling parameters, repositioning stabilizers, directional drilling) and allow for corrective action as necessary to maintain the borehole direction within specifications.
    - A multi-shot survey was completed over the entire rotary-drilled depth range from approximately 30 mLBGS (top of bedrock) to the bottom of intermediate BOP casing installations at 206 mLBGS in DGR-5 and 213 mLBGS in DGR-6. This multi-shot survey was used to confirm the individual point measurements collected during single-shot surveys and provide an updated survey of the borehole prior to setting casing.

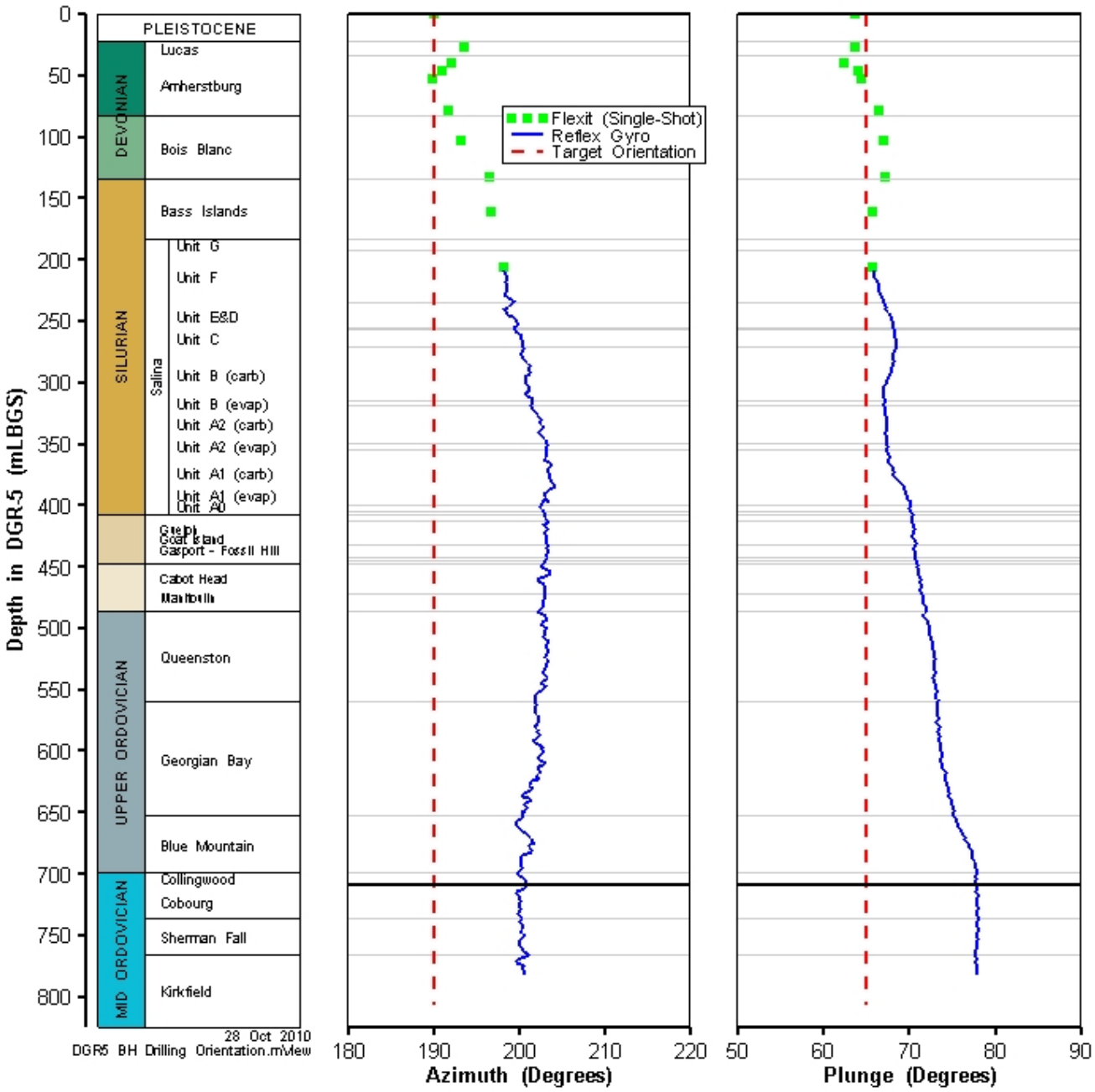


Figure 5 Summary of Borehole Orientation Measurements while Drilling DGR-5

- **Reflex Gyro™ Tool**, an electronic gyroscopic tool that measures borehole orientation (azimuth and plunge) in both magnetic and non-magnetic environments (i.e. capable of measuring inside of drill rods), manufactured by Reflex Instruments based near Timmons, Ontario. Reflex Instruments is also part of the downhole instrumentation division of Imdex Limited, a Western Australian company. Reflex Gyro™ surveys were completed approximately every 15 to 25 m of coring (every 5 to 8 core runs) with more frequent surveys completed when additional information was required in order to make decisions pertaining to borehole orientation corrective action. During each gyro survey, borehole orientation (azimuth and dip) measurements were recorded every 2 or 5 m with more closely spaced data collected when larger deviations from targeted azimuth and borehole plunge were anticipated. Individual gyro surveys were

completed over each newly cored section of borehole (15 to 25 m) plus a minimum of three overlapping data points with the previous survey results to ensure consistency and duplication.

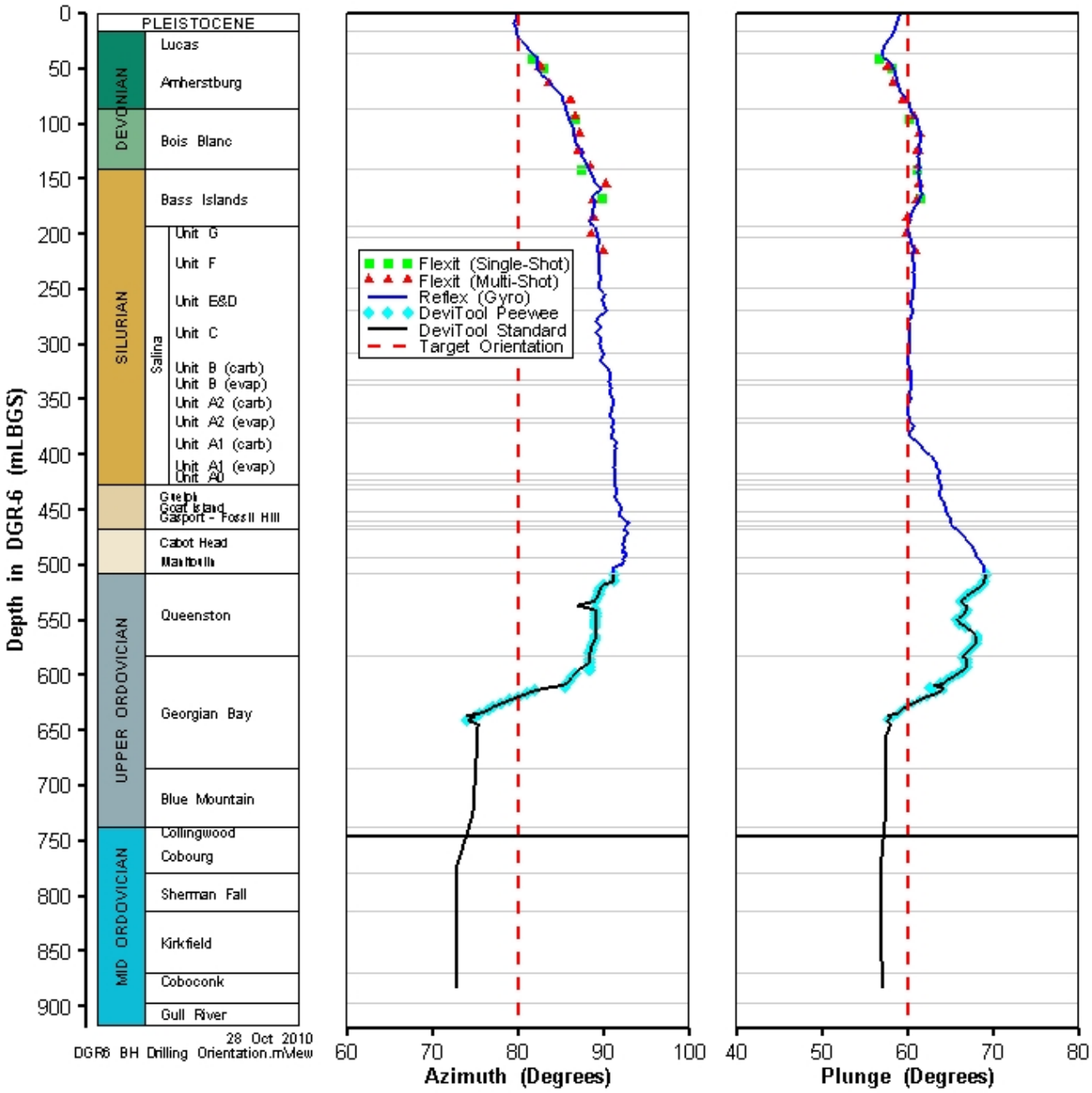


Figure 6 Summary of Borehole Orientation Measurements while Drilling DGR-6

- **DeviTool™ Standard**, an electronic multi-shot survey instrument that is operated inside of the DeviDrill™ core barrel while drilling, manufactured by Devico AS based in Melhus, Norway. The DeviTool™ Standard was operated by IDS with assistance from Layne Christensen to lower the tool on a wireline. IDS used the DeviTool™ Standard during directional coring operations in DGR-6 between 516.3 and 641.6 mLBGS. Initially it was used to complete a series of single-shot borehole orientation tests at a depth of approximately 516.3 mLBGS to provide a baseline direction (azimuth and plunge) prior to starting directional coring. Subsequently, IDS completed a single-shot reading at the start of each core run and at the end of each run

(i.e. every 3 m), thereby providing duplicate readings for every measurement position (start of core run # 2 is the same position as the end of core run #1) to ensure accuracy and allow for adjustments to be made as necessary.

- **DeviTool™ Peewee**, a miniature version of the DeviTool™ Standard, also manufactured by Devico AS in Norway. The DeviTool™ Peewee uses three high-accuracy magnetometers and accelerometers and was used to collect single-shot measurements of borehole orientation (azimuth and plunge) in an open borehole with the core barrel removed. IDS collected measurements using the DeviTool™ Peewee less frequently (i.e. every 15 to 45 m in the directional cored borehole) to verify the DeviTool Std. measurements.

3.6.2 Other Borehole Tests

Following drilling operations at each borehole, several other tests were completed in the boreholes, and are described in detail in the following Technical Reports:

- TR-09-03: Borehole Geophysical Logging of DGR-5 and DGR-6 (Geofirma Engineering Ltd., 2011c);
- TR-08-32: Analysis of Borehole Straddle Packer Tests in DGR Boreholes (Geofirma Engineering Ltd., 2011d).

4 Core Processing

Immediately following core retrieval to surface, the core was transported to the Core Receiving Trailer (CRT) where it was photographed, logged, sampled and transferred to a wooden core box for long-term storage. To minimize the potential for alteration of rock porewater chemistry from in-situ conditions or the creation of stress relief and weathering induced fractures, recovered core was processed as quickly as possible following core retrieval to surface. Generally, the cumulative elapsed times from core retrieval at surface (i.e. core barrel opened) until the completion of each sequential stage of core logging and sampling was: core photography (5 minutes), initial core logging and sample identification (5 to 10 minutes), sample preservation (10 to 30 minutes), detailed core logging (30 to 45 minutes), and core transfer into wooden core boxes (35 to 50 minutes).

Core runs were identified in sequential order from the first core run below BOP casing (207.92 mLBGS in DGR-5 and 214.81 mLBGS in DGR-6) and include the borehole identifier and start and finish depths (e.g. DGR-5, Core Run 070, Depth 410.07 to 413.12 mLBGS). All depths were referenced to ground surface as discussed in Section 3.1. In total, 202 core runs were completed in DGR-5 and 244 core runs were completed in DGR-6.

4.1 Core Orientation

An electronic core orientation device manufactured by Reflex Instruments (Reflex ACT Core Orientation Instrument) was used to help determine the orientation of each core run. This equipment is designed to provide highly accurate and consistent core orientations in broken formations and enabled the core barrel at surface to be oriented as it was last positioned downhole prior to retrieval. Once the core barrel is removed from the borehole and is properly oriented, the piece of core that is in the core catcher (or bottom of core barrel if there is no core in the catcher) was marked with a knife to indicate the bottom side of the core. As the core was removed from the core barrel the pieces were carefully fitted together ensuring that the bottom of core remained in line with the core orientation mark.

4.2 Core Photography

Prior to core logging and sampling, each core run was photographed using a high resolution digital SLR camera (Canon Rebel XT: 8.0 megapixel images) mounted on a specialized core photography table with dedicated lighting to minimize shadows and glare. Core photography was completed following the procedures as described in TP-09-01 (Intera Engineering Ltd., 2009b).

As described in Section 4.1 and prior to core photography, the core was rotated to orient the bottom surface (i.e. surface of core that was oriented downwards in core barrel) of the core towards the measuring tape on the core photography table such that this bottom surface will appear in the bottom of the core photos. This consistent core positioning ensured that the true angle of inclination of the bedding relative to the core axis is shown in the core photos.

A series of six photographs were taken at consistent, pre-set locations along each core run, each of which was designed to capture approximately 1/5 (0.61 m) of the full length core run (3.05 m) resulting in approximately 15 cm of overlap between adjacent pictures. Prior to core photography, the core was cleaned using a damp cloth moistened with traced drilling fluid to remove excess drill cuttings and mud. The cleaned core provided a damp surface that enabled high quality photos of the core features to be captured in detail. Figure E.1 (Appendix E) shows an example of the six sequential core run pictures for core run 78 from DGR-5 (434.47 to 437.52 mBGS).

Each core photograph includes:

- a core identification card providing the project number, borehole ID, date, depth below ground surface to the top of the core run in metres, and the core run number;
- a metric/imperial scale;
- a Kodak color control patch card;
- a number identifying the sequence of the picture in the core run (e.g. the first picture at the top of the core will be picture 1, the last picture at the bottom of the core will be picture 6); and,
- an arrow pointing downwards.

In addition to the series of six pictures capturing the complete core run prior to logging and sampling, core photographs were also collected for other purposes:

- Detailed close-up photographs of core features were also collected during core logging to capture evidence of various geological irregularities and features such as fractures, inclusions, precipitate, etc. Examples of these geological close-up core pictures are shown in Figure E.2 (Appendix E).
- Close-up pictures of each intact core sub-sample targeted for analyses taken immediately prior to preservation. These pictures capture an image of each core sample to reference during interpretation of core testing results and were collected following the procedures as described in TP-09-02: Core Sampling and Distribution in DGR-5 and DGR-6 (Intera Engineering Ltd., 2010b). A summary of core sampling is included in Section 4.4. Examples of these core sub-sample pictures are shown in Figure E.3 (Appendix E).
- Pictures of each complete core run taken after transfer into a wooden core box to provide a reference of sub-sample locations within a core run after core logging was complete. Examples of core box pictures are shown in Figure E.4 (Appendix E).

Digital photographs taken for these additional documentation purposes were collected using a hand-held digital camera.

The complete library of core photos is available on request on a set of DVDs.

4.3 Core Logging

Each core run was logged by geological staff trained in core logging of Paleozoic sedimentary bedrock in Ontario. Core logging was completed following the procedures described in TP-09-01 (Intera Engineering Ltd., 2009b). Core logging was continuous and included descriptions of bedrock lithology, stratigraphy, sedimentological features, structural and discontinuity characteristics, core sub-sample locations and comments

regarding any additional relevant observations made by the site geologist (i.e. information on drilling damage of core including core grinding, unevenness of core diameter, and locations and suspected cause of lost core). The final borehole logs for DGR-5 (Appendix C) and DGR-6 (Appendix D) were prepared using WellCAD software and summarize the geological information collected on the core logging sheets.

Core logging generally followed the guidelines of Armstrong and Carter (2006) for stratigraphic logging and nomenclature and ISRM (1978) for overall core quality and discontinuity descriptions. This approach remains consistent with the core logging and stratigraphic nomenclature established as part of Phase 1 and Phase 2A work. It is noteworthy, however, that the paperback Ontario Geological Survey open file report of Armstrong and Carter (2006) has recently been released as an updated and reformatted hard cover Special Volume publication (Armstrong and Carter, 2010). The subsurface bedrock stratigraphic nomenclature is generally the same in both of these publications, although Armstrong and Carter (2010) include an updated stratigraphic chart that removes the Middle Silurian and re-assigns the Middle Ordovician limestone units to the lower portion of the Upper Ordovician.

Following full core photography and prior to geological logging, two parallel lines were marked along the entire length of the core axis using permanent markers to provide a permanent record of core top and core bottom. Generally, red and black permanent markers were used with the red marker on the right ("red on right") while looking from the bottom of the core towards the top. White and black wax pencils ("white on right") were used on shale sections of core with a higher moisture content / softer surface that did not allow the permanent markers to adhere.

The black marker (or black wax pencil) line was drawn along the bottom of the core based on core orientation measurements, which will be used as the reference for determining the apparent dip direction of core discontinuities described in Section 4.3.3. On occasion either the core orientation equipment was not used (i.e. during directional coring using Devico equipment), did not provide a reliable "bottom of core", or the pieces of core did not fit together such that the orientation of the continuous core could be determined. Under these circumstances, the black marker line was drawn along the top of the bedding plane ellipse, which served as the reference for determining the apparent dip direction of core discontinuities.

4.3.1 Stratigraphic and Sedimentological Logging

A separate core logging sheet was completed for each core run which included a brief description of stratigraphic and sedimentological observations such as:

- ***primary rock type*** (i.e. dolostone, limestone, shale, sandstone, etc.);
- ***rock colour***;
- ***rock texture*** (fine/medium/coarse grained, sucrosic, etc.);
- ***sedimentological features*** (crystalline, lamination and bedding, mottling, styolites, fossils, etc.);
- ***secondary alterations*** (halite/gypsum/anhydrite/chert, nodules/casts/bituminous/staining/precipitate, etc.);
- ***porosity*** (burrowed, mouldic, karstic, reefal, mineral infillings, etc.); and,
- evidence of ***rock weathering or dolomitization***.

4.3.2 Discontinuity Logging

In addition, each core run was logged for discontinuity characteristics in accordance with ISRM suggested methods (ISRM, 1978), including:

- Identification of individual ***natural fractures*** and ***artificial breaks*** (during drilling or handling). As per ISRM guidance natural fractures were identified as having a generally smooth or somewhat weathered surface with soft coating or infilling materials such as clay, gypsum, calcite, anhydrite, iron oxide. Rough brittle surfaces with fresh cleavage planes in individual rock minerals were considered artificial breaks. To be conservative, questionable breaks along weakness planes such as bedding planes were logged as natural fractures as long as there was no evidence of rough drilling conditions.
- ***Core recovery (%)*** = length of core recovered / total length of core run;
- ***Fracture frequency (#/m)*** = total number of natural fractures per core run / length of core run;
- ***Rock Quality Designation (RQD, %)*** = total length of intact rock greater than 2 times the core diameter (ignoring artificial breaks) divided by the total length of core run (i.e. not recovery). As such, the calculations for RQD required attention to the various core diameters produced using different equipment in DGR-6 during borehole orientation correction;
- ***Fracture apparent dip angle (alpha, 0-90°) and apparent dip direction (beta, 0-360°)*** as described in Section 4.3.3;
- ***Fracture roughness*** (rough, smooth, slickensided, stepped, undulating, planar, etc.); and,
- ***Fracture Infilling or staining*** (colour, thickness and other relevant properties).

4.3.3 Fracture Orientation Logging

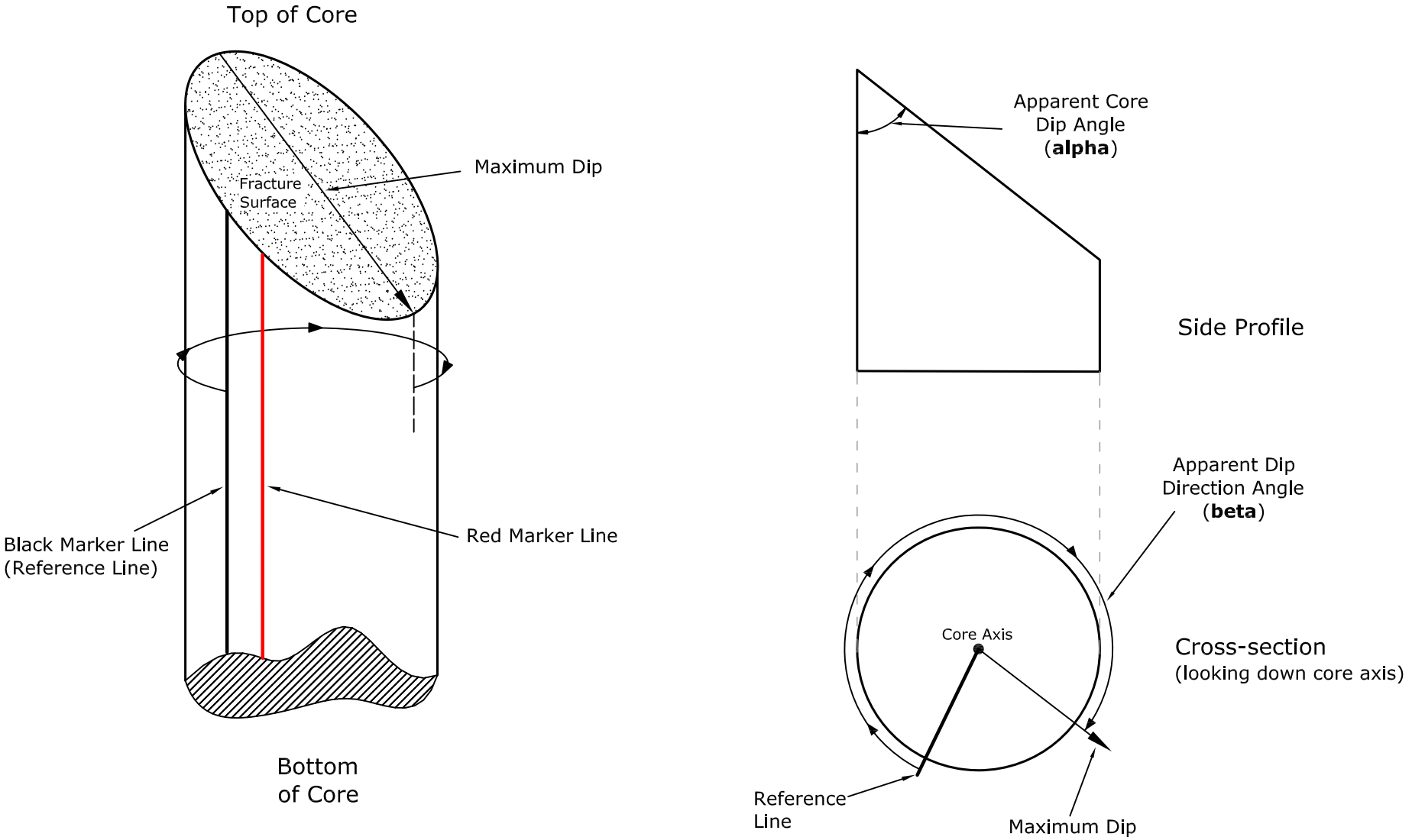
An apparent dip angle and apparent dip direction were measured for all natural fractures. The apparent dip angle, alpha, represents the angle between the core axis and the maximum dip of the core discontinuity and is therefore expressed as an angle between 0 and 90 degrees. The apparent dip direction, beta, is the angle measured clockwise from the black reference line to the bottom of the core discontinuity ellipse while looking down the core axis and is therefore expressed as an angle between 0 and 360 degrees. The measurements required for core orientation are illustrated in Figure 7.

Apparent dip angle (alpha) and apparent dip direction (beta) for all natural fractures identified in DGR-5 and DGR-6 core are presented graphically as part of the final borehole logs presented in Appendix C (DGR-5) and Appendix D (DGR-6). In these logs the fracture orientations are shown as tadpole plots with the symbol plotted against the scale (0-90°) shown at the top of the page representing the apparent dip angle (alpha) and the "tail" of the tadpole symbol representing the apparent dip direction (0-360°) from magnetic north where magnetic north (0°) is set to the top of the page.

The apparent dip angle and dip directions measured in the field were corrected by incorporating average borehole azimuth and plunge orientation collected during borehole geophysics described in TR-09-03 (Geofirma Engineering Ltd., 2011c) or gyro surveys completed by Geofirma staff concurrent with drilling described in Section 3.6.1. The true dip angle and dip direction for a given fracture was determined by entering borehole orientation data into the Rocscience DIPS (version 5.107) software package, which converts apparent measurements to true fracture orientations. Further analyses of fracture orientation logging is presented in TR-09-09: Oriented Core Logging of DGR-5 and DGR-6 (Geofirma Engineering Ltd., 2011e).

4.4 Core Sampling

Following photography and logging of core, samples were selected for subsequent laboratory geochemical, mineralogical, petrophysical, geomechanical and porewater characterization testing. In addition, samples were frequently collected from each bedrock formation as archive samples for future analyses if needed. Table 6 lists core samples collected for testing and archive.



Note: The black marker line (reference line) was drawn along the bottom of the core based on core orientation measurements and the red marker line was drawn to the right of the black line if looking from the bottom of the core towards the top.

Borehole Fracture Orientation Parameters		Prepared by: SNG
		Reviewed by: SNS
FIGURE 7	Doc. No.: TR-09-01_Oriented Core_R0.dwg	Date: 15-Jul-10

Reference: Modified from Rocscience website: online help - *borehole orientation data pairs*, www.rocscience.com

Geofirma Engineering Ltd

Core samples were identified as XXXX-mmm.mm, where XXXX is the borehole name (e.g., DGR-5) and mmm.mm is the distance in meters from the borehole reference datum (ground surface) to the sample interval midpoint. Samples were generally collected and preserved within 30 minutes of core arriving at surface.

Table 6 provides a summary of the samples collected for analyses from DGR-5 and DGR-6. Samples are grouped into those collected from Devonian and Silurian age formations, and into individual or a few adjacent formations for the Queenston and older formations. Table F.1 and Table F.2 (Appendix F) list each core sub-sample collected from DGR-5 and DGR-6, sorted by depth, with information on: sample ID, core run number, date collected, sample length, geological formation, and the analyses to be performed on the sample. Some samples were targeted for more than one analysis and therefore the subsequent analyses are also listed.

Table 6 Summary of Core Samples Collected by Analyses and Formation for DGR-5 and DGR-6

Test	***Devonian & Silurian***	***Queenston***	***Georgian Bay***	***Blue Mountain, Collingwood***	***Cobourg (Lower Member)***	***Sherman Fall & Lower Fms***	***Total***
	DGR-5:6	***DGR-5:6***	***DGR-5:6***	***DGR-5:6***	***DGR-5:6***	***DGR-5:6***	***DGR-5:6***
Uniaxial compression/ AEM *(CANMET)*	0:0	0:0	0:0	1:0	4:4	0:0	5:4
Triaxial compression *(CANMET)*	0:0	0:0	0:0	2:0	0:0	0:0	2:0
Direct shear *(CANMET)*	0:0	0:0	1:0	5:1	4:0	2:0	12:1
Petrophysics (k_{brine}, k_{gas},θ & fluid saturations & HPMI) (*CoreLabs*)	0:0	0:0	3:3	4:3	2:3	1:1	10:10
Porewater (*UNB*) [NWMO]	0:0	4:2	4:0	3:0	0:0	0:0	11:2
XRD & Petrography (SGS)	0:0	0:0	3:3	4:3	1:0	1:0	10:9
Lithogeochem & Pore Structure by SEM/EDS (*SGS*)	0:0	0:0	3:3	4:3	1:0	1:0	10:9
Porewater Chemistry (*uOttawa*) [Major ions, DIC, Isotopes & gases]	24:25	4:0	4:5	3:1	5:6	9:18	49:55
Archive Samples (INTERA)	34:30	13:11	17:23	12:13	6:7	15:26	97:110

The identification of gradational formation contacts was imprecise in the field and was not finalized until after completion of the core testing. Consequently some samples were collected from stratigraphically similar formations located slightly above and below the formations originally targeted for sampling. As a result, the number of samples collected from each formation may differ somewhat compared to the proposed collection requirements outlined in Test Plan TP-09-02 (Intera Engineering Ltd., 2010b).

4.5 Core Preservation

Core samples were preserved in accordance with the procedures of Test Plan TP-09-02 (Intera Engineering Ltd., 2010b). All core samples that were shipped offsite for analyses or placed in archive were preserved by placing the core sub-sample in a polyethylene (PE) bag, flushing with nitrogen, vacuum sealing the PE bags, and vacuum sealing in aluminum-PE-nylon bags. All efforts were made to begin breaking, photographing and preserving of core within 15 minutes of core retrieval and to complete these steps within 30 minutes of core retrieval from the borehole. If a large number of samples were targeted within a single core run, the priority for preservation of samples was given to those samples for geochemical testing and tests that were more sensitive to in-situ conditions.

Preserved cores were weighed following preservation and placed in coolers with ice packs prior to shipping. Archive samples were transferred to temperature controlled refrigerators in the Core Storage Facility (CSF) located in Building B-25 at the Bruce nuclear site.

4.6 Core Storage

Following photographing, logging and sampling of core, the remaining core was placed in 1.5m (5ft) long wooden boxes with a core length capacity of 3.05 m (10 ft). (i.e., one core run). Cores longer than 1.5 m length were broken with a hammer and chisel to fit into a core box. 3.00 m lengths of P-sized core (83mm diameter) was too heavy to place in a single core box and therefore core boxes were constructed to only hold 1.5 m (5 ft) lengths.

In each core box, the top of the core was placed in the top left corner of the core box and the bottom of the core was placed in the bottom right corner of the core box. Labelled wooden inserts were added to each core box to replace core removed for preservation and testing. The wooden inserts identified the core sample name as described in Section 4.4 and the length of the sample.

Core boxes were labelled on the top of the lid and on the top end of the core box with borehole ID, date, core run number, MNR drilling license number, depth interval, and Geofirma project number. Each core box was photographed, with the labelled core box cover displaying the core run information listed above, and then transported to the Core Storage Facility (CSF) where all core boxes are stored sequentially on shelving units for long term storage and easy accessibility.

5 Temporary Borehole Sealing

Contrary to DGR-1 through DGR-4, boreholes DGR-5 and DGR-6 did not have a Westbay MP55 multilevel monitoring system installed in them for long-term monitoring and borehole sealing. However, these boreholes were not permanently abandoned due to the possibility of future monitoring needs. Therefore, removable bridge plugs (production injection packers) were installed in both boreholes at selected depths such that highly pressurized zones were not hydraulically connected to bedrock intervals with low formation pressures. The rationale for placement and a detailed description of the installation of these production injection packers is described in TR-09-10: Temporary Borehole Sealing of Boreholes DGR-5 and DGR-6 (Geofirma Engineering Ltd., 2011f).

6 Data Quality and Use

The drilling, core photography, core logging and core sampling programs presented in this Technical Report are based on standard techniques used in similar worldwide comprehensive deep drilling and testing programs, the general requirements of the DGR Project Quality Plan (Intera Engineering Ltd., 2009a), TP-08-21 (Intera Engineering Ltd., 2009a) and TP-09-01 (Intera Engineering Ltd., 2009b) . These drilling and sample processing

programs have been developed specifically for the DGR GSCP with insight from various other radioactive waste disposal site characterization programs such as those of NAGRA (Switzerland) and ANDRA (France).

There are no identifiable restrictions on the use of data included in this Technical Report. Consequently, the results presented in this Technical Report are suitable for assessing the bedrock conditions in DGR-5 and DGR-6, for the development of future subsurface investigation programs, and for providing the framework for development of Phase 2 descriptive geosphere site models of the Bruce nuclear DGR site.

7 References

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APPENDIX A

MNR Well Licenses for DGR-5 and DGR-6

Ministry of Natural Resources — Ministère des Richesses naturelles

Ontario

Well Licence 11926

Under the Oil, Gas and Salt Resources Act and subject to the limitations thereof and in accordance with the approved well licence application this licence is issued to:

Ontario Power Generation Inc.

of **22 St. Clair Ave. East, 6th Floor, Toronto, Ontario, M4T 2S3**

for the well described as follows:

Name of Well: **DGR-5 (Dev.#1), Bruce 4 - 20 - LR**

Tract: **4** Lot: **20**

Concession: **Lake Range**

Geographic Township: **Bruce**

Offshore Block: Offshore Tract:

Surface Co-ordinates:	**28.50m S**	**957.20m W**
NAD 83	**44° 19' 17.391" N** Surface Latitude	**81° 34' 26.737" W** Surface Longitude
	44° 19' 4.833" N Bottom-hole Latitude	**81° 34' 29.694" W** Bottom-hole Longitude

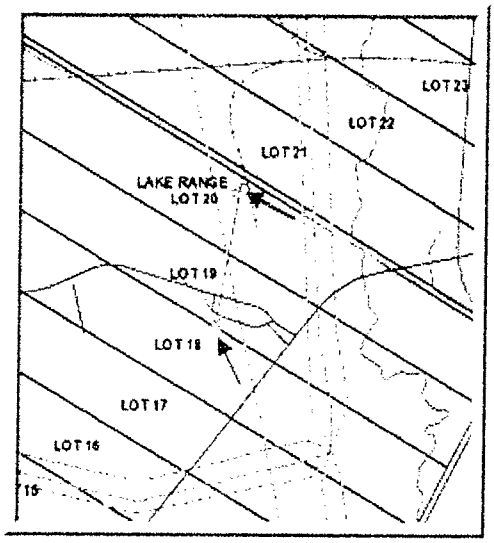
Well Type: **Stratigraphic Test**

Formation at TD: **Gull River**

Licence Depth: **927.00** metres (measured)

Target/Classification: **ORD/STR**

Spacing/Unit Name:



Location and Spacing/Unit Area

Issued at The City of London on: **Tuesday, December 2, 2008**

by: **Rudy Rybansky**

On behalf of the Minister

This information appearing on this licence is accurate as of: **Tuesday, December 2, 2008**

Every effort has been made to include information on this licence that is accurate as of the date shown. Please report any inaccuracies to or contact the Petroleum Resources Centre for current licence information.

Petroleum Resources Centre, 659 Exeter Road, London, Ontario N6E 1L3 Phone: (519) 873-4633; Fax: (519) 873-4645

Ministry of Natural Resources | Ministère des Richesses naturelles

Well Licence 11942

Under the Oil, Gas and Salt Resources Act and subject to the limitations thereof and in accordance with the approved well licence application this licence is issued to:

Ontario Power Generation Inc.

of **22 St. Clair Ave. East, 6th Floor, Toronto, Ontario, M4T 2S3**

for the well described as follows:

Name of Well: **DGR-6 (Dev.#1), Bruce 6 - 22 - LR**

Tract: **6** Lot: **22**

Concession: **Lake Range**

Geographic Township: **Bruce**

Offshore Block: Offshore Tract:

Surface Co-ordinates:	**89.00m S**	**1472.00m W**
NAD 83	**44° 19' 35.962" N** Surface Latitude	**81° 34' 39.055" W** Surface Longitude
	44° 19' 38.799" N Bottom-hole Latitude	**81° 34' 17.518" W** Bottom-hole Longitude

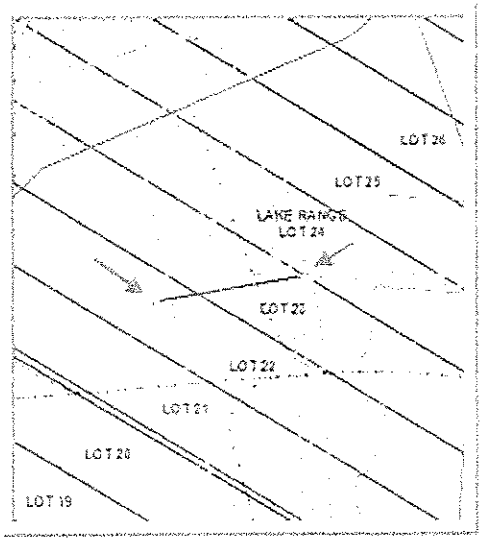
Well Type: **Stratigraphic Test**

Formation at TD: **Gull River**

Licence Depth: **970.00** metres (measured)

Target/Classification: **ORD/STR**

Spacing/Unit Name:



Location and Spacing/Unit Area

Issued at The City of London on: **Monday, March 23, 2009**

by: **Dan Elliott**

Dan Elliott

On behalf of the Minister

This information appearing on this licence is accurate as of: **Monday, March 23, 2009**

Every effort has been made to include information on this licence that is accurate as of the date shown. Please report any inaccuracies to or contact the Petroleum Resources Centre for current licence information.

Petroleum Resources Centre, 659 Exeter Road, London, Ontario N6E 1L3 Phone: (519) 873-4633; Fax: (519) 873-4645

APPENDIX B

Well Examiner Reports for Casing Installations

Class 1 EXAMINER REPORT (Well Drilling & Plugging, Casing and Cementing) 99/10/20

Date of Examination (yyyy/m/dd): 2009/02/18

Name of Well Examined: DGR- 5,Dev . # 1), Bruce 4-20-LR **Well Licence Number: 11926**

Operator Name:Ontario Power Generation Inc.

Location of Well: Lot: 20 **Concession: Lake Range** **Township: Bruce** **County: Bruce**

Examiners Name: Peter Miller **E058/07-10/124**

NOTE: Examiners shall submit this report to the Ministry and the operator within 10 days of conducting an examination.

MNR Use Report audited by: Date: Site Inspected by: Date:

Std. Ref.	ITEMS EXAMINED	Yes	No	Pass	Fail	Explanation of Failure or Problem and Comments.
3.6	**Used Casing**					
3.6(a)	History record of used casing.					
3.6(b)	Threads on pipe and inside collars.					
3.6(c)	Power tong damage, oval distortion.					
3.6(d)	Casing wall thickness: Surface					
3.6(d)	Casing wall thickness: Intermediate casing					
3.6(d)	Casing wall thickness: Production casing					
3.6(e)	110% Hydrostatic Pressure Test.					
3.6(f)	Age of casing less than 20 yrs.					
	Other (explain)					
3.9.2	**Casing Cement Quality**					
3.9.2(a)	Cement meets API Spec 10.	X		X		
3.9.2(b)	Witness actual cementing and results.	X		X		cement to surface
3.9.2(c)	Proper API: Grade	X		X		
	Proper API: Cement mixture and pumping.	X		X		
	Other (explain)					
3.12.3	**Porous Zone Isolation**					
3.12.3(a)	Porous zone identification.	x		x		130 m
3.12.3(b)	Adequate cement to separate zones.	x		x		
3.12.3(c)	Cement top 25 meters above1st of 2 porous		X			
	zones behind same csg					
3.12.3(d)	ID cement top where no returns.		x			cement to surface
	Other (explain)					

Std. Ref.	ITEMS EXAMINED	Yes	No	Pass	Fail	Explanation of Failure or Problem and Comments.
3.12.21	**Cementing**					
3.12.21	Csg cement ≥ 25 meters above previous csg seat.	x		x		cement to surface
3.12.21	Csg cement ≥ 100 meters above highest pay zone.		x			NA
3.12.21(a)	Corrosive zones covered by csg cement.	x		x		cement to surface
3.12.21(b)	Liners cemented full length.		x			NA
3.12.21(c)	Disposal, injection well csgs cemented full length.		x			NA
3.12.21(d)	Production csg cemented full length for Lake Erie wells.		x			NA
	Other (explain)					
11.0	**Well Plugging**					
11.7(a)	Plug at top of oil or gas, storage or salt cavern located.					
11.7(b)	Top most plug located.					
11.7(c)	Plug(s) set across lost circulation zone(s) located.					
	Other (explain)					
11.14	**Well Site Rehabilitation**					
11.14	Site returned to original condition within 12 mos of plugging.					
11.14	Unused equipment and debris cleared, site clean.					
	Other (explain)					

Other Comments and Observations:

cement job for 178 mm casing set approx 190.0 m

Pump 8.0 tonnes of 0:1:0 "neat" cement with 2% CaCl2 . Annular volumne plus 100%

cement circulated to surface: 2.0 m3 of good cement returns

I certify that the above indicated examinations were conducted and that the results, comments and observations regarding the examinations noted are accurate.

Signature : Peter Miller E058/07-10/124

Class 1 EXAMINER REPORT (Well Drilling & Plugging, Casing and Cementing) 2002/04/30

Date of Examination (yyyy/m/dd): 2009/06/25					
Name of Well Examined: DGR-6			Well Licence Number: #11942		
Operator Name: Davidson Drilling					
Location of Well: Lot: 22	Concession: Lake Range		Township: Bruce		County: Bruce
Examiners Name: Donald Faulkner			Examiner's Certificate No.: E231/07-10/12		
NOTE: Examiners shall submit this report to the Ministry and the operator within 10 days of conducting an examination.					
MNR Use	Report audited by:	Date:	Site Inspected by:	Date:	

Std. Ref.	ITEMS EXAMINED	Yes	No	Pass	Explanation of Failure or Problem and Comments.
3.6	**Used Casing**				
3.6(a)	History record of used casing.		✓		N/A Casing is new
3.6(b)	Threads on pipe and inside collars.		✓		N/A
3.6(c)	Power tong damage, oval distortion.		✓		N/A
3.6(d)	Casing wall thickness: Surface		✓		N/A
3.6(d)	Casing wall thickness: Intermediate casing		✓		N/A
3.6(d)	Casing wall thickness: Production casing		✓		N/A
3.6(e)	110% Hydrostatic Pressure Test.		✓		N/A
3.6(f)	Age of casing less than 20 yrs.		✓		N/A
	Other (explain)				
3.9.2	**Casing Cement Quality**				
3.9.2(a)	Cement meets API Spec 10.	✓		✓	
3.9.2(b)	Witness actual cementing and results.	✓		✓	
3.9.2(c)	Proper API: Grade	✓		✓	
	Proper API: Cement mixture and pumping.	✓		✓	
	Other (explain)				
3.12.3	**Porous Zone Isolation**				
3.12.3(a)	Porous zone identification.	✓		✓	
3.12.3(b)	Adequate cement to separate zones.	✓		✓	
3.12.3(c)	Cement top 25 meters above 1st of 2 porous zones behind same casing.	✓		✓	
3.12.3(d)	ID cement top where no returns.		✓		N/A Cement Returns to Surface
	Other (explain)				

Std. Ref.	ITEMS EXAMINED	Yes	No	Pass	Explanation of Failure or Problem and Comments.
3.13.6	**Cementing**				
3.13.6	Csg cement ≥ 25 meters above previous csg seat.	✓		✓	
3.13.6	Csg cement ≥ 100 meters above highest pay zone.	✓		✓	
3.13.6(a)	Corrosive zones covered by csg cement.		✓		N/A
3.13.6(b)	Liners cemented full length.		✓		N/A
3.13.6(c)	Disposal, injection well csgs cemented full length.		✓		N/A
3.13.6(d)	Production csg cemented full length for Lake Erie wells.		✓		N/A
	Other (explain)				
11.0	**Well Plugging**				
11.6(a)	Plug at top of oil or gas, storage or salt cavern located.		✓		N/A
11.6(b)	Top most plug located.		✓		N/A
11.6(c)	Plug(s) set across lost circulation zone(s) located.		✓		N/A
	Other (explain)				
11.13	**Well Site Rehabilitation**				
11.13	Site returned to original condition within 12 mos of plugging.		✓		N/A
11.13	Unused equipment and debris cleared, site clean.		✓		N/A
	Other (explain)				

Other Comments and Observations:

Drilling Contractor - Davidson Drilling
Cement Contractor - Schlumberger
Cement return To surface - 0.5m³
Examination on 177.8mm Cement job.
June 26/09 Cement 3m from surface

I certify that the above indicated examinations were conducted and that the results, comments and observations regarding the examinations noted are accurate.

Donald Faulkner
Signature

July 6/09
Date

APPENDIX C

DGR-5 Borehole Log

DGR-5 Borehole Log Legend

Sample Legend

AR	Archive - INTERA
GM-CAN	Geomechanical Testing - CANMET
MN-SGS	Mineralogy - SGS
PT	Petrophysics - Core Labs
PW-UNB	Pore Water - UNB
PW-UO	Pore Water - U of O

Contact Legend

- Casing
- End of Borehole
- Formation Contact
- Stratigraphic Contact

Core Log Legend

mLBGS	Meters Length Below Ground Surface
R. Q. D.	Rock Quality Designation
Nat. Frac. Freq.	Natural Fracture Frequency
NC	Rotary Drilled (No Core)
CR	Core Run
Fracture Or.	Fracture Orientation (Alpha and Beta Angles)

Stratigraphic Legend

- Dolostone
- Anhydritic Dolostone
- Argillaceous Dolostone
- Cherty Dolostone
- Limestone
- Argillaceous Limestone
- Dolomitic Limestone
- Shale
- Dolomitic Shale
- Brecciated Dolostone
- Brecciated Anhydritic Dolostone
- Brecciated Argillaceous Dolostone
- Brecciated Dolomitic Shale
- Argillaceous Dolostone and Dolomitic Shale
- Interbedded Shale and Argillaceous Limestone
- Interbedded Shale and Carbonate Beds
- Interbedded Shale and Dolostone
- Interbedded Shale and Limestone
- Interbedded Shale and Limestone/Siltstone
- Interbedded Argillaceous Limestone and Shale
- Interbedded Dolomitic Shale and Dolostone

Core Logging Notation

1) Colour: (i.e. light/medium/dark grey, blue-grey, red-green, etc.)

Additional Adjectives	Description
Banded	Approximately parallel bands of varying colour
Streaked	Randomly oriented streaks of colour
Blotched	Large irregular patches of colour (>75mm diameter)
Mottled	Irregular patches of colour
Speckled	Very small patches of colour (<10 mm diameter)
Stained	Local colour variations associated with other features (i.e. bedding joints, etc.)

2) Grain Size/Texture:

Classification	Grain Size Measurement	Field Recognition	Equivalent Soil Type
Very fine-grained	<0.06 mm	Individual grains cannot be seen with a hand lens	Clays and silts
Fine-grained	0.06 to 0.25 mm	Just visible as individual grains under hand lens	Fine sand
Medium-grained	0.25 to 0.5 mm	Grains clearly visible under hand lens; just visible to naked eye	Medium sand
Coarse-grained	0.5 to 2.0 mm	Grains clearly visible to the naked eye	Coarse sand
Very coarse gained	>2.0 mm	Gains measurable	gravel

3) Rock Hardness

Classification	***Description***
Very Soft	Can be peeled with a knife
Soft	Can be easily gouged or carved with a knife
Medium soft	Can be readily scratched with a knife blade; scratch leaves heavy trace of dust and is readily visible after powder blown away.
Hard	Can be scratched with a knife with difficulty; scratch produces little powder and is often faintly visible
Very Hard	Cannot be scratched with a knife or can barely be scratched with a knife

4) Bedding Thickness:

Classification	*Bedding Thickness*
Massive Bedded	>3 m or Uniform
Thickly Bedded	300 mm to 3 m
Medium Bedded	100 to 300 mm
Thinly Bedded	10 to 100 mm
Laminated	<10 mm

5) Solution and Void Conditions (if notable)

Classification	*Condition*
Solid	No voids
Porous	Voids <1.0 mm in diameter
Pitted	Voids 1 to 6 mm in diameter
Vuggy	Voids 6 mm to diameter of core
Cavity	Voids greater than diameter of core

6) Quantification of Secondary Features: When describing additional features in the core, the following adjectives should be used which are related to the % volume or frequency of the feature.

Adjective	%Volume / frequency
Slightly/trace	1-10%, 1-2 occurrences
Moderately/some	10-20%
Abundantly/ "___y" (ie. shaley)	20-35%
and	>35%, half and half

7) Summary of Rock Quality Descriptions and Discontinuity Logging

RQD (%)	*Core Quality Description*	*Natural Fracture Frequency (/m)*	*Formation Fracture Description*
0-25	Very Poor	>10	Highly Fractured
25-50	Poor	>1.0-10	Moderately Fractured
50-75	Fair	0.5-1.0	Sparsely Fractured
75-90	Good	<0.5	Very Sparsely Fractured
90-100	Excellent	0	Unfractured

8) Bedding or Fracture Inclination (measured from horizontal)

Classification	Attitude
Flat	0 to 5 degrees
Gently dipping	5 to 20 degrees
Moderately dipping	20 to 45 degrees
Steeply dipping	45 to 85 degrees
Very steeply dipping	85 to 90 degrees

9) Degree of Fracturing/Jointing (Structure)

Rock Mass Classification	Discontinuity Spacing
Solid	>3 m
Massive	1 to 3 m
Blocky/seamy	0.3 to 1 m
fractured	5 to 30 cm
Crushed / shattered	< 5 cm

10) Roughness of Fracture (Structure)

Classification	Description
Smooth	Appears smooth and is essentially smooth to the touch.
Rough	Bumps/roughness on the fracture surfaces are visible and can be distinctly felt.
Slickensided	Clear evidence of previous shear displacement along the discontinuity.
Stepped	Surface of discontinuity appears stepped with some ridges or angular "steps".
Undulating	Surface of discontinuity appears wavy, with no sharp steps.
Planar	Surface of discontinuity appears flat.

11) Infilling of Fracture (Structure)

Classification	Description
Clean	No filling material
Stained	Colouration of rock surface only, no recognizable filling material
Filled	Fracture observed with filling material (describe filling material)

12) Reference Terms:

Layer : Distinct length of core that is distinguished from surrounding core by feature (colour, composition, etc.) other than bedding planes.

Irregular : Bedding plane surfaces are not planar but are convoluted/disturbed.

Planar : Bedding planes are flat.

Bituminous : Contains organic matter.

Vein : Fracture totally infilled with mineral different from surrounding rock.

Argillaceous : Rock has mud dispersed in the matrix but not as distinct laminae or beds (e.g. argillaceous limestone).

Shaley : Rock that has distinct shale laminae beds (e.g. shaley limestone).

Petroliferous Odour : Only hydrocarbon odour; no noted liquid hydrocarbons.

Petroliferous : Liquid hydrocarbons noted.

Hydrocarbon Adjectives

Strongly/heavily : intense hydrocarbon odour / core exuding significant volume of oil / core coated with oil.

Slight/lightly : Slight hydrocarbon odour / few drops of oil.

No modifier : Moderate odour / Moderate amount of hydrocarbon exuded

Rock Quality Designation (RQD, %) : RQD values determined for the 76 mm diameter core from DGR-1 and DGR-2 were determined as the sum of lengths of core greater than 15 cm length (i.e., twice the core diameter) excluding drilling-induced breaks, divided by length of hole drilled per core run.

RECORD OF BOREHOLE - DGR- 5

Geofirma Engineering Ltd

Project :	DGR Site Characterization	**Borehole Specs.:**	Outside Borehole Diameter, 143mm, Core Diameter 75mm
Project Number:	08.200.40.20	**Date Started:**	16-Dec-2008
Client:	Nuclear Waste Management Organization (NWMO)	**Date Completed:**	29-Oct-2009
MNR WL No.:	11926	**Supervisor:**	Ken Raven
Site Location:	Bruce Nuclear Site, Ontario, Canada	**Reference Surface Elevation:**	185.70 mASL
Coordinates:	NAD 83, UTM Zone 17N 4907742.1 N, 454221.8 E	**Drill Company:**	Davidson Drilling Limited, Wingham, Ontario, Canada
		Drill Rig:	Foremost DR-12 Schramm T130XD

Depth (mBGS) 1m:35m | Stratigraphic Description | Core Run (mBGS) | Stratigraphy | Core Recovery 100 % 0 | R.Q.D. 100 % 0 | Nat. Frac. Freq. 0 /m 5 | Fracture Or. 0 --------- 90 | Sample ID

Salina Formation - F Unit

- Grey/blue dolomitic shale with gypsum and anhydrite veins, interlayered with tan dolostone with depth

Borehole Summary

- All references to depth are mLBGS
- The target borehole plunge from horizontal and azumuthal direction from true north for DGR-5 were 65° and 190°, respectively.

- Dual rotary drilling was completed by a truck-mounted Foremost DR-12 drilling rig and simultaneously installed a 324mm (12 3/4-inch) diameter surface conductor casing to 22.3, approximately 2.3m into bedrock.

- The truck-mounted Foremost DR-12 drilling rig was also used to rotary drill a 295mm (11 5/8-inch) diameter borehole using air-rotary techniques with a tri-cone drill bit to 37.7 (approximately 17.7m length along the borehole below top of bedrock). After this drilling was complete a 245mm (9 5/8-inch) diameter surface casing was installed to a depth of 37.7. Rock chip samples were collected and logged by the onsite geologist approximately every three metres throughout rotary drilling.

- The truck-mounted Foremost DR-12 drilling rig was used to rotary drill a 219mm (8 5/8-inch) diameter borehole using traced freshwater drill fluid with a tri-cone drill bit to 206.4 (approximately 13.9m length into the Salina Formation F-Unit shale). Following this drilling a 178mm (7-inch) diameter intermediate casing was installed to a depth of 206.0 for blow-out prevention.

- A quad-latch double-tube wireline coring system with a split-inner barrel, manufactured by American Diamond Products (formerly Christensen), was used to continuously core a 75mm (3-inch) diameter high quality core in 3.05m lengths. Coring equipment used at DGR-5 produced a 143mm (5 5/8-inch) diameter borehole from 207.9 to the total depth of 807.2 (approximately 40.7m length into the Kirkfield formation). Polycrystalline diamond (PCD) bits were used for all bedrock coring in DGR-5. Throughout the drilling program, PCD bits were typically operated with a bit rotation speed of approximately 80 to 100 revolutions per minute (RPM) with a torque of approximately 1800 to 2200 foot pounds (ft*lbs).

Intermediate BOP Casing [7 inch / 178 mm] — 206.00

206.01

Open Borehole [5 5/8 inch / 143mm]

207.92

CR-001

Dolomitic Shale
- Grey/green
- Fracture at 208.0, smooth, 208.3, smooth, 209.5, smooth, 209.9, rough
- Fine-grained
- Reddish/brown mottles
- Gypsum and anhydrite veins and nodules
- Soft
- Blocky

210.58

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
211								
	Dolomitic Shale - Grey/green - Fine-grained - Gypsum and anhydrite veins and nodules - Soft - Fractured to blocky	CR-002						
212								
213								
		213.63						
	Dolomitic Shale - Grey/green - Fracture at 214.0, rough - Fine-grained - Gypsum and anhydrite veins and nodules - Soft - Trace reddish/brown mottles - Fractured to blocky							
214								
215		CR-003						DGR5-215.17-AR
216								
		216.68						
	Dolomitic Shale - Grey/green - Fine-grained - Trace gypsum and anhydrite layers, veins and nodules - Soft - Trace reddish/brown mottles - Fractured to blocky							
217								
218		CR-004						
219								
		219.73						
	Dolomitic Shale - Grey/green - Fractures at 220.6, rough, 220.8, rough - Fine-grained - Trace gypsum and anhydrite veins and nodules - Soft - Fractured to blocky							
220								
221		CR-005						
222								
		222.78						
	Brecciated Dolostone **222.89**							
223	- Tan/brown, brecciated (dolostone), fracture at 223.1, smooth, 223.8, smooth, 223.9, smooth, 224.0, smooth, 224.2, smooth, 224. 3, smooth, 224.5, smooth, 225.0, smooth, interlayered grey/green dolomitic shale, gypsum and anhydrite veins and nodules (1cm thick gypsum layer at 223.1) **223.57**							
	Dolomitic Shale, - Dark grey/green, trace dolostone clasts **223.71**							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
224	**Dolostone** - Tan/brown, some gypsum and anhydrite veins in upper 0.5m, laminated, trace stylolites, slightly pitted, fractured to blocky **224.68**	CR-006						
225	**Dolomitic Shale** - Gradational contact around 224.7, green/blue/grey, hard - Fractured to blocky - Trace gypsum and anhydrite veins and nodules (1cm gypsum layer 225.1)	225.83						DGR5-225.41-AR
226	**Dolomitic Shale** - Grey/green - Fracture at 228.7, smooth - Some white gypsum and anhydrite layers, veins and nodules - 3cm white gypsum layer recorded at 226.0 and a 2.5cm white gypsum layer recorded at 227.5 - Blocky	CR-007						
227								
228	**228.70**	228.88						
229	**Dolostone** - Tan/brown - Fracture at 229.9, smooth, 229.0, smooth, 229.9, smooth, 230.1, smooth, 230.3, smooth, 230.8, rough - Fine to medium-grained - Sharp contact at 228.7 - Some gypsum and anhydrite veins - Laminated to thinly bedded, trace stylolites, slightly pitted - Fractured							
230		CR-008						
231	**231.53**							
	Dolomitic Shale, - Light to medium-grey/green, trace dolostone clasts **231.66**	231.93						
232	**Dolostone** - Tan/brown - Fine to medium-grained - Sharp contact at 231.66 - Laminated to thinly bedded, trace stylolites, slightly pitted - Fractured to blocky - Fractures filled with gypsum, anhydrite, and dolomitic shale **232.91**							
233	**Dolomitic Shale,** - Grey/green dolomitic shale, fracture at 232.0, smooth, 232.8, smooth, 233.3,smooth, 233.8, smooth, 234.4, smooth, 233.6, rough, 233.8, rough, fractures filled with gypsum, anhydrite, and dolomitic shale, soft to medium soft **233.60**	CR-009						DGR5-233.47-AR
	Dolostone, - Light tan/brown, fine-grained, laminated, fractures filled with grey/green dolomitic shale, fractured							
234	**Dolostone,** - Sharp upper contact, tan/brown and light grey with depth, very fine-grained, slightly pitted, hard, fractured **234.58**							
	Dolomitic Shale, - Grey/green with anhydrite/gypsum veins, fractures at 235.1, smooth, 235.7, rough, 236.2, rough, 236.7, rough 236.8, smooth, anhydrite infilled, 236.9, smooth, anhydrite infilled, 237.3, smooth, anhydrite infilled, 237.7, rough, medium soft to hard, some anhydrite/gypsum veins, fractured to blocky **235.20**	234.98						
235								
236	**Salina Formation - E Unit** - Brown, very fine-grained, brecciated dolostone interbedded with grey/blue dolomitic shale and argillaceous dolostone with anhydrite and gypsum **236.08**	CR-010						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
237	**Brecciated Dolomitic Shale** - Grey/green brecciated dolomitic shale with large clasts of tan/brown argillaceous dolostone and some anhydrite and gypsum veins and nodules - Fracture at 238.4, 240.7, rough, 239.0, 239.6, rough, 239.9, 240.1, 240.7, rough - Fractured to blocky							
238		238.03						
	Brecciated Dolostone, - Tan/grey, brecciated dolostone, dolomitic shale (green/grey) as matrix, dolostone is slightly pitted, trace anhydrite and gypsum veins, layers and nodules, fractured to blocky							
239		CR-011						
	239.62							
240	**240.05**							
	Dolomitic Shale, - Grey/green, trace anhydrite and gypsum layers and veins, medium soft to hard, fractured **240.33**							
	Brecciated Dolostone, - Tan/grey, hard, gypsum, anhydrite and dolomitic shale (green/grey) as matrix, fractured to blocky **240.73**							
241	**Brecciated Dolomitic Shale** - Grey/green brecciated dolomitic shale with clasts of tan/brown argillaceous dolostone - Natural fractures at 241.3, rough, 242.1, rough - Medium soft to hard - Trace zones containing orange anhydrite nodules - Trace white to clear gypsum and anhydrite veins and nodules - Fractured to blocky	241.08						
242		CR-012						
243	**243.18**							
	Brecciated Dolostone - Tan/grey, brecciated dolostone, slightly pitted, gypsum, anhydrite and dolomitic shale (green/grey) as matrix, fractured to blocky **243.62**							
244	**Dolomitic Shale** - Light to medium grey and grey/green - Fine-grained - Sharp contact at 244.5	244.13						
	244.66							
245	**Brecciated Dolomitic Shale** - Grey/green brecciated dolomitic shale with clasts of tan/brown argillaceous dolostone, very soft to medium soft, 0.2m tan/brown, slightly pitted dolostone clast starting at 244.7, laminated to thinly bedded, blocky							
	Dolostone, - Brown, fine-grained, laminated, fractures filled with grey/green dolomitic shale, anhydrite and gypsum, fractured **245.72**	CR-013						
246	**245.79** **Dolomitic Shale,** - Light to medium grey and grey/green, laminated to thinly bedded, gypsum and anhydrite veins							
	246.05 **Dolostone,** - Tan/brown, fracture at 246.4, smooth, 246.5, smooth, medium to fine-grained, laminated to thinly bedded and, slightly to moderately pitted, gradual transition to light grey to grey dolomitic shale from 246.7-246.9, fractured to blocky							DGR5-246.78-AR
	246.91							
247	**Interbedded Dolomitic Shale and Dolostone,** - Light to medium grey and grey/green, laminated to thinly bedded, trace gypsum and anhydrite veins, gradual transition to tan/brown dolostone from 247.3-247.4	247.18						
	247.42							
248	**Dolostone,** - Tan/brown, fracture at 248.0, smooth, 248.3, smooth, 248.7, smooth, 249.6, 249.8, medium to fine-grained, laminated to thinly bedded, medium soft to hard, slightly to moderately pitted, trace thin anhydrite and gypsum veins, fractured to blocky, localized light tan/grey argillaceous dolostone between 247.8-248.0	CR-014						
249	**249.38**							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
250	**Dolomitic Shale** - Light to medium grey and grey/green, laminated to thinly bedded, trace gypsum and anhydrite layers, veins	250.23						
	Dolomitic Shale - Light to medium grey and grey/green, natural fracture at 251.1, smooth, laminated to thinly bedded, trace gypsum and anhydrite veins **250.81**							
251	**Dolostone** - Light tan/brown, fine-grained, laminated, fractures, pits, and vugs filled with anhydrite/gypsum, fractured to blocky **251.34**							
252	**Brecciated Dolomitic Shale** - Grey/green brecciated dolomitic shale with clasts of tan to grey/green argillaceous dolostone - Fracture at 254.4, smooth, very soft to hard, trace to some anhydrite and gypsum veins, and nodules increasing with depth, laminated to thinly bedded - Blocky **252.60**	CR-015						
253	**Brecciated Dolostone** - Tan/brown, brecciated dolostone - Slightly pitted - Gypsum, anhydrite and dolomitic shale (green/grey) as matrix - Fractured to blocky **253.78**	253.28						
254	**Brecciated Dolomitic Shale** - Grey/green brecciated dolomitic shale with trace clasts of tan to grey/green argillaceous dolostone - Very soft to medium soft - Trace to some anhydrite and gypsum veins, and nodules - Blocky	CR-016						
255	**255.52**							DGR5-255.40-AR
256	**Brecciated Dolostone**, - Tan/brown, brecciated dolostone - Grey/green brecciated dolomitic shale section from 255.6-256.0 - Slightly pitted, some gypsum and anhydrite veins and nodules, massive **256.20**	256.33						
257	**Salina Formation - D Unit** - Light Grey/blue fine-grained anhydritic dolostone **Anhydritic Dolostone** - Grey/blue to brown, fine-grained dolostone with abundant anhydrite (veins, blebs), gradational contact, mottled grey/blue anhydrite with interbeds of brecciated dolostone and dolomitic shale **257.33**							
258	**Salina Formation - C Unit** - Grey/blue with trace to some anhydrite and gypsum nodules and veins **Dolomitic Shale** - Gradational upper contact, grey/blue massive to laminated dolomitic shale - Trace to some anhydrite/gypsum veins	CR-017						
259		259.38						
260	**Dolomitic Shale** - Mottled grey/green and red/rust - Massive bedded - Very fine-grained - Very soft to medium soft - Trace to some thin gypsum/anhydrite veins and nodules - Localized brecciated anhydritic dolostone from 260.5-260.9 - Massive	CR-018						
261								
262		262.43						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
263	**Dolomitic Shale** - Mottled grey/green and red/rust - Massive bedded - Very fine-grained - Very soft to medium soft - Trace to some thin gypsum/anhydrite veins and nodules - Localized sections of increased anhydrite/gypsum - Massive	CR-019						
264								DGR5-264.17-AR
265		265.48						
266	**Dolomitic Shale** - Mottled grey/green and red/rust - Massive bedded - Very fine-grained - Very soft to medium soft - Trace to some thin gypsum/anhydrite veins and nodules - Large pink anhydrite nodules from 266.5-266.8 - Massive	CR-020						
267								
268		268.53						
269	**Dolomitic Shale** - Mottled grey/green and red/rust, massive bedded dolomitic shale from 268.5-269.0	CR-021						
270	**Dolomitic Shale** - Between 269.0-271.2 - Grey/green - Very fine-grained - Very soft to medium soft - Trace to some thin gypsum/anhydrite veins and nodules - Massive							
271	**Anhydritic Dolostone,** - Starting at 271.2, mottled tan/brown dolostone and light grey/blue anhydrite, fine-grained to very fine-grained, laminated to thinly bedded, slightly pitted, blocky **271.20**							
272	**Salina Formation - B Unit** - Brecciated grey/green dolomitic shale with some to abundant tan argillaceous dolostone with light grey/green dolomitic shale clasts and some to abundant anhydrite and gypsum veins and nodules, bottom of unit is brown to tan dolostone. **271.85** **Brecciated Argillaceous Dolostone,** - Light tan/grey, fine-grained, some thin white and pink gypsum/anhydrite veins and nodules, slightly pitted, blocky **272.51**	271.58 CR-022 272.51						
273	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Very soft to medium soft brecciated dolomitic shale with some tan argillaceous dolostone and grey dolomitic shale clasts - Some anhydrite and gypsum veins and nodules - Blocky							DGR5-272.66-AR
274		CR-023						
275								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
276	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Very soft to medium soft brecciated dolomitic shale with trace tan argillaceous dolostone and grey dolomitic shale clasts - Trace to some anhydrite and gypsum veins and nodules - Fractured to blocky	275.56						
277		CR-024						
278		278.61						
279	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Soft to medium soft brecciated dolomitic shale with trace tan argillaceous dolostone and grey dolomitic shale clasts - Trace to some anhydrite and gypsum veins and nodules - Fractured to blocky	CR-025						
		279.61						
280	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Soft to medium soft brecciated dolomitic shale with trace tan argillaceous dolostone and grey dolomitic shale clasts - Some to abundant anhydrite and gypsum veins and nodules - Large anhydritic dolostone clast 280.4-280.8 - Blocky to massive	CR-026						
281								
	281.66	281.66						
282	**Brecciated Anhydritic Dolostone** - Brecciated white/tan/grey/blue anhydritic dolostone - Medium soft to hard							
	282.32							
283	**Brecciated Dolomitic Shale** - Grey/green to grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Blocky to massive	CR-027						
284								DGR5-284.27-AR
		284.71						
285	**Brecciated Dolomitic Shale** - Grey/green to grey/blue - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Blocky to massive	CR-028						
286								
287								
	Brecciated Dolomitic Shale - Grey/tan to grey/green brecciated dolomitic shale with clasts/layers of tan/brown argillaceous dolostone and abundant anhydrite and gypsum veins and nodules, fracture at 290.6, medium soft to hard, fine to very fine-grained - Massive	287.76						
288								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
	288.79							
289	**Brecciated Anhydritic Dolostone** - Brecciated white/tan/grey/blue anhydritic dolostone - Fine to very fine-grained - Medium soft to hard	CR-029						
290	**290.81**	290.81						
291	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive							
292		CR-030						
293								
		293.86						
294	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive							
295		CR-031						DGR5-295.36-AR
296								
		296.91						
297	**Brecciated Dolomitic Shale** - Grey/green - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive							
298		CR-032						
299								
	Anhydritic Dolostone, - Contact is sharp; mottled white/blue/tan, fine to medium-grained, slightly pitted **299.77**							
	299.97	299.96						
300	**Brecciated Dolomitic Shale** - Green/grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with abundant tan argillaceous dolostone and abundant anhydritic dolostone clasts, abundant anhydrite and gypsum veins and nodules, massive							
301								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
302		CR-033						
303	**Brecciated Dolomitic Shale** - Green/grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale and tan to grey argillaceous dolostone clasts and anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive	303.01						
304		CR-034						
305								
306		306.06						
307	**Brecciated Dolomitic Shale** - Green/grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale and tan to grey argillaceous dolostone clasts and anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive	CR-035						DGR5-306.87-AR
308								
309		309.11						
310	**Brecciated Dolomitic Shale** - Green/grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale and tan to grey argillaceous dolostone clasts and anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive	CR-036						
311								
312		312.16						DGR5-312.28-AR
313	**Brecciated Dolomitic Shale** - Green/grey - Fine to very fine-grained - Soft to hard brecciated dolomitic shale and tan to grey argillaceous dolostone clasts and anhydritic dolostone clasts - Abundant anhydrite and gypsum veins and nodules - Massive	CR-037						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
314								
315	**315.04**							
	Dolostone, - Tan/brown to brown with depth, fracture at 315.8, very fine-grained dolostone with abundant dark brown laminae and trace to some anhydrite and gypsum veins, slightly pitted, fractured **315.50**	315.21						
316	**Salina Formation - B Unit - Evaporite** - Interbedded to mottled brown dolostone and grey anhydrite	CR-038						
317								
318	**Anhydritic Dolostone** - Tan/brown to brown with depth - Fracture at 318.9, smooth - Very fine-grained dolostone with abundant dark brown laminae and trace to some anhydrite and gypsum veins - Slightly pitted - Fractured	318.26						
319	**319.00**							
	Salina Formation - A2 Unit - Carbonate - Tan to grey, fine-grained, laminated to massive bedded dolostone, argillaceous dolostone,and dolomitic shale interlaminated/interbedded with bituminous laminae, gypsum and anhydrite	CR-039						
320	**Dolostone** - Tan/brown to brown with depth, very fine-grained dolostone with abundant dark brown laminae and trace to some anhydrite and gypsum veins, slightly pitted, fractured							
	Dolostone - Tan to tan/grey with depth, very fine-grained dolostone with abundant dark brown to grey dolomitic shale laminae, some to abundant with depth anhydrite and gypsum veins and laminated to thin layers, slightly pitted, fractured							
321	**321.31**	321.31						
	Anhydritic Dolostone - Anhydritic dolostone interbedded with tan to grey dolomitic shale							
322								
323		CR-040						
324								
	324.36	324.36						
325	**Argillaceous Dolostone** - Grey/tan - Fracture at 326.3, smooth - Very fine-grained dolostone - Trace to some thin tan/brown laminae - Trace anhydrite and gypsum veins - Blocky							
326		CR-041						
	326.47							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
327	**Dolomitic Shale** - Dark grey/green - Very fine-grained - Soft to medium soft - Fractured to blocky	327.41						DGR5-326.90-AR
328	**Dolomitic Shale** - Dark grey/green - Very fine-grained - Soft to medium soft - Fractured to blocky	**328.51**						
329	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded grey/brown and dark grey/brown - Very fine-grained - Laminated to medium bedded - Trace anhydrite/gypsum veins - Locally slightly pitted - Fractured to blocky	CR-042						
330		330.46						
331	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded grey/brown and dark grey/brown - Very fine-grained - Laminated to thinly bedded - Trace anhydrite/gypsum veins - Locally slightly pitted - Fractured to blocky	CR-043						
332								
333		333.51						
334	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded grey/brown and dark grey/brown - Very fine-grained - Laminated thinly bedded - Trace anhydrite gypsum veins - Petroliferous odour at dolomitic shale beds - Locally slightly pitted - Fractured to blocky	CR-044						DGR5-334.46-AR
335								
336		336.56						
337	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded grey/brown and dark grey/brown - Very fine-grained - Laminated to medium bedded - Trace anhydrite/gypsum veins - Petroliferous odour when broken - Locally slightly pitted - Fractured to blocky	CR-045						
338								
339	**Argillaceous Dolostone** - Tan/grey, laminated to thinly bedded, fine-grained and hard, trace shale laminae, trace gypsum and anhydrite veins	**339.65** 339.61						DGR5-339.38-AR

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
	339.86							
340	**Dolostone** - Light to medium grey, fracture at 340.5, 340.7, thickly bedded - Fine-grained and hard - Trace gypsum and anhydrite veins							
	340.99	CR-046						
341	**Anhydritic Dolostone** - Gradual transition at 341.0 - Blue to light grey anhydritic dolostone interbedded with dark grey dolomitic shale and trace to some laminated to thin flat anhydrite/gypsum veins - Blocky							
342								
		342.66						
	Anhydritic Dolostone - Sharp transition at 342.8 to a mottled laminated light grey anhydritic dolostone and grey dolomitic shale - Fractured							DGR5-342.95-AR
343								
	343.63							
	Dolostone - Gradual transition at 343.4 - Tan grey - Very fine to fine-grained - Trace brown/dark brown argillaceous laminae - Trace gypsum and anhydrite veins - Dolostone thickly bedded below 345.0 - Blocky	CR-047						
344								
345								
		345.71						DGR5-345.44-PW-UO
	Dolostone - Tan to tan/grey with depth - Very fine to fine-grained - Trace dark grey dolomitic shale laminae - Trace anhydrite/gypsum veins and nodules - Blocky							DGR5-346.06-AR
346								
347		CR-048						
	348.00							
348	**Brecciated Dolostone** - Tan to light grey/green with depth brecciated dolostone, hard, dolomitic shale (green/grey and dark brown) as matrix, blocky							DGR5-347.99-AR
	348.25							
	Brecciated Dolomitic Shale - Grey/green brecciated dolomitic shale with clasts of tan/brown argillaceous dolostone and trace anhydrite and gypsum veins and nodules - Slightly pitted - Blocky							
		348.76						DGR5-349.04-AR
349								
	349.40							
	Salina Formation - A2 Unit - Evaporite - Mottled light grey/blue anhydritic dolostone							
350								
	Anhydritic Dolostone - Sharp Contact at 349.4 - Mottled light grey to bluish grey anhydrite and brown dolostone - Massive bedded - Locally moderately pitted - Blocky	CR-049						
351								DGR5-351.24-AR
		351.81						
352								DGR5-352.08-PW-UO

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
353	**Anhydritic Dolostone** - Mottled light grey to bluish grey anhydrite and brown dolostone - Massive bedded - Iron staining recorded - Hard - Moderately pitted	CR-050						DGR5-354.64-PW-UO
354		354.86						
355	**355.46**							
356	**Salina Formation - A1 Unit - Carbonate** - Grey to tan/grey argillaceous dolostone interbedded/laminated with grey to black bituminous shale and trace to abundant anhydrite and gypsum **Dolostone** - Tan brown and light grey - Fine-grained - Laminated - Abundantly vuggy and pitted - Fractured to blocky	CR-051						DGR5-356.43-AR
357								DGR5-356.89-PW-UO
358		357.91						DGR5-358.01-PW-UO
359	**359.21**							DGR5-358.99-PW-UO
360	**Argillaceous Dolostone** - Grey and light grey - Fine-grained - Laminated - Some shale laminae - Blocky **360.22**	CR-052						
361	**Dolostone** - Tan brown and light grey, fine-grained, laminated, abundantly vuggy and pitted, fractured to blocky **Dolostone** - Tan brown and light grey, fracture at 361.5, 362.1, fine-grained, laminated, abundantly vuggy and pitted, fractured to blocky **361.66**	360.96						DGR5-361.64-PW-UO
362	**Argillaceous Dolostone** - Grey to dark grey - Laminated to thinly bedded - Very fine to medium-grained - Bituminous shale laminae - Fractured to blocky	CR-053						
363								
364		364.01						DGR5-364.50-AR
365	**Argillaceous Dolostone** - Grey - Laminated to thin shale interbeds - Very fine to medium-grained - Trace localized fossiliferous thin beds - Trace anhydrite/gypsum veins, layers and nodules - Trace discontinuous mm-thick anhydrite veins - Blocky	CR						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
366		-054						
367		367.06						
368	**Argillaceous Dolostone** - Grey - Fracture at 367.7, rough, 368.9, rough, 369.5 - Trace dark grey shale laminae - Very fine to medium-grained - Localized fossiliferous section with a gradual transition from a wackestone to packstone at 368.4-368.7 - Trace to some anhydrite/gypsum veins, layers and nodules - Trace discontinuous mm-thick anhydrite veins - Blocky	CR-055						DGR5-368.20-PW-UO
369								
370		370.11						
371	**Argillaceous Dolostone** - Interbedded with irregular black bituminous shale laminae - Fine to very fine-grained - Hard - Some anhydrite/gypsum veins that increase in abundance with depth and give core brecciated appearance - Blocky to massive	CR-056						
372								
373		373.16						
374	**Argillaceous Dolostone** - Dark grey - Fracture at 374.9, rough - Interbedded with abundant irregular bituminous shale laminae - Fine to very fine-grained - Abundantly vuggy and fractured with partial infilling with very fine-grained dolomite from 373.6-375.3 - Abundant dolomite, calcite and anhydrite/gypsum discontinuous veins that give brecciated appearance in places - Trace flat, white, fibrous laminated to thin anhydrite and gypsum veins from 375.8-376.3 - Fractured to blocky	CR-057						
375								
376		376.21						
377	**Argillaceous Dolostone** - Tan/brown to grey - Interbedded with common black bituminous shale laminae - Fine to very fine-grained - Hard - Some to abundant flat, white, fibrous laminated to thin anhydrite and gypsum veins - Blocky to massive	CR-058						
378								DGR5-378.16-PW-UO

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
379								DGR5-378.78-AR
		379.26						
380	**Argillaceous Dolostone** - Grey/brown - Fracture at 379.5, smooth, 380.7, rough, gypsum/anhydrite infilled, 381.20, smooth, 381.29, rough - Interbedded/laminated with dark grey to black bituminous shale laminae - Fine to very fine-grained - Trace gypsum/anhydrite veins - Petroliferous odour - Open Fracture from 380.6-381.0 infilled with anhydrite/gypsum - Fractured to blocky	CR-059						
381								
382								
		382.31						
383	**Argillaceous Dolostone** - Grey/brown - Very fine-grained - Interbedded/laminated with dark grey to black bituminous shale laminae - Trace gypsum/anhydrite veins - Core fractured along bituminous laminae during logging (disking) - Fractured to Blocky	CR-060						
384								
385								
		385.36						
386	**Argillaceous Dolostone** - Grey - Very fine-grained - Interbedded/laminated with brown to black bituminous shale laminae - Core fractured along bituminous laminae during logging (disking) - Trace anhydrite/gypsum veins - Fractured to blocky	CR-061						
387								DGR5-387.21-AR
388	**Argillaceous Dolostone** - Grey - Natural fracture at 389.3 - Very fine-grained - Interbedded/laminated with brown to black bituminous shale laminae - Trace anhydrite/gypsum veins - Core fractured along bedding planes during logging (disking) - Fractured to blocky	388.41 CR-062 389.21						
389								
390	**Argillaceous Dolostone** - Grey - Fracture at 389.3, lightly petroliferous - Very fine-grained - Interbedded/laminated with brown to black bituminous shale laminae - Trace anhydrite/gypsum veins - Core fractured along bituminous laminae during logging (disking) - Core has petroliferous odour - Fractured to blocky	CR-063						
391								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
392	**Argillaceous Dolostone** - Grey - Very fine-grained - Interbedded/laminated with brown to black bituminous shale laminae - Trace anhydrite/gypsum veins - Core fractured along bituminous laminae during logging (disking) - Core has petroliferous odour - Fractured to blocky	391.77 CR-064						
393								
394								
395	**Argillaceous Dolostone** - Grey to light grey - Fracture at 395.6, rough, 395.7, rough, 397.2 - Very fine-grained - Interbedded/laminated with brown to black bituminous shale - Core fractured along bituminous laminae during logging (disking) - Core has petroliferous odour - Fractures are lightly petroliferous - Increase light grey argillaceous dolostone below 395.1 - Trace anhydrite/gypsum veins - Fractured to blocky	394.82 CR-065						DGR5-395.43-AR
396								
397								
398	**Argillaceous Dolostone** - Grey to brown with depth to 399.5 - Interbedded/laminated with dark brown to black bituminous shale laminae to 399.5 - Core has petroliferous odour and is petroliferous - Core fractured along bituminous laminae during logging (disking) - Laminated light grey dolostone 399.5-400.9 - Very fine-grained - Blocky	397.87 CR-066						
399								
400	**400.38**							
401	**Salina Formation - A1 Unit - Evaporite** - Mottled to thinly bedded light grey/blue anhydrite, anhydritic dolostone and brown dolostone **Anhydritic Dolostone** - Light grey - Laminated to massive - Very fine-grained - Blocky	400.92 CR-067						
402	**Anhydritic Dolostone** - Laminated to thinly bedded - Light grey/blue anhydritic dolostone and tan/brown anhydritic dolostone - Fine to very fine-grained - Blocky to massive							
403								
404		403.97						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
405	**Anhydritic Dolostone** - Light grey/blue anhydritic dolostone and brown anhydritic dolostone - Laminated to thinly bedded - Very fine-grained - Massive **405.03**							
406	**Salina Formation - A0 Unit** - Dark brown to black, fine-grained, thinly laminated, bituminous dolostone **Dolostone** - Gradual contact beginning at 405.0 - Interlaminated greyish-brown dolostone and light grey anhydritic dolostone - Massive	CR-068						DGR5-406.36-AR
407	**Dolostone** - Interlaminated grey to brown/grey dolostone and blackish-brown bituminous argillaceous dolostone - Massive bedded - Fine-grained becoming medium-grained to 407.9 - Calcareous - Trace stylolites - Massive **407.97**	407.02						DGR5-407.22-PW-UO
408	**Guelph Formation** - Brown, very fine to medium-grained, vuggy dolostone **Dolostone** - Dark brown/brown and grey, vuggy and pitted - Fracture at 409.2 - Massive bedded - Brown dolostone is medium-grained and is in matrix of light grey very fine-grained dolostone - Calcareous and hard - Porous (abundant vugs and pits; commonly partly infilled with calcite/dolomite) - Core has petroliferous odour and is heavily petroliferous from 408.0-409 - Massive	CR-069						
409		410.07						DGR5-410.29-PW-UO
410								
411	**Dolostone** - Brown and grey - Fractures at 412.2, rough, 412.3, rough - Massive bedded grey with trace interbeds/laminae of planar to irregular black shale between 411.2-412.3; brecciated appearance below 412.3 - Fine and very-fine grained, locally sucrosic and hard - Slightly porous (vugs, some infilled with dolomite crystals); abundantly porous zone (vugs and pits) between 410.1-411.2 and below 412.3 - Blocky	CR-070						
412								
413	**Dolostone** - Dark brown to light grey, vuggy and pitted - Massive bedded - Brown dolostone is medium-grained and is in matrix of light grey very fine-grained dolostone - Calcareous and hard - Porous (abundant vugs and pits; commonly partly infilled with calcite/dolomite) - Blocky to massive **413.72**	413.12						DGR5-413.22-PW-UO DGR5-413.57-PW-UO
414	**Goat Island Formation** - Light to dark grey/brown, very fine-grained dolostone **Dolostone** - Gradational contact at 413.7 - Light grey and dark grey - Faintly irregularly bedded to massive bedded - Very fine-grained - Hard - Trace stylolites - Blocky to massive	CR-071						
415								
416		416.17						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
417	**Dolostone** - Grey to light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Fracture at 417.29, rough, 418.84, rough - Very fine-grained - Trace stylolites - Blocky	CR-072						DGR5-418.50-AR
418								
419		419.22						
420	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Very fine-grained - Hard - Massive	CR-073						
421								
422		422.27						DGR5-422.14-PW-UO
423	**Dolostone** - Light grey with faint dark grey argillaceous laminae and trace localized brown bituminous laminae - Very fine-grained - Hard - Massive	CR-074						DGR5-422.81-AR
424								
425		425.32						
426	**Dolostone** - Light grey with faint dark grey argillaceous laminae and trace localized brown bituminous laminae - Mottled colouring last 0.5m of core - Very fine-grained - Hard - Solid	CR-075						
427								DGR5-426.96-PW-UO
428		428.37						
429	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Very fine-grained - Hard - Massive	CR						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
430		-076						
431		431.42						
432								DGR5-432.17-PW-UO
433	**433.00** **Gasport Formation** - Blue/white/grey, fine to coarse-grained, dolomitic limestone	CR-077						
434	**Dolomitic Limestone** - Light to medium grey with dark grey irregular argillaceous laminae and brown irregular bituminous laminae - Slightly pitted core starting around 433.8 and increasing in abundance with depth - Fine to medium-grained - Trace stylolites - Blocky to massive	434.47						DGR5-434.60-AR
435	**Dolomitic Limestone** - Light to medium grey with diffuse brown sections - Massive bedded with irregular black laminae/stylolites - Green/grey mottled section, 436.2-436.4 - Fine to medium-grained - Core becomes more coarse below 436.5	CR-078						
436	- Slightly pitted - Blocky							
437		437.52						
438	**Dolomitic Limestone** - Light to medium grey with diffuse brown sections - Fracture at 437.76, rough, 438.36, smooth on upper half of fracture, rough on lower half - Massive bedded with irregular black laminae/stylolites - Fine to coarse-grained - Slightly pitted - Blocky to massive	CR-079						
439								
440		440.57						DGR5-440.13-PW-UO
441	**Dolostone** - Light grey with diffuse grey and brownish grey beds - Fracture at 443.4, open < 1mm, clean fracture surface - Mottled - Fine-grained - Trace cm-size round white mudstone clasts and trace stylolites - Fracture ~ 1.0m in length at 442.3, open ~ 1mm, rough and clean fracture face - Sub-vertical semi-elliptical fracture at 443.1, closed	CR-080						
442	- Massive							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
	442.84							
443	**Lions Head Formation** - Light grey to grey/brown, fine to very fine-grained dolostone							
		443.62						
444	**Dolostone** - Mottled light grey to tan/grey with diffuse grey and brownish grey beds - Fine to very fine-grained - Hard - Trace cm-sized round white mudstone clasts and trace stylolites - Blocky to massive							DGR5-444.71-PW-UO
445		CR-081						DGR5-445.00-AR
	445.25							
	Fossil Hill Formation - Light to medium brownish grey coarse-grained dolostone with styolites							
446	**Dolostone** - Light brownish-grey with faint grey diffuse laminae, fine to coarse-grained - Coarser grained beds below 445.1, very to hard, increased amount of stylolites below 445.1 - Calcareous infilled cm-size clast at 446.9, calcareous infilled layer 446.5 - Blocky							
		446.67						
447	**Dolostone** - Light brownish-grey with faint grey diffuse laminae, medium to coarse-grained - Natural fracture at 447.8, rough, hard, some stylolites, calcareous infilled layer 446.8 - Blocky							DGR5-447.45-PW-UO
	447.84							
448	**Cabot Head Formation** - Green and red shale grading to interbedded fossiliferous grey carbonate and shale	CR-082						
449	**Shale** - Gradational contact, 447.7-448.0, grading from a laminated light brownish-grey dolostone and green shale to a massive bedded green shale - Green shale sharp contact with red/maroon shale at 448.6 - Red/maroon shale below 448.6 with trace mottled green shales - Fracture at 449.1, 1-2mm-thick, calcite infilling - Medium soft - Massive bedded - Moderately soft - Blocky							
		449.72						
450		CR-083						
451	**Shale** - Red/maroon shale with trace green mottles and blotches - Fracture at 451.1, slickensides, shiny, smooth, glassy and polished, stepped, and undulating, 452.0, planar, smooth, dull lustre, no evidence of movement - Massive bedded - Medium soft - Massive							
452								
		452.32						
453	**Shale** - Red/maroon shale with trace green mottles - Massive bedded - Medium soft - Blocky							DGR5-452.92-PW-UO
454		CR-084						
455								DGR5-455.00-AR
		455.37						
	Shale - Red/maroon shale	CR-						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
456	- Massive bedded - Medium soft - Blocky **Shale** - Red/maroon shale with trace green mottles - Massive bedded - Medium soft - Solid	085 455.82 CR-086						DGR5-458.00-AR
459	**Shale** - Red/maroon shale with trace green mottles - Massive bedded - Medium soft - Fractured to blocky	458.87 CR-087						DGR5-460.12-PW-UO
460	**Shale** - Diffusely bedded red /maroon, grey and green shale at 459.8 - Trace thinly bedded grey very fine-grained and fossiliferous (brachiopods) limestone beds - Very soft - Fractured to blocky							
462	**Shale** - Grey and green shale - Soft	461.97 CR-088						
463	**Shale** -Grey and green shale - Trace thinly bedded grey very fine-grained and fossiliferous limestone beds to 463.7 - Soft - Blocky	462.45						
464	**463.65** **Interbedded Shale and Carbonate Beds** - Predominantly mottled grey/green shale thinly to medium interbedded with fossiliferous calcareous dolostone with variable amounts of green mud (wackestone) - Dolostone is grey/blue, fine to medium grained, mottled, and contains calcified fossils - Fractured to blocky	CR-089						
466	**Interbedded Shale and Carbonate Beds** - Predominantly mottled grey fossiliferous calcareous dolostone with variable amounts of grey/green mud (wackestone) thinly to medium interbedded with mottled grey/green shale - Dolostone is grey/blue, fine to medium grained, mottled, and contains calcified fossils - Fractured to blocky (core is rubble)	465.50 CR-090						
468								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
469	**Interbedded Shale and Carbonate Beds** - Predominantly mottled grey fossiliferous calcareous dolostone with variable amounts of grey/green mud (wackestone) thinly to medium interbedded with mottled grey/green shale - Dolostone is grey/blue, fine to medium grained, mottled, and contains calcified fossils - Fractured to blocky (core is rubble)	468.55						
470		CR-091						
471		471.60						
472	**Interbedded Shale and Carbonate Beds** - Mottled grey fossiliferous calcareous dolostone with variable amounts of grey/green mud (wackestone)thinly to medium interbedded with mottled grey/green shale - Dolostone is grey/blue, fine to medium grained, mottled, and trace calcified fossils (bryozoans, coral) - Blocky							DGR5-472.44-PW-UO DGR5-472.66-AR
473	**472.99**	CR-092						
474	**Manitoulin Formation** - Grey,very fine to medium-grained, fossiliferous, mottled argillaceous to non-argillaceous dolostone with grey/green shale interbeds and chert layers/nodules **Argillaceous Dolostone** - Mottled fine to medium grained grey/green argillaceous dolostone, trace interbeds of grey dolostone and green shale - Some chert nodules - Massive - Slightly fossiliferous (brachiopods) - 4cm green shale bed at 473.6	474.65						DGR5-474.78-AR
475								
476	**Argillaceous Dolostone** - Mottled fine to coarse grained grey/green argillaceous dolostone - Trace interbeds of grey dolostone and green shale in upper 0.4m of core - Coarse grained beds are lightly petroliferous - Some chert nodules - Slightly fossiliferous (bryozoans, brachiopods) - Wackestone bed at 475.6-475.7, brachiopods - Massive	CR-093						
477	**476.71** **Interbedded Shale and Dolostone** - Mottled light grey to greenish/grey coarse-grained argillaceous dolostone with some thin interbeds and laminae of green shale - Slightly fossiliferous - Trace light grey thin chert beds - Blocky							DGR5-477.42-PW-UO
478	**477.70** **Cherty Dolostone** - Grey/blue to grey/tan, fine to medium-grained grading downwards to medium to coarse-grained, fossiliferous, stylolites, abundant irregular black laminae - Massive	477.70						
479		CR-094						
480		480.75						
481								DGR5-480.91-PW-UO

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
482	**Cherty Dolostone** - Grey/tan with some to grey/blue, fine to medium-grained - Fracture at 483.5, healed - Abundant irregular black laminae 480.8-481.2 - Fossiliferous - Trace stylolites below 481.2 - wackestone bed at 483.0-483.1 - Increase in chert content below 481.2 - Solid	CR-095						
483	**483.11** **Limestone** - Light grey/tan - Very fine-grained, hard, trace stylolites, massive bedded - Massive **483.80**	483.80						
484	**Interbedded Shale and Dolostone** - Interlaminated grey dolostone and green shale; dolostone declines in abundance to absent at 486.6 - Smooth horizontal fracture at 484.8, infilling appears to be washed out (halite?) - Fossiliferous 5cm-thick shale layer at 486.6	CR-096						DGR5-485.37-AR
485								
486	**486.62**							
487	**Queenston Formation** - Red to maroon, massive bedded, calcareous to non-calcareous shale with subordinate interbeds of green shale, and grey/brown carbonates and siltstone **Shale** - Sharp contact at 486.6 - Red/maroon with green mottling - Massive bedded - Trace thin carbonate beds - Medium soft - Massive	486.85 CR-097						
488								
489	**Shale** - Red/maroon with green blotching, beds and diffuse zones - Massive bedded - Trace thin carbonate beds - Medium soft - Fracture through shale and cm-thick carbonate bed at 487.3 - Fracture through shale at 488.6, halite infilling - Solid	489.90 CR-098						DGR5-491.52-AR
490	**Shale** - Banded red/maroon and green shale - Medium soft - Massive bedded - Trace thin interbeds of grey fine-grained carbonate beds - Medium soft - Solid							
491								
492		492.95						
493								
494								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
495	**Shale** - Red/maroon with trace blotching of green shale - Fracture through shale at 495.0, rough and clean, 495.5, smooth, halite infilling - Medium soft - Massive bedded - Trace thin beds of grey fine-grained carbonate beds - Medium soft - Solid	CR-099						
496	**Shale** - Red/maroon with blotches, mottles and bands of green shale - Fracture through shale at 497.0, rough with halite infilling (orange prismatic crystals) - Medium soft - Massive bedded - Trace thin beds of grey fine-grained carbonate beds - Medium soft - Solid	496.00 CR-100						DGR5-497.24-AR DGR5-497.50-PW-UO DGR5-497.78-PW-UNB
499	**Shale** - Red/maroon with mottles and bands of green shale - Fracture through shale at 501.9, completely infilled with rusty coloured fibrous precipitate - Medium soft - Massive bedded - Medium soft - Solid	499.05 CR-101						
502	**Shale** - Red/maroon with mottles, blotches and bands of green shale - Medium soft - Massive bedded - Trace thin carbonate beds - Medium soft - Solid	502.10 CR-102						DGR5-503.51-AR
505	**Shale** - Red/maroon with mottles, blotches and bands of green shale - Medium soft - Massive bedded - Trace thin carbonate beds - Trace anhydrite nodules in the last 0.4m - Medium soft - Solid	505.15 CR-103						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
508	**Shale** - Red/maroon with mottles and bands of green shale - Medium soft - Massive bedded - Trace thin carbonate beds - Trace anhydrite nodules - Medium soft - Solid	508.25						
509		CR-104						
510								
511		511.25						DGR5-511.15-AR
512	**Shale** - Red/maroon banded and blotched green shale, beds and diffuse zones - Massive bedded - Medium soft - Localized pink/white anhydrite nodules - Massive	CR-105						
513								
514		514.30						DGR5-513.92-PW-UNB DGR5-514.22-PW-UO
515	**Shale** - Red/maroon with trace green shale mottles, beds and diffuse zones - Fracture through shale at 512.0, smooth - Massive bedded - Medium soft - Trace grey, fine-grained cm-thick carbonate beds - Localized pink anhydrite nodules - Blocky	CR-106						
516								DGR5-516.18-AR
517		517.35						
518	**Shale** - Red/maroon with some green shale bands and mottles - Massive bedded - Medium soft - Trace grey, fine-grained cm-thick carbonate beds - Localized pink anhydrite nodules - Massive	CR-107						
519								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
520								
		520.40						DGR5-520.36-AR
	Shale - Red/maroon and green shale bands, mottles and diffuse zones - Massive bedded - Medium soft - Trace grey, fine-grained cm-thick carbonate beds increasing in frequency to 522.0 - Localized pink anhydrite nodules - Massive							
521								
		CR-108						
522	**522.04**							
	Interbedded Shale and Limestone - Gradual transition at 521.6 to green/grey shale with thin interbeds of light grey to grey/blue, fossiliferous (brachiopods), very hard, carbonates - Massive - Medium soft (shale) to very hard (carbonate beds)							
523								
		523.45						
	Interbedded Shale and Limestone - Shale is grey/green grading to red with green blebs and diffuse zones at 525.3 - Fracture at 524.1 with halite/anhydrite infilling - Massive bedded - Carbonate interbeds are grey, 1cm to 5 cm-thick fossiliferous (bryozoans) - Medium soft - Blocky to massive							
524								
525		CR-109						
								DGR5-525.57-PW-UO
								DGR5-525.81-PW-UNB
526								
		526.50						
	Interbedded Shale and Limestone - Shale is red/maroon with green mottles and diffuse beds grading to green and green at 527.7 - Thickly bedded - Medium soft - Carbonate interbeds are grey, 1cm to 5cm-thick fossiliferous (bryozoans) - Massive							
527								
528		CR-110						
529								
		529.55						
	Interbedded Shale and Limestone - Green thickly bedded, medium soft, calcareous shale grading to medium to thickly interbedded green calcareous shale with carbonate interbeds at 531.3 - 0.3m band red/maroon calcareous shale at 530.2 - Carbonate interbeds are grey, medium to coarse-grained, abundantly fossiliferous (brachiopods) - Carbonate beds with subordinate green shale interbeds compose bottom half of core - Blocky to massive							
530								
531		CR-111						DGR5-531.17-AR
532								
		532.65						
	Interbedded Shale and Limestone							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
533	**Interbedded Shale and Limestone** - Green calcareous shale and interbeds of grey, fine-grained, fossiliferous (brachiopods) limestone, hard - Blocky to massive	CR-112						
534								
535								
		535.70						
536	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey carbonate interbeds - Shale is thinly to medium bedded, calcareous, locally contains elongate (mm-long) limestone nodules - Blocky - Medium soft (shale) to hard (carbonate)							
537		CR-113						
538								
		538.75						
539	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey carbonate interbeds - Shale is thinly to medium bedded and calcareous - Carbonate interbeds are very fine-grained to coarse-grained and trace are fossiliferous - Blocky - Medium soft (shale) to hard (carbonate)							DGR5-539.55-AR
540		CR-114						
541								
		541.80						
542	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey carbonate interbeds - Last 5cm of core red/maroon shale - Shale is thinly bedded and calcareous - Carbonate interbeds are very fine-grained to coarse-grained and trace are fossiliferous (brachiopods), and locally abundant - Blocky to massive - Medium soft (shale) to hard (carbonate)							
543		CR-115						
544								
		544.85						
545								DGR5-545.00-AR

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
546	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey carbonate interbeds - Top 0.3m of core is red/maroon shale with trace laminations of carbonate beds - Shale is thinly to medium bedded and calcareous - Carbonate interbeds are very fine-grained to coarse-grained and trace are fossiliferous (brachiopods), and locally abundant - Fractured - Medium soft (shale) to hard (carbonate)	CR-116						
547		547.90						
548	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey/blue carbonate interbeds - Shale is laminated to thinly interbedded with carbonates - Carbonate interbeds are very fine-grained to coarse-grained and trace are fossiliferous - Gradual transition in top 1.4m to red/maroon shale with green blotches and diffuse bands at 549.3 - Fractured to blocky - Medium soft (shale) to hard (carbonate)							DGR5-548.02-AR DGR5-548.31-AR
549		**549.30**						
550	**Shale** - Red/maroon with green blotches, bands and diffuse zones - Massive bedded - Hard - Calcareous - Massive	CR-117						
551		550.95						DGR5-551.07-AR
552	**Shale** - Red/maroon with green mottles, blotches and diffuse bands - Massive bedded - Hard - Calcareous - Some pink anhydrite nodules with two areas having greater than 0.1m clustered nodules at 551.6 and 553.0 - Blocky to massive	CR-118						
553								
554		554.00						
555	**Shale** - Red/maroon with green mottles, diffuse bands and trace blotches - Massive bedded - Hard - Calcareous - Trace pink anhydrite nodules - Trace carbonate laminae - Massive to solid	CR-119						DGR5-555.15-AR
556								
557		557.05						DGR5-557.44-PW-UNB DGR5-557.65-PW-UO
558	**Shale** - Red/maroon with green mottles, and diffuse bands - Fracture through shale at 512.0, smooth, orange halite, 0.5cm thick - Massive bedded - Hard - Calcareous - Some laminated to thinly bedded carbonates - Massive to solid	CR-						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
559		120						
560		560.10						
	560.64							
561	**Georgian Bay Formation** - Dark greenish/grey shale, interbedded (decreasing abundance with depth) with grey fossiliferous limestone and siltstone beds	CR-121						DGR5-561.88-AR
562	**Interbedded Shale and Limestone** - Gradational contact at 560.6 - Grey/green shale interbedded with grey limestone - Fracture through shale at 561.2, smooth, clear and very thin layer of halite, partially closed - Shale and limestone are laminated to thinly bedded from 560.6-562.3 and are thinly to thickly bedded below 562.3							
563	- Limestone interbeds are cm's-thick, fossiliferous and locally bioturbated, hard - Massive	563.15						
564	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light grey limestone - Shale is thinly to medium bedded - Limestone is thinly bedded, hard, fossiliferous (brachiopods) - Blocky to massive	CR-122						
565								DGR5-564.96-PW-UO
								DGR5-565.17-PW-UNB
566	**566.20**	566.20						
567	**Interbedded Shale and Limestone/Siltstone** - Green/grey shale interbedded with light grey limestone and grey siltstone - Shale is thinly bedded, calcareous, locally contains limestone clasts, medium soft - Limestone is thinly to thickly bedded, trace beds are coarse-grained, locally contain cross-stratification, fossiliferous (brachiopods, crinoids), locally bioturbated, and hard - Siltstone beds are laminated to thinly bedded, calcareous and are locally low-angle cross-laminated, and hard - Massive to solid	CR-123						DGR5-567.72-AR
568								
569		569.25						
	Interbedded Shale and Limestone/Siltstone - Green/grey shale interbedded with light grey limestone and green/grey siltstone - Shale is thinly to medium bedded and calcareous, medium soft - Limestone is laminated to thinly bedded, medium-grained, fossiliferous and hard, locally bioturbated - Fractured to blocky							
570		CR-124						
571								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
572		572.30						
573	**Interbedded Shale and Limestone/Siltstone** - Green/grey shale interbedded with light grey limestone and grey/green siltstone - Fracture at 573.0, smooth, undulating - Shale is thinly bedded, very soft - Limestone is laminated to thinly bedded, medium-grained, fossiliferous, bioturbated, and hard - Massive	CR-125						
574								DGR5-573.83-AR
575		575.35						
576	**Interbedded Shale and Limestone/Siltstone** - Laminated to thickly bedded green/grey shale interbedded with laminated to medium bedded, fine to coarse-grained fossiliferous limestone, and sandstone/siltstone - Trace localized bioclastic/fossiliferous limestone beds - Core disking when disturbed - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Massive	CR-126						
577								
578		578.40						
579	**Interbedded Shale and Limestone/Siltstone** - Thinly to thickly bedded green/grey shale interbedded with thinly to medium bedded, fine to coarse-grained limestone, and sandstone/siltstone - Trace localized bioclastic/fossiliferous limestone beds - Core disking in shale - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Blocky to massive	CR-127						DGR5-578.82-AR
580								
581		581.45						
582	**Interbedded Shale and Limestone/Siltstone** - Thinly to thickly bedded green/grey shale interbedded with laminated to medium bedded, fine to coarse-grained limestone, and sandstone/siltstone - Trace localized bioclastic/fossiliferous limestone beds - Core disking into 5-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured to blocky	CR-128						
583								DGR5-583.40-MN-SGS
								DGR5-583.69-PT
584								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
585	**Interbedded Shale and Limestone/Siltstone** - Thinly bedded green/grey shale interbedded with thinly bedded, fine to coarse-grained limestone, and sandstone/siltstone - Trace localized bioclastic/fossiliferous limestone beds - Core disking into 5-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured	584.50 CR-129						DGR5-584.98-AR
586								
587								
	587.55	587.55						
588	**Shale** - Thinly to thickly bedded green/grey shale with some laminae to thin beds of fine to coarse-grained limestone, and sandstone/siltstone - Shale is massive bedded - Trace localized bioclastic/fossiliferous limestone beds - Core disking into 5-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Blocky	CR-130						
589								
590								DGR5-590.07-AR
		590.60						
591	**Shale** - Thinly bedded green/grey shale with some laminae to thin beds of fine to coarse-grained limestone, and sandstone/siltstone - Fracture at 592.8, smooth, halite infilling 1mm thick - Shale is massive bedded - Trace localized bioclastic/fossiliferous limestone beds - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Blocky to massive	CR-131						
592								
593								
		593.65						
594	**Shale** - Grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone - Shale is massive bedded - Trace fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured	CR-132						
595								DGR5-595.62-AR
596								
		596.70						
597	**Shale** - Grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
598	- Shale is massive bedded - Trace fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured	CR-133						DGR5-598.13-PW-UNB DGR5-598.37-PW-UO
599		599.75						
600	**Shale** - Grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone - Shale is massive bedded - Trace fossils - Fossiliferous limestone layer (8cm) at 602.7 - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured to blocky							DGR5-600.31-AR
601		CR-134						
602		602.80						
603	**Shale** - Grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone - Fracture at 605.3 infilled with 1mm orange halite - Shale is massive bedded - Trace fossils - Trace anhydrite nodules - Fossiliferous limestone layer (10cm) at 602.9 and (5cm) at 604.95 with calcified fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Blocky to massive							
604		CR-135						
605								DGR5-605.55-MN-SGS
606	**Shale** - Grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone - Shale is massive bedded - Trace fossils - Fossiliferous limestone layers (5cm) at 607.0 and 608.7 with calcified fossils - Core disking into 3-10cm pieces - Trace anhydrite nodules - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Blocky	605.85						DGR5-605.98-AR
607		CR-136						
608		608.90						
609								
610								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
611	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Fossiliferous limestone layer (8cm) at 610.8 with calcified fossils - Core disking into 5-10cm pieces and disking into some crescent shaped pieces - Soft (shale) and hard to very hard (limestone/siltstone) - Blocky	CR-137						
612	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone/sandstone - Fracture at 614.2, smooth, halite partial infilling, 614.7, completely healed - Shale is massive bedded - Shale becomes more dark grey with depth - Trace fossils	611.95 CR-138						DGR5-612.31-PT DGR5-612.62-AR
613	- Fossiliferous limestone layers (5cm) at 612.5, 612.6, an 613.2 - Core disking into 5-10cm pieces and disking into some crescent shaped pieces - Soft (shale) and hard (limestone/sandstone/siltstone) - Fractured							
614								
615	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossiliferous limestone layers calcified fossils - Core disking into 5-10cm pieces and disking into some crescent shaped pieces - Soft (shale) and hard to very hard (limestone/siltstone) - Blocky to massive	615.00 CR-139						
616								
617								
618	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 619.4, smooth, 0.5cm thick halite infilling - Shale is massive bedded - Trace fossils	618.05 CR-140						
619	- Fossiliferous limestone layers (5cm) at 618.3, 618.8, and 10cm at 619.2 all with calcified fossils - Core disking into 5-10cm pieces and disking into some crescent shaped pieces - Soft to very soft (shale) and hard (limestone/siltstone) - Blocky to massive							DGR5-618.93-AR
620								
621	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils	621.10 CR-141						
622	- Fossiliferous limestone layers (10cm) at 621.8, 622.3,with calcified fossils - Core disking into 1-10cm pieces and disking into crescent shaped pieces - Very soft (shale) and hard (limestone/siltstone) - Blocky to massive							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
623								DGR5-623.03-AR
624		624.15						
625	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Core disking into 1-10cm pieces and disking into crescent shaped pieces - Very soft (shale) and hard (limestone/siltstone) - Fractured	CR-142						DGR5-624.95-PW-UNB DGR5-625.23-PW-UO
626								
627		627.20						
628	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Core disking into 1-10cm pieces and disking into crescent shaped pieces - Very soft (shale) and hard (limestone/siltstone) - Fractured	CR-143						
629								
630		630.25						DGR5-630.00-AR
631	**Shale** - Dark grey/green shale with trace laminae to medium interbeds of limestone - Shale is massive bedded - Trace fossils - Fossiliferous limestone layers (25cm) at 630.8, and (15cm) 631.2,with calcified fossils - Core disking into 1-10cm pieces - Pyrite flecks at 631.2 - No limestone beds below 631.2 - Very soft (shale) and hard (limestone/siltstone) - Blocky	CR-144						
632								
633		633.30						
634	**Shale** - Dark grey/green shale - Massive bedded - Moderate core disking to 5-15cm pieces - Trace fossils - Laminated fossiliferous layer at 633.8 - Soft (shale) - Fractured to blocky	CR-145						
635								DGR5-635.16-AR

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
636		636.35						
637	**Shale** - Dark grey/green shale - Shale is massive bedded - Soft (shale) - Core is crushed/shattered - Trace fossils - Blocky to massive	CR-146						
638								
639		639.73						
640	**Shale** - Dark grey/green shale - Massive bedded - Moderate core disking to 5-15cm pieces - Trace fossils - Soft (shale) - Fractured							DGR5-640.13-AR
641		CR-147						
642		642.45						
643	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Some core disking into 5-10cm pieces - Soft to medium soft (shale) and hard (limestone/siltstone) - Blocky to massive							DGR5-643.19-PT
644		CR-148						
645								DGR5-645.16-MN-SGS
646	**Shale** - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Some core disking into 5-10cm pieces - Soft to medium soft (shale) and hard (limestone/siltstone) - Blocky to massive	645.50						
647		CR-149						DGR5-646.44-AR
648		648.55						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
649								
								DGR5-649.27-PW-UNB
	Shale - Dark grey/green shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Light grey/green siltstone bed from 650.0-650.3, very hard - Trace fossils - Some core disking into 5-10cm pieces - Soft to medium soft (shale) and hard to very hard (limestone/siltstone) - Blocky							DGR5-649.51-PW-UO
650		CR-150						
651								DGR5-651.02-AR
		651.60						
	Shale - Dark grey/green with a gradual transition to a grey to dark grey soft shale trace laminae to thin interbeds of fossiliferous fine-grained, hard sandstone/limestone/siltstone - Shale is massive bedded - Moderate core disking into 5-10cm pieces - Blocky							
652								DGR5-652.62-GM-CAN
653		CR-151						
	653.25							
	Blue Mountain Formation - Green/blue to blue/grey to grey with depth, fossiliferous shale interbedded with siltstone and fossiliferous limestone in upper part of formation							
654	**Blue Mountain Formation - Lower Member** - Grey to dark grey shale with petroliferous odour and trace siltstone laminae							
		654.65						DGR5-654.80-AR
655								
	Shale - Grey to dark grey soft shale with trace laminae to thin interbeds of fossiliferous fine to coarse-grained, hard sandstone/limestone/siltstone - Shale is massive bedded - Moderate core disking into 5-10cm pieces - Fractured to blocky	CR-152						
656								DGR5-656.52-GM-CAN
657								
		657.70						
	Shale - Dark grey soft shale with trace laminae to thin interbeds of fossiliferous fine to coarse-grained, hard sandstone/limestone/siltstone - Shale is massive bedded - Moderate core disking into 5-10cm pieces - Fractured							
658								
659		CR-153						
660								DGR5-660.20-AR
		660.75						
661								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
662	**Shale** - Dark grey soft shale with trace laminae to thin interbeds of fossiliferous fine to coarse-grained, hard sandstone/limestone/siltstone - Shale is massive bedded - Core disking into 5-10cm pieces - Fractured to blocky	CR-154						
663		663.80						
664	**Shale** - Dark grey soft shale with trace laminae to thin interbeds of fossiliferous fine to coarse-grained, hard sandstone/limestone/siltstone - Shale is massive bedded - Core disking into 5-10cm pieces - Fractured to blocky							
665		CR-155						DGR5-664.97-AR
666								
667	**Shale** - Dark grey very soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Fractured to blocky	666.85						
668		CR-156						DGR5-668.28-AR
669								
670	**Shale** - Dark grey very soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Blocky	669.90						
671		CR-157						DGR5-671.30-PW-UO DGR5-671.55-PW-UNB
672								
673	**Shale** - Dark grey soft shale - Shale is massive bedded - Trace thin hard siltstone beds - Core disking into 5-10cm pieces very easily, some crescent disking - Fractured to blocky	672.95						DGR5-673.37-AR
674		CR						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
675		-158						
676	**Shale** - Grey to dark grey soft shale - Shale is massive bedded - Trace thin hard siltstone beds - Trace anhydrite nodules - Core disking into 5-10cm pieces - Fracture from 676.0-676.4, slight halite infilling, planer and smooth - Fracture from 676.8-677.9, smooth, 1mm clear halite infilling - Blocky	676.00						
677		CR-159						DGR5-677.25-MN-SGS
678								
679	**Shale** - Dark grey soft shale - Shale is massive bedded - Trace thin hard siltstone beds - Core disking into 5-10cm pieces very easily, some crescent disking - Fractured to blocky	679.05						DGR5-678.52-PT DGR5-679.63-AR
680								
681		CR-160						
682	**Shale** - Dark grey soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily - Fractured to blocky	682.10						
683								DGR5-683.35-PW-UNB DGR5-683.57-PW-UO
684		CR-161						
685	**Shale** - Dark grey soft shale - Fracture at 685.3, smooth, most likely mechanical break - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Slight petroliferous odour - Massive	685.15						DGR5-685.80-GM-CAN
686		CR-162						
687								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
688		688.20						DGR5-687.42-AR
	Shale - Dark grey soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Slight petroliferous odour - Massive	CR-163						DGR5-688.64-AR
689								
690								
691	**Shale** - Dark grey soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Slight petroliferous odour - Massive	691.25 CR-164 691.45						
692	**Shale** - Dark grey soft shale - Fracture at 692.35, smooth, infilled with calcite, completely infilled - Shale is massive bedded - Core disking into 5-10cm pieces very easily, some crescent disking - Slight petroliferous odour - Massive	CR-165						DGR5-692.35-MN-SGS
693								DGR5-693.47-AR
694		694.30						
695	**Shale** - Dark grey soft shale - Shale is massive bedded - Core disking into 5-10cm pieces very easily - Slight petroliferous odour - Massive	CR-166						DGR5-695.00-PT
696								DGR5-696.13-AR
697		697.35						
698	**Shale** - Dark grey soft shale - Fracture spanning from 699.2-699.9, smooth, halite infilling, fracture begins in soft shale and extends 15cm into hard argillaceous limestone - Shale is massive bedded - Core disking into 5-10cm pieces very easily - Slight petroliferous odour - Trace fossils - Massive	CR-167						DGR5-697.54-PT DGR5-697.85-PW-UO DGR5-698.10-PW-UNB
699								DGR5-698.77-GM-CAN DGR5-699.49-MN-SGS
		699.86						
700	**Cobourg Formation - Collingwood Member**							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
	- Dark grey to black calcareous shale interbedded with grey fossiliferous and argillaceous limestone **700.40**	700.40						
701	**Argillaceous Limestone** - Dark grey, fine-grained, thickly bedded, hard, trace fossil (brachiopods), increasing shale content below 700.3, blocky							DGR5-700.70-GM-CAN
702	**Interbedded Shale and Argillaceous Limestone** - Light grey, laminated to medium bedded argillaceous limestone and dark grey to black laminated to medium bedded shale interbeds - Fracture at 700.5, smooth, planar, no infilling, 703.3, rough, planar, calcite infilling (reacted to acid) - Shale and argillaceous limestone are locally fossiliferous - Hard (limestone) and medium soft (shale) - Trace pits to vugs 701.6-701.7, blocky to massive	CR-168						DGR5-701.28-GM-CAN DGR5-702.26-GM-CAN DGR5-702.51-AR DGR5-702.81-GM-CAN
703		703.45						
704	**Interbedded Shale and Argillaceous Limestone** - Light grey to tan, medium to thickly bedded argillaceous limestone and dark grey to black laminated to thickly bedded shale interbeds - Fracture at 703.7, undulating, no infilling, 704.1, undulating, no infilling, 704.4, incomplete (possible planar vug), calcite infilling (reacted to acid),704.5, undulating, no infilling, 705.0, undulating, no infilling, 705.3, smooth, no infilling, 706.0, undulating, no infilling - Shale and argillaceous limestone are locally fossiliferous - Hard (limestone) and medium soft (shale) -Slightly petroliferous - Blocky to massive	CR-169						
705								DGR5-704.99-MN-SGS DGR5-705.36-PT
706		706.50						DGR5-705.90-GM-CAN
707	**Argillaceous Limestone** - Grey to black, very fine to medium-grained, hard, argillaceous limestone - Moderately fossiliferous (brachiopods, and other fossil fragments) - Some calcareous shale interbeds - Blocky to massive	CR-170						
708	**708.71**							DGR5-708.60-AR
709	**Cobourg Formation - Lower Member** - Mottled light to dark grey, vey fine to coarse-grained, very hard, fossiliferous, argillaceous limestone	709.55						
710	**Argillaceous Limestone** - Mottled light grey to tan fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture, fine to medium-grained - Moderately fossiliferous (brachiopods, and other fossil fragments) - Massive							DGR5-710.33-AR
711	**Argillaceous Limestone** - Mottled grey to tan very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale layers and thin beds - Moderately fossiliferous (brachiopods, and other fossil fragments) - Slightly petroliferous at 710.6 - Trace vugs partially infilled with calcite 710.5 - Massive	CR-171						
712		712.60						DGR5-711.96-GM-CAN
	Argillaceous Limestone - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture							DGR5-712.74-PT DGR5-712.98-AR

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
713	limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Massive	CR-172						[illegible]
714								
715								DGR5-715.40-MN-SGS
		715.65						DGR5-715.60-PW-UO
716	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Massive	CR-173						
717								DGR5-717.31-AR
718								
		718.70						
719	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Fracture at 721.5, rough, infilling of calcite/(drill cuttings) - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Massive	CR-174						DGR5-719.38-GM-CAN
								DGR5-719.65-GM-CAN
720								DGR5-719.91-PW-UO
721								
		721.75						
722	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Fracture at 722.1, rough/smooth, undulating, 723.0, smooth, undulating - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Massive	CR-175						
723								
								DGR5-723.77-AR
724								
		724.80						
725	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Blocky to massive							DGR5-724.90-PW-UO DGR5-725.12-PT DGR5-725.33-MN-SGS DGR5-725.50-GM-CAN

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
726		CR-176						
727								
		727.85						
728	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Slight petroliferous odour on freshly broken surfaces - Blocky to massive							
729		CR-177						DGR5-729.70-GM-CAN
730								DGR5-729.91-AR
		730.90						
731	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Slight petroliferous odour on freshly broken surfaces - Massive							DGR5-731.02-PW-UO
732		CR-178						DGR5-731.27-GM-CAN DGR5-732.20-GM-CAN
733								
		733.95						
734	**Argillaceous Limestone** - Mottled light grey to grey very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Fracture at 735.2, rough, no infilling, 736.5, smooth, slightly undular - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - >10cm medium-grained grainstone layer at 735.2 - Massive							DGR5-733.62-AR DGR5-734.06-PW-UO
735		CR-179						DGR5-735.61-GM-CAN
736								
	736.50							
737	**Sherman Fall Formation** - Grey, medium to coarse-grained to fine-grained with depth, fossiliferous, argillaceous limestone interbedded with grey/green shale; shale interbeds increase in abundance with depth	737.00						DGR5-736.85-PW-UO
738	**Argillaceous Limestone** - Light to medium grey fossiliferous hard argillaceous limestone, some dark grey laminated to thin, irregular shale bedding - Fracture at 738.2, rough, undular and signs of weathering, 738.4, rough/smooth, 738.7, rough, calcite precipitate, 740.0, rough - Abundant laminated to medium bedded grainstone/packstone with deceased shaley bedding below 737.64 - 3cm diameter calcite nodule at 737.90, fracture at 737.1, smooth, undular, shale layer but 2mm aperture - Slightly petroliferous, fractured to blocky	CR-180						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
739	Slightly petroliferous, fractured to blocky							DGR5-739.00-GM-CAN
740		740.05						
741	**Argillaceous Limestone** - Light to medium grey fossiliferous hard argillaceous limestone, some dark grey laminated to thin, irregular shale bedding - Abundant laminated to medium bedded grainstone/packstone - Clastic layer of very coarse-grained argillaceous limestone, grainstone and shale bound by a calcite matrix between 743.5-744.0 - Fractured to blocky	CR-181						DGR5-740.91-AR
742								DGR5-741.90-GM-CAN
743		743.10						
744	**Argillaceous Limestone** - Light to medium grey hard argillaceous limestone - Some fine to medium-grained thin to medium grainstone beds - Some dark grey medium soft shale laminated to thinly bedded, fossiliferous - Blocky	CR-182						
745								DGR5-745.23-PW-UO
746		746.15						
747	**Argillaceous Limestone** - Grey to brown/grey argillaceous limestone - Fine to coarse-grained thin to medium grainstone beds - Hard, slightly petroliferous - Some calcareous planar to irregular dark grey, medium soft shaley that is laminated to thinly bedded, fossiliferous (brachiopods, crinoids, and has fossil fragments) - Blocky	CR-183						DGR5-746.57-AR DGR5-747.27-PW-UO
748								
749		749.20						
750	**Argillaceous Limestone** - Grey argillaceous fine-grained argillaceous limestone - Medium to coarse-grained, thin to medium bedded grainstone beds - Hard, slightly petroliferous - Some calcareous planar to irregular dark grey, medium soft shale laminated to thinly bedded, fossiliferous (brachiopods, crinoids, fossil fragments) - Blocky	CR-184						DGR5-749.82-AR
751								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
752								
	752.25	752.25						
	Interbedded Argillaceous Limestone and Shale - Grey fine-grained argillaceous limestone - Fracture at 752.6, smooth, undular, surface alteration - Medium to coarse-grained, thin to medium bedded grainstone beds - Hard, slightly petroliferous - Some calcareous planar to irregular dark grey, medium soft shale laminated to thinly bedded, fossiliferous (brachiopods, crinoids, fossil fragments) - Blocky	CR-185						
753								
754								
755								
		755.30						DGR5-755.30-PW-UO
	Interbedded Argillaceous Limestone and Shale - Grey, very fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green planar to irregular medium soft shaley laminae up to 7cm thick - Blocky	CR-186						DGR5-755.62-AR
756								
757								DGR5-757.54-PT
758								
		758.35						
	Interbedded Argillaceous Limestone and Shale - Grey, medium to coarse-grained, fossiliferous, hard argillaceous limestone - Dark grey/green planar to irregular medium soft shaley laminae up to 8cm thick - Blocky	CR-187						
759								
760								
761								
		761.40						
	Interbedded Argillaceous Limestone and Shale - Grey, very fine to coarse-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae up to 8cm thick - Slickensides viewed on freshly broken core - Fractured to blocky	CR-188						DGR5-763.13-AR
762								
763								
764								
		764.45						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
765	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to coarse-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green planar to irregular medium soft shaley laminae up to 5cm thick - Blocky	CR-189						DGR5-764.72-MN-SGS
766								DGR5-765.51-AR
	766.50							
767	**Kirkfield Formation** - Grey, fine to medium-grained, argillaceous, fossiliferous limestone interbedded and dark grey/green shale							DGR5-766.75-AR
	767.50							
768	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae up to 5cm thick - Blocky to massive	CR-190						
769								
770								
	770.55							
771	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded fossiliferous, hard argillaceous limestone - Dark grey/green irregular to planar medium soft shaley laminae up to 8cm thick - Blocky	CR-191						DGR5-771.81-AR
772								
								DGR5-772.76-AR
773								
	773.60							
774	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae up to 5cm thick - Fractured to blocky	CR-192						
775								
776								
	776.65							
777	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae up to 5cm thick - Fractured to blocky							

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
778		CR-193						DGR5-777.81-AR
779								
		779.70						
780	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae up to 5cm thick - Increased shaley content below 784.2 - Blocky							DGR5-780.85-AR
781		CR-194						
782								DGR5-782.21-PW-UO
		782.75						
783	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular medium soft shaley laminae - Mottled dark grey/green irregular medium soft shaley laminae - Blocky to massive							
784		CR-195						
785								
		785.80						
786	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular/mottled medium soft shaley laminae - Blocky to massive							DGR5-786.25-AR
787		CR-196						DGR5-787.51-PW-UO
788								
		788.85						
789	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular/mottled medium soft shaley laminae - Brown xtalline calcite in shaley layers - Blocky							
790		CR						

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
791		CR-197						
		791.90						DGR5-791.61-AR
792	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular/mottled medium soft shaley laminae - Brown xtalline calcite in shaley layers - Blocky							
793		CR-198						
794		794.95						DGR5-793.74-PW-UO
795	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone - Dark grey/green irregular/mottled medium soft shaley laminae up to 15cm thick - Fractured to blocky							
796		CR-199						DGR5-796.09-AR
797								
798	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, thin to medium bedded, trace fossils, hard argillaceous limestone - Dark grey/green irregular/planar/mottled medium soft shaley laminae up to 25cm thick - Black shale layer between 798.7-798.9, petroliferous, calcareous, trace fossils - Fractured	798.00						
799		CR-200						DGR5-799.17-PW-UO
800								
801		801.05						
	Interbedded Argillaceous Limestone and Shale - Grey, very fine to medium-grained, thin to medium bedded, some fossils, hard argillaceous limestone - Dark grey/green irregular/planar/mottled medium soft shaley laminae up to 3cm thick - Blocky							
802		CR-201						
803								

Depth (mBGS) 1m:35m	Stratigraphic Description	Core Run (mBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
804	**Interbedded Argillaceous Limestone and Shale** - Grey, very fine to medium-grained, thin to medium bedded, trace fossils, hard argillaceous limestone - Dark grey/green irregular/planar/mottled medium soft shaley laminae up to 20cm - Fractured to blocky	804.10						DGR5-803.40-AR
805		CR-202						DGR5-805.80-PW-UO
806								DGR5-806.62-AR
807	**807.15**	807.15						

Prepared by: MAM
Checked by: KGR

Doc. TR-09-01_DGR5_R0

Geofirma Engineering Ltd

APPENDIX D

DGR-6 Borehole Log

DGR-6 Borehole Log Legend

Sample Legend

AR	Archive - INTERA
GM-CAN	Geomechanical Testing - CANMET
MN-SGS	Mineralogy - SGS
PT	Petrophysics - Core Labs
PW-UNB	Pore Water - UNB
PW-UO	Pore Water - U of O

Contact Legend

- Casing
- End of Borehole
- Formation Contact
- Ground Surface
- Stratigraphic Contact

Core Log Legend

mLBGS	Meters Length Below Ground Surface
R. Q. D.	Rock Quality Designation
Nat. Frac. Freq.	Natural Fracture Frequency
NC	Rotary Drilled (No Core)
CR	Core Run
Fracture Or.	Fracture Orientation (Alpha and Beta Angles)

Stratigraphic Legend

- Ash
- Dolostone
- Anhydritic Dolostone
- Argillaceous Dolostone
- Cherty Dolostone
- Limestone
- Argillaceous Limestone
- Dolomitic Limestone
- Shale
- Dolomitic Shale
- Brecciated Dolostone
- Brecciated Anhydritic Dolostone
- Brecciated Dolomitic Shale
- Argillaceous Dolostone and Dolomitic Shale
- Interbedded Shale and Argillaceous Limestone
- Interbedded Shale and Carbonate Beds
- Interbedded Shale and Dolostone
- Interbedded Shale and Limestone
- Interbedded Shale and Limestone/Siltstone
- Interbedded Argillaceous Limestone and Shale

Core Logging Notation

1) Colour: (i.e. light/medium/dark grey, blue-grey, red-green, etc.)

Additional Adjectives	Description
Banded	Approximately parallel bands of varying colour
Streaked	Randomly oriented streaks of colour
Blotched	Large irregular patches of colour (>75mm diameter)
Mottled	Irregular patches of colour
Speckled	Very small patches of colour (<10 mm diameter)
Stained	Local colour variations associated with other features (i.e. bedding joints, etc.)

2) Grain Size/Texture:

Classification	Grain Size Measurement	Field Recognition	Equivalent Soil Type
Very fine-grained	<0.06 mm	Individual grains cannot be seen with a hand lens	Clays and silts
Fine-grained	0.06 to 0.25 mm	Just visible as individual grains under hand lens	Fine sand
Medium-grained	0.25 to 0.5 mm	Grains clearly visible under hand lens; just visible to naked eye	Medium sand
Coarse-grained	0.5 to 2.0 mm	Grains clearly visible to the naked eye	Coarse sand
Very coarse gained	>2.0 mm	Gains measurable	gravel

3) Rock Hardness

Classification	***Description***
Very Soft	Can be peeled with a knife
Soft	Can be easily gouged or carved with a knife
Medium soft	Can be readily scratched with a knife blade; scratch leaves heavy trace of dust and is readily visible after powder blown away.
Hard	Can be scratched with a knife with difficulty; scratch produces little powder and is often faintly visible
Very Hard	Cannot be scratched with a knife or can barely be scratched with a knife

4) Bedding Thickness:

Classification	*Bedding Thickness*
Massive Bedded	>3 m or Uniform
Thickly Bedded	300 mm to 3 m
Medium Bedded	100 to 300 mm
Thinly Bedded	10 to 100 mm
Laminated	<10 mm

5) Solution and Void Conditions (if notable)

Classification	*Condition*
Solid	No voids
Porous	Voids <1.0 mm in diameter
Pitted	Voids 1 to 6 mm in diameter
Vuggy	Voids 6 mm to diameter of core
Cavity	Voids greater than diameter of core

6) Quantification of Secondary Features: When describing additional features in the core, the following adjectives should be used which are related to the % volume or frequency of the feature.

Adjective	%Volume / frequency
Slightly/trace	1-10%, 1-2 occurrences
Moderately/some	10-20%
Abundantly/ "___y" (ie. shaley)	20-35%
and	>35%, half and half

7) Summary of Rock Quality Descriptions and Discontinuity Logging

RQD (%)	*Core Quality Description*	*Natural Fracture Frequency (/m)*	*Formation Fracture Description*
0-25	Very Poor	>10	Highly Fractured
25-50	Poor	>1.0-10	Moderately Fractured
50-75	Fair	0.5-1.0	Sparsely Fractured
75-90	Good	<0.5	Very Sparsely Fractured
90-100	Excellent	0	Unfractured

8) Bedding or Fracture Inclination (measured from horizontal)

Classification	Attitude
Flat	0 to 5 degrees
Gently dipping	5 to 20 degrees
Moderately dipping	20 to 45 degrees
Steeply dipping	45 to 85 degrees
Very steeply dipping	85 to 90 degrees

9) Degree of Fracturing/Jointing (Structure)

Rock Mass Classification	Discontinuity Spacing
Solid	>3 m
Massive	1 to 3 m
Blocky/seamy	0.3 to 1 m
fractured	5 to 30 cm
Crushed / shattered	< 5 cm

10) Roughness of Fracture (Structure)

Classification	Description
Smooth	Appears smooth and is essentially smooth to the touch.
Rough	Bumps/roughness on the fracture surfaces are visible and can be distinctly felt.
Slickensided	Clear evidence of previous shear displacement along the discontinuity.
Stepped	Surface of discontinuity appears stepped with some ridges or angular "steps".
Undulating	Surface of discontinuity appears wavy, with no sharp steps.
Planar	Surface of discontinuity appears flat.

11) Infilling of Fracture (Structure)

Classification	Description
Clean	No filling material
Stained	Colouration of rock surface only, no recognizable filling material
Filled	Fracture observed with filling material (describe filling material)

12) Reference Terms:

Layer : Distinct length of core that is distinguished from surrounding core by feature (colour, composition, etc.) other than bedding planes.

Irregular : Bedding plane surfaces are not planar but are convoluted/disturbed.

Planar : Bedding planes are flat.

Bituminous : Contains organic matter.

Vein : Fracture totally infilled with mineral different from surrounding rock.

Argillaceous : Rock has mud dispersed in the matrix but not as distinct laminae or beds (e.g. argillaceous limestone).

Shaley : Rock that has distinct shale laminae beds (e.g. shaley limestone).

Petroliferous Odour : Only hydrocarbon odour; no noted liquid hydrocarbons.

Petroliferous : Liquid hydrocarbons noted.

Hydrocarbon Adjectives

Strongly/heavily : intense hydrocarbon odour / core exuding significant volume of oil / core coated with oil.

Slight/lightly : Slight hydrocarbon odour / few drops of oil.

No modifier : Moderate odour / Moderate amount of hydrocarbon exuded

Rock Quality Designation (RQD, %) : RQD values determined for the 76 mm diameter core from DGR-1 and DGR-2 were determined as the sum of lengths of core greater than 15 cm length (i.e., twice the core diameter) excluding drilling-induced breaks, divided by length of hole drilled per core run.

RECORD OF BOREHOLE - DGR- 6

Project : DGR Site Characterization
Project Number: 08.200.40.20
Client: Nuclear Waste Management Organization (NWMO)
MNR WL No.: 11942
Site Location: Bruce Nuclear Site, Ontario, Canada
Coordinates: NAD 83, UTM Zone 17N
4908317.0 N, 453953.0 E

Borehole Specs.: Outside Borehole Diameter, 143mm, Core Diameter 75mm (214.8-516.3), Core Diameter 31.5 (518.15-634.81, 542.55-559.95, 566.95-599.46, 601.91-641.56), Core Diameter 41.5mm (516.33-518.15, 534.81-542.55, 559.21-566.95, 599.46-601.91), Core Diameter 83mm (641.56-903.16)
Date Started: 3-May-2009
Date Completed: 12-Feb-2009
Supervisor: Ken Raven
Reference Surface Elevation: 183.50 mASL
Drill Company: Davidson Drilling Limited, Wingham, ON, Canada
Layne Christensen Canada LTD, Capreol, ON, Canada
Drill Rig: Foremost DR-24HD
Shramm T130XD

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
207	**Salina Formation - F Unit** - Grey/blue dolomitic shale with gypsum and anhydrite veins, interlayered with tan dolostone with depth **Borehole Summary** - All references to depth are mLBGS - A foremost DR-24HD drill rig was used to dual rotary drill and simultaneously install a 324mm (12 3/4-inch) diameter surface conductor casing (inclined at 60° from horizontal) to 20.8, approximately 3.9m length into bedrock. - The foremost DR-24HD was also used to rotary drill a 295mm (11 5/8-inch) diameter borehole (inclined at 60° from horizontal) using air-rotary techniques with a tri-cone drill bit to 34.2 (approximately 17.3m length along the borehole below top of bedrock). Following this drilling a 245mm (9 5/8-inch) diameter surface casing was installed to 34.2. - A truck-mounted Schramm T130XD drill rig was used to rotary drill a 219mm (8 5/8-inch) diameter borehole (inclined at 60° from horizontal) using traced freshwater drill fluid with a tri-cone drill bit to 213.1 (approximately 10.1 metres length into the Salina Formation F-Unit shale). Following this drilling a 178mm (7-inch) diameter intermediate casing was installed to a depth of 212.5 for blow-out prevention. - A quad-latch double-tube wireline coring system with a split-inner barrel, manufactured by American Diamond Products (formerly Christensen) was used to continuously core a 75mm (3-inch) diameter high quality core in 3.05m lengths. The continuously core produced a 143mm (5 5/8-inch) diameter borehole (at a target inclination of 60° from horizontal) from 214.8-516.3 (approximately 8.4 metres length into the Queenston formation). - Due to a gradual increase of approximately 9° in inclination (69° from horizontal), the drilling method was adjusted to Devico directional coring. Continuous coring using equipment to produce a 76mm diameter borehole from 516.3-641.6 (approximately 58.5 metres length into the Georgian Bay formation). The inclination was corrected to approximately 58° from horizontal. - The borehole was enlarged from 76mm to 123mm (PQ-size) in diameter through the directionally corrected portion of the borehole (516.3-641.6). **Intermediate BOP Casing [7 inch / 178 mm]** **Open Borehole [5 5/8 inch / 143mm]** - PQ-sized continuously coring activities were completed from 641.6-903.2 (approximately 6m length into the Gull River formation). This type of coring produces an 83mm diameter high quality core and a 123mm diameter borehole (at the corrected inclination of approximately 58° from horizontal). - Once all coring activities were completed the borehole was enlarged between 516.3-903.2 from 123mm to 143mm diameter.							
208								
209								
210								
211								
212								
213								
214								
215	**Dolomitic Shale** - Grey/green - Fine-grained - Reddish/brown mottles - Trace gypsum and anhydrite veins and nodules - Soft - Fracture at 215.0, infilled, pink/orange anhydrite - Fractured to shattered	CR-001						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
216		215.91						
217	**Dolomitic Shale** - Grey/green - Fine-grained - Reddish/brown mottles and blotching - Fracture at 216.8, smooth - Trace gypsum and anhydrite veins and nodules - Brecciated dolomitic shale below 218.5 - Soft - Fractured to blocky	CR-002						
218	**218.50**							
	Brecciated Dolomitic Shale, - Reddish/brown, fine-grained, trace grey/green mottles and blotching, fracture at 218.9, smooth and undulating, trace gypsum and anhydrite veins and nodules, soft, fractured to blocky **218.95**	218.65						
219	**Brecciated Dolostone** - Tan/brown, brecciated (dolostone) - Fracture at 220.7, rough/smooth, infilled with gypsum (white/translucent) - Fracture at 221.4, rough - Slightly pitted - Trace gypsum and anhydrite veins and nodules (1cm thick gypsum layers at 220.7, 220.8) - Fractured to blocky							DGR6-219.65-AR
220		CR-003						
221								
		221.70						
222	**Brecciated Dolostone** - Tan/brown, brecciated (dolostone) - Fracture at 222.0, smooth, slightly porous surface, fracture at 222.5 undulating, fracture at 223.7, undulating, minor drill cuttings on surface of fracture, slightly pitted - Trace gypsum and anhydrite veins and nodules - Increase in dolomitic shale matrix from 223.5-223.8 - Fractured to blocky							
223	**223.80**	CR-004						
224	**Dolomitic Shale** - Reddish/brown, fine-grained, trace grey/green mottles, trace gypsum and anhydrite veins and nodules (0.5-0.8cm thick gypsum layers at 223.9, 224.0), soft, fractured to blocky **224.35**							
225	**Brecciated Dolostone** - Tan/brown, brecciated (dolostone), slightly pitted, some gypsum and anhydrite veins, matrix consists of equal proportions of dolomitic shale and gypsum, fractured to blocky **Brecciated Dolostone** - Tan/brown, brecciated (dolostone), slightly pitted, trace gypsum and anhydrite veins, increased dolomitic shale content below 224.9, fractured **225.67**	224.75 CR-005 225.67						
226	**Dolomitic Shale** - Grey/green with trace reddish/brown mottling - Fine-grained, trace gypsum and anhydrite layers, veins and nodules, soft, some tan/brown angular clasts of dolostone between 226.1-226.4 - Fractured to blocky	CR-006 226.67						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
227	**Dolomitic Shale** - Grey/green with trace reddish/brown mottling - Fine-grained - Fracture at 226.8, rough - Fracture at 228.22 - Trace gypsum and anhydrite layers, veins and nodules (6cm thick anhydrite layer at 226.9) - Soft - Some tan/brown angular clasts of dolostone between 227.9-228.5 - Fractured to blocky	CR-007						
228								DGR6-228.38-AR
	228.72	228.72						
229	**Brecciated Dolomitic Shale** - Grey/green - Fracture at 230.0, smooth, partially cemented - Fine-grained - Some grey/green mottles and blotching - Trace to some gypsum and anhydrite veins and nodules - Soft - Fractured to blocky	CR-008						
230								
	230.62							
231	**Dolomitic Shale** - Grey/green with trace reddish/brown mottling - Fracture at 231.2, 231.3 and 231.5, smooth, with heavy drill wear (original fracture surface not retained) - Fine-grained - Some gypsum and anhydrite layers, veins and nodules - Soft - Fractured to blocky							
		231.77						
232		CR-009						
233	**Dolomitic Shale** - Grey/green with trace reddish/brown mottling - Fracture at 232.4, smooth, no evidence of precipitate - Fracture at 232.5, smooth - Fine-grained - Trace to some gypsum and anhydrite layers, veins and nodules - Soft - Fractured to blocky							
234								
	234.82	234.82						
235	**Dolostone** - Grey to tan/brown, fine-grained, laminated to thinly bedded, trace stylolites, slightly pitted, medium soft to hard - Fractures filled with gypsum and anhydrite - Fractured							
	235.98							
236	**Brecciated Dolomitic Shale** - Grey/green with abundant reddish/brown mottles, banding and blotching - Fracture at 236.2, undulating, gypsum vein ending on fracture surface - Fine-grained, trace gypsum anhydrite veins and nodules, soft, fractured	CR-010						
	236.62							
237	**Dolomitic Shale** - Grey/green with some reddish/brown mottling and banding - Fracture at 237.2, smooth - Fine-grained - Trace gypsum and anhydrite layers, veins and nodules, soft, fractured							DGR6-237.42-AR
		237.87						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
238	**Dolomitic Shale** - Grey/green dolomitic shale - Laminated to medium bedded - Medium soft - Some anhydrite/gypsum veins (>1cm thick anhydrite/gypsum layers at 238.0, 238.9, 239.5, 239.7, 240.7) - Fractured	CR-011						
239								
240								
241	**Dolomitic Shale** - Grey/green dolomitic shale - Massive bedded - Medium soft - Some anhydrite/gypsum veins (>2cm thick anhydrite/gypsum layers at 240.9, 241.0, 241.6, 241.9, 242.3) - Fractured	240.92						
242								
	242.34	CR-012						
243	**Dolostone** - Tan/brown, undulating fractures at 242.6 (slightly porous surface), 243.0, and 243.3 all with gypsum on fracture surface, fracture at 243.4, smooth - Gradual transition to tan/brown dolostone from 242.3-242.5 - Fine-grained to medium-grained, laminated to thinly bedded, trace stylolites, slightly pitted, hard - Gradual transition from tan/brown dolostone at 243.5 to a tan/grey dolomitic shale at 243.9, fractured							
	243.97	243.97						
244	**Dolomitic Shale** - Grey/green and hard, sharp contact with tan/brown dolostone at 244.2, fractured							
	244.15							
245	**Dolostone** - Tan/brown, fine-grained to medium grained, undulating fractures located through dark laminae at 244.7, 245.1, and 245.2, fracture at 244.6, smooth located through dark laminae, undulating fractures with gypsum deposits at 245.8, 246.6, 246.8, 246.9 and 247.0, fractures 245.3 and 245.4, smooth, smooth fractures with gypsum deposits at 245.6, 246.1, and 246.4, laminated to thinly bedded, trace stylolites , slightly to moderately pitted, trace to some anhydrite and gypsum veins, layers and nodules, tan/grey dolostone between 245.7-246.1 with increased percentage of gypsum and anhydrite veins and layers, fractured	CR-013						
246	**Dolostone** - Tan/brown, fine to medium-grained, two intersecting fractures at 247.1 have smooth surfaces, sharp contact at 247.2 to grey/green dolomitic shale, laminated to thinly bedded, trace stylolites, slightly pitted, fractured							
247		247.02						
	247.18							
	Dolomitic Shale - Grey/green dolomitic shale, fracture at 247.9, smooth/rough, half of fracture is planar, laminated to medium bedded, trace anhydrite and gypsum veins, layers and nodules, soft to medium soft, fractured							
	248.02							
248	**Anhydritic Dolostone**, - Tan/brown, medium soft to hard, fractured							
	248.14							
	Brecciated Dolostone - Tan/brown, fine to medium-grained fracture at 248.3 (healed vertical fracture intersection), and 248.5 (along bituminous black laminae), both have smooth surfaces, sharp contact at 248.1, laminated to thinly bedded, trace	CR-014						DGR6-248.71-AR

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
249	stylolites, slightly to moderately pitted, fractured **249.10**							
	Salina Formation - E Unit							
	- Brown, very fine-grained, breciated dolostone interbedded with grey/blue dolomitic shale and argillaceous dolostone with anhydrite and gypsum							
250		250.07						
	Dolomitic Shale - Gradual transition from tan/brown dolostone at 249.1 to grey/green dolomitic shale at 249.2, fracture at 251.2, smooth with irregular pitting, massive, trace to some anhydrite and gypsum veins, layers and nodules, soft to medium soft, fractured							
251	**Dolomitic Shale** - Grey/green dolomitic shale,massive with trace laminae, trace to some anhydrite and gypsum veins, layers and nodules, 2cm thick fibrous gypsum vein at 251.1 and a 1cm thick fibrous gypsum vein at 251.9, soft to medium soft, fractured	CR-015						
	Anhydritic Dolostone, - White/blue and tan/brown anhydritic dolostone, fine to very fine-grained, laminated, slightly pitted, medium soft to hard, fractured **251.92**							
252	**Dolostone,** - Brown/grey, fracture at 252.2, smooth, fracture at 252.3, smooth with some pyrite infilling, fine-grained, laminated, fractured **252.11**							
	Dolomitic Shale - Grey/green dolomitic shale, massive with trace to some laminae, some anhydrite and gypsum veins, layers and nodules, 2cm gypsum layers at 253.3 and 253.5, soft to medium soft, fractured **252.27**							
253		253.12						
	253.53							DGR6-253.55-AR
	Brecciated Dolostone, - Tan/brown, brecciated dolostone, laminated, slightly pitted, gypsum/anhydrite as matrix between brecciated clasts of dolostone, fractured **254.01**							
254	**Shale**, - Grey/green shale, trace angular tan/brown dolostone <1cm inclusions, massive, trace anhydrite and gypsum veins, layers and nodules, soft, fractured **254.28**							
	Brecciated Dolostone, - Tan/brown, brecciated dolostone,laminated, slightly pitted, gypsum/anhydrite as matrix between brecciated clasts of dolostone, fractured **254.95**	CR-016						
255	**Dolomitic Shale** - Grey/green dolomitic shale, brecciated dolostone angular inclusions localized 255.3 to 255.4, massive, trace anhydrite and gypsum veins, layers and nodules, soft, fractured							
256	**Dolomitic Shale** - Grey/green dolomitic shale, massive, trace anhydrite and gypsum veins, layers and nodules, soft to medium soft, fractured **256.27**	256.17						
	Brecciated Dolostone - Tan/brown, brecciated dolostone, slightly to moderately pitted, gypsum/anhydrite as matrix between brecciated clasts of dolostone, 3cm thick pink anhydrite nodule at 256.9, fractured **256.92**							
257	**Dolomitic Shale,** - Grey/green dolomitic shale, fracture at 257.2, smooth with gypsum infilling, slightly pitted, massive with trace laminae, trace anhydrite and gypsum veins, layers and nodules, soft to medium soft, fractured **257.61**	CR-017						
258	**Brecciated Dolostone,** - Tan/brown, brecciated dolostone, fracture at 258.3, undulating, transition zone between brecciated dolostone and dolomitic shale, slightly pitted, gypsum/anhydrite as matrix between brecciated clasts of dolostone, fractured **258.30**							
259	**Dolomitic Shale** - Grey/green dolomitic shale - Fracture at 258.3, smooth, broke at anhydrite vein, massive with trace laminae, trace anhydrite and gypsum veins, layers and nodules - >2cm gypsum layer at 258.9 - Soft to medium soft, fractured	259.22						
	Dolomitic Shale - Grey/green dolomitic shale - Slightly pitted, massive							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
260	- Trace anhydrite and gypsum veins, layers and nodules - Soft to medium soft, fractured							
	Dolomitic Shale - Grey/green dolomitic shale - Fracture at 260.7, smooth with gypsum infilling - Slightly porous - Massive	CR-018						
261	- Trace to some anhydrite and gypsum veins, layers and nodules - >2cm thick fibrous gypsum layers 262.0 and 262.2 - Soft to medium soft - Fractured to blocky							
262		262.27						
	Dolomitic Shale - Grey/green dolomitic shale - Slightly pitted - Massive with trace laminae - Abundant anhydrite veins, layers and nodules							DGR6-262.68-AR
263	- Some gypsum veins, layers and nodules - Medium soft to hard - Fractured							
264		CR-019						
	264.29							
	Brecciated Anhydritic Dolostone, - Tan/brown with some grey/green shale, brecciated anhydritic dolostone, localized laminated beds, increased shale content between 264.6-264.8, slightly pitted, fractured							
	264.79							
	Brecciated Dolostone, - Tan, brecciated dolostone, laminated, moderately pitted, green/grey shale matrix between brecciated clasts of dolostone,							
	264.95							
265	fractured							
	Brecciated Dolomitic Shale, - Grey/green, fine to very fine-grained, very soft to hard brecciated dolomitic shale with some grey argillaceous dolostone and white/tan/blue anhydritic dolostone clasts, trace anhydrite and gypsum	265.32						
	265.56							
	veins and nodules, >1cm thick gypsum layer at contact with brecciated dolostone, fractured							
	Brecciated Dolostone, - Tan/brown, brecciated dolostone, fracture at 265.8, smooth, along washed out gypsum vein, brown/black discolouration, irregular							
266	fit, fracture at 265.9, smooth, dark brown surface (possible lamination break),							
	266.14							
	laminated to thinly bedded, slightly pitted, gypsum/anhydrite as matrix between brecciated clasts of dolostone, fractured							
	Dolomitic Shale, - Grey/green dolomitic shale, gradational contact, slightly pitted, laminated to thinly bedded, some to abundant anhydrite and gypsum veins, layers and nodules, 2 parallel >1cm thick pink anhydrite layers 266.2, 3cm white/tan fibrous gypsum layer at 266.4, 2cm white/tan fibrous gypsum layer at 266.7, localized brecciated sections and slight mottling at end of dolomitic shale section, soft to medium soft, fractured	CR-020						
267								
	267.76							
	Brecciated Dolomitic Shale - Grey/green, fine to very fine-grained, soft to hard brecciated dolomitic shale with some tan and light grey dolostone and grey dolomitic shale clasts, trace anhydrite and gypsum veins and nodules, fractured	268.37						
268								
	268.87							
	Brecciated Anhydritic Dolostone - Tan/brown to white and dark grey, massive bedded, slightly pitted, fractured							
269								
	269.62							
	Brecciated Dolostone, - Tan/brown, brecciated dolostone, laminated to thinly bedded, slightly pitted, gypsum/anhydrite as matrix, fractured	CR-021						
	269.93							
	Dolostone, - Tan/brown with gradual transition to light grey to grey/green, fracture at 270.0, smooth and undulating along black fracture surface, very							
270	fine to fine-grained, laminated, slightly pitted, fractured							
	270.11							
	Dolomitic Shale, - Grey/green, slightly pitted, localized brecciated texture, massive with trace laminae, trace anhydrite and gypsum veins, layers and nodules, soft to hard, fractured							
	Brecciated Anhydritic Dolostone - Light grey/grey to brown/black							
	271.03							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
271	~~**Brecciated Anhydritic Dolostone**~~, - Light grey/grey to brown/black, laminated, fractured							
	~~**Brecciated Dolostone**~~, - Tan/brown, extending to 271.7, fine to medium-grained, medium soft to hard. laminated, slightly pitted, trace to some gypsum and anhydrite veins and layers, fracture at 271.5, undulating, fracture at 271.7, undulating, 0.5cm gypsum infilling, fractured **271.26**	271.42						
	271.69							
272	**Dolomitic Shale,** - Grey/green with some light grey dolomitic shale, fracture at 272.5, smooth, 0.5cm thick anhydrite infilling, gradational contact between 271.5-271.7, slightly pitted, laminated to medium bedded, trace anhydrite and gypsum veins and layers, soft to medium soft, fractured **272.30**							
	Salina Formation - D Unit - Light Grey/blue fine-grained anhydritic dolostone							
	Anhydritic Dolostone, - Dark grey/blue anhydritic dolostone, laminated to thinly bedded, massive, fractured **272.77**	CR-022						
273	**Dolostone,** - Tan/brown, fine to medium-grained, fracture at 273.6, undulating, gypsum vein on surface, dark grey/green >5cm shale layer at 273.1, trace anhydrite and gypsum veins, layers and nodules, laminated to thinly bedded, trace stylolites, slight to moderately pitted, increase in dolomitic shale content below 274.0, fractured **273.90**							
274	**Salina Formation - C Unit** - Grey/blue with trace to some anhydrite and gypsum nodules and veins **Dolostone** - Tan/brown with some light grey, very fine to medium-grained, laminated to thinly bedded, trace stylolites, slightly pitted, trace to some gypsum and anhydrite veins, layers and nodules, fractured **274.71**	274.31						
275	**Brecciated Dolomitic Shale** - Grey/green - Very fine to fine-grained - Soft to medium soft brecciated dolomitic shale with some tan/brown and light grey dolostone angular and sub angular clasts >3cm thick anhydrite/gypsum layer 275.4 - 0.2m light grey angular clast at 276.1 - Some anhydrite and gypsum veins and nodules - Brecciated dolomitic shale extends to 277.7 - Fractured	CR-023						DGR6-275.50-AR
276								
277		277.44						
	277.68							
278	**Brecciated Dolostone** - Tan/brown, brecciated dolostone, trace stylolites - Fracture at 278.4, smooth/rough, moderately pitted and some weathering on surface - Fracture at 278.5, smooth/rough, along dark laminae - Trace styolitic laminae - Slightly pitted - Grey/green soft shale with trace to some anhydrite/gypsum matrix between brecciated angular clasts of dolostone - Fractured	CR-024						
279	**279.57**							
280	**Brecciated Dolomitic Shale** - Grey/green, very fine to fine-grained, soft to hard brecciated dolomitic shale with some tan/brown dolostone and dark grey argillaceous dolostone angular and sub-angular clasts, some anhydrite and gypsum veins and nodules, 3cm thick gypsum/anhydrite layer at 280.5, fractured **280.57**	280.57						
281	**Brecciated Dolomitic Shale** - Grey/green, very fine to fine-grained, soft to hard brecciated dolomitic shale, trace anhydrite and gypsum veins, layers and nodules, fractured **281.14**							
	Brecciated Anhydritic Dolostone - White/blue with trace tan, brecciated dolostone, slightly pitted, fractured **281.58**							
	Brecciated Dolostone - Tan/brown to light grey/green, brecciated dolostone, dolostone is laminated, slightly porous to pitted, gypsum/anhydrite and grey/green shale	CR						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
282	as matrix between brecciated clasts of dolostone, fractured **282.44**	CR-025						
283	**Brecciated Dolomitic Shale** - Grey/green - Gradational contact from brecciated dolostone to dolomitic shale - Very fine to fine-grained - Soft to hard - Trace to some anhydrite and gypsum veins, layers and nodules - Fractured	283.62						
284	**Brecciated Dolomitic Shale** - Grey/green - Band of >4cm thick red dolomitic shale at 284.6 - Trace mottles of red/rust dolomitic shale - Fine to very fine-grained - Soft to hard brecciated dolomitic shale with some tan/brown dolostone and grey dolomitic shale angular and sub-angular clasts - Some anhydrite and gypsum veins, layers and nodules - Pink anhydrite in upper 0.5m of core run - Brecciated anhydritic dolostone section between 285.0-285.3 - Fractured							
285		CR-026						DGR6-285.00-AR
286		286.67						
287	**Brecciated Dolomitic Shale** - Blue/grey - Fracture at 287.8, smooth - Fine to medium-grained - Medium soft to hard brecciated dolomitic shale with some tan/brown and trace light grey dolostone and grey dolomitic shale angular and sub-angular clasts locally abundant between 287.4-288.1 - Trace to some anhydrite and gypsum veins, layers and nodules - Fractured							
288	**288.10**	CR-027						
289	**Brecciated Dolostone** - Tan/brown to light grey/green, brecciated dolostone - Dolostone is laminated - Slightly porous to pitted - Gypsum/anhydrite and grey/green dolomitic shale as matrix between brecciated angular clasts of dolostone - Two 10cm thick brecciated anhydritic dolostone clasts at 289.2-289.4 - Fractured							
	Brecciated Dolomitic Shale - Grey/green, fine to medium-grained, medium soft to hard, trace to some anhydrite and gypsum veins, layers and nodules, fractured **289.92**	289.72						
290	**Brecciated Dolostone,** - Tan/brown, dolostone is laminated, slightly porous to pitted, gypsum/anhydrite and grey shale and brecciated dolomitic shale as matrix between brecciated angular clasts of dolostone, fractured **290.52**							
	Brecciated Anhydritic Dolostone, - White/blue with trace tan to dark brown, laminated to thinly bedded, fracture at 291.1, smooth/rough, slight irregular fit, slightly pitted, fractured **290.75** **290.97**							
291	**Brecciated Dolostone, -** Tan/brown, dolostone is laminated, slightly porous to pitted, gypsum/anhydrite and grey shale and brecciated dolomitic shale as matrix between brecciated angular clasts of dolostone, fractured **291.29**	CR-028						
292	**Brecciated Dolomitic Shale** - Grey/green - Fracture at 291.3, smooth, slight irregular fit - Fine to medium-grained - Medium soft to hard with grey shale and brecciated dolomitic shale as matrix between brecciated angular clasts of tan/brown laminated dolostone - Some anhydrite and gypsum veins, layers and nodules - Fractured							
		292.77						
293	**Brecciated Dolomitic Shale** - Grey/green							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
294	- Fracture at 293.3, rough/smooth - Fracture at 293.6, rough/smooth, fracture face appears smoothed - Fractures at 294.2, 294.7, 295.1 and 295.5 all have slight irregular fit and occur in locations of no apparent weaknesses - Fine to medium-grained - Medium soft to hard with grey/green shale and brecciated dolomitic shale as matrix between brecciated angular to sub-angular clasts of tan/brown and light grey/tan/green laminated dolostone - Some anhydrite and gypsum veins, layers and nodules - Fractured	CR-029						DGR6-293.70-AR
295		295.82						
296	**Brecciated Dolomitic Shale** - Grey/green - Fracture at 298.2, smooth/rough, irregular fit and weathering of surface - Fine to medium-grained - Medium soft to hard with grey/green shale and brecciated dolomitic shale as matrix between brecciated angular to sub-angular clasts of tan/brown and light grey/tan/green laminated dolostone - Some anhydrite and gypsum veins, layers and nodules - Fractured							
297		CR-030						
298	**298.20**							
	Salina Formation - B Unit - Brecciated grey/green dolomitic shale with some to abundant tan argillaceous dolostone with light grey/green dolomitic shale clasts and some to abundant anhydrite and gypsum veins and nodules, bottom of unit is brown to tan dolostone.	298.87						
299	**Brecciated Anhydritic Dolostone, -** light grey/white to tan/brown, moderately pitted to vuggy, laminated to massive bedded, fractured **299.32**							
300	**Brecciated Dolomitic Shale** - Grey/green - Fine to medium-grained - Medium soft to hard with grey/green shale and brecciated dolomitic shale as matrix between brecciated angular to sub-angular clasts of and light grey/tan/green laminated dolostone - Some anhydrite and gypsum veins, layers and nodules - Fractured	CR-031						
301	**300.99** **Brecciated Anhydritic Dolostone,** - Light grey/white to tan/brown, fracture at 301.8, irregular fit with fibrous gypsum on fracture face, moderately pitted to vuggy, laminated to massive bedded, fractured							
	Brecciated Anhydritic Dolostone, - Light grey/white to tan/brown, fine to medium-grained, moderately pitted to vuggy, fractured **301.92**	301.92						
302	**302.00** **Brecciated Dolomitic Shale,** - Grey/green to more green, fine to medium-grained, medium soft to hard with grey/green shale and brecciated dolomitic shale as matrix between brecciated angular to sub-angular clasts of and light grey/tan/green laminated dolostone, massive, light grey/white, laminated to massive brecciated anhydritic dolostone, between 302.5-302.7, some anhydrite and gypsum veins, layers and nodules, fractured **302.94**							
303	**Brecciated Anhydritic Dolostone,** - Light grey/white to tan/brown, abundantly pitted to vuggy, fractured **303.21**	CR-032						
304	**Brecciated Dolomitic Shale**							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
	- Green/grey with increased mottles and blotching of red/maroon dolomitic shale below 303.9 - Fine to medium-grained, medium soft to hard, trace to some anhydrite and gypsum veins, layers and nodules, pink anhydrite nodule 304.5, sandstone clast 304.6, fractured							
	304.97	304.97						
305	**Brecciated Dolomitic Shale** - Green/grey with upper 0.2m mottles and blotching of red/maroon - Fine to medium-grained - Medium soft to hard with trace brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Some anhydrite and gypsum veins, layers and nodules - Fractured							
306		CR-033						
307								
	308.02	308.02						
308	**Brecciated Dolomitic Shale** - Green/grey - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Some anhydrite and gypsum veins, layers and nodules - Fractured							
309		CR-034						
310								
	311.07	311.07						
	Brecciated Dolomitic Shale - Green/green - Fracture at 312.6, rough, broke along vertical fracture/dark lamination - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts							DGR6-311.41-AR
312	- Large tan dolostone clast that is abundantly porous and pitted from 312.4-312.7 - Abundant anhydrite and gypsum veins, layers and nodules - Multiple >3cm to a maximum of 10cm thick gypsum layers - Fractured							
313		CR-035						
314								
	314.12	314.12						
315								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
316	**Brecciated Dolomitic Shale** - Green/grey - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Large tan/brown brecciated dolostone clast that is slightly porous from 315.8-316.0 - Large light grey/white to tan/brown brecciated anhydritic dolostone clast that is slightly to abundantly porous to pitted from 316.0-316.7 - Abundant anhydrite and gypsum veins, layers and nodules - >5cm thick gypsum layers at 314.6 and 315.6 - Fractured	CR-036						DGR6-315.84-AR
317		317.17						
318	**Brecciated Dolomitic Shale** - Green/grey - Fracture at 318.7, smooth, slight irregular fit - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Some anhydrite and gypsum veins, layers and nodules - Fractured	CR-037						
319								
320		320.22						
321	**Brecciated Dolomitic Shale** - Green/grey - Fracture at 321.2, smooth/rough, slightly irregular pits - Fracture at 322.0, smooth/rough, slight irregular fit - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Trace amounts of angular clasts between 321.9-322.7 - Large tan/brown dolostone clast that is slightly porous to some pitting from 322.7-322.9 - Some to abundant anhydrite and gypsum veins, layers and nodules - 2.0-3.0cm thick gypsum layers at 322.9 - Fractured	CR-038						
322								
323		323.27						
324	**Brecciated Dolomitic Shale** - Green/grey - Fine to medium-grained - Medium soft to hard with some brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Large light grey/white brecciated anhydritic dolostone clast that is slightly pitted below 326.0 to end of core run - Abundant anhydrite and gypsum veins, layers and nodules - >8cm thick gypsum/anhydritic dolostone layer 325.9 - Fractured	CR-039						DGR6-324.23-AR
325								
326								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
327	**Brecciated Dolomitic Shale** - Green/grey - Fine to medium-grained - Medium soft to hard with abundant brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Abundant anhydrite and gypsum veins, layers and nodules - Fractured	326.32						
328		CR-040						
329								
330	**Brecciated Dolomitic Shale** - Green/grey - Fracture at 329.8, smooth, trace clay infilling on fracture surface - Fine to medium-grained - Medium soft to hard with abundant brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Abundant anhydrite and gypsum veins, layers and nodules - Fractured	329.37						
331		CR-041						
332	**Brecciated Dolomitic Shale** - Green/grey - Fracture at 332.9, undulating - Fine to medium-grained - Medium soft to hard with abundant brecciated anhydritic dolostone, and abundant tan/brown to light grey/green dolostone angular to sub-angular clasts - Abundant anhydrite and gypsum veins, layers and nodules - Fractured	332.42						
333	**333.00** **Salina Formation - B Unit - Evaporite** - Interbedded to mottled brown dolostone and grey anhydrite **Dolostone** - Sharp transition from green/grey shale to tan/brown dolostone - Tan/brown grading to tan at 333.8							DGR6-333.52-AR
334	- Fracture at 334.5, smooth, fracture at 335.2, smooth, fracture at 335.4, rough, unconsolidated clay infilling - Very fine-grained dolostone with abundant dark brown laminae - Laminated to thinly bedded, slightly pitted - Abundant anhydrite and gypsum veins and layers from 333.5-334.1 - Trace to some anhydrite and gypsum veins and layers below 334.1 - Slightly pitted, sulfurous odour if core is broken - Fractured	CR-042						
335	**335.32** **Dolostone** - Tan/brown - Fracture at 336.1, smooth/rough, irregular fit - Fracture at 337.3, smooth	335.32						
336	- Very fine-grained dolostone with abundant dark brown/black (bituminous) laminae and abundant anhydrite and gypsum laminae and layers - Several <1cm diameter anhydrite nodules with halo of pyrite at 337.1 - Laminated to thinly bedded - Slightly porous to pitted - Fractured							
337	- Gradational transition from tan/brown to tan/grey at 337.6-337.8 - Very fine-grained dolostone with abundant tan to grey dolomitic shale laminae, some brecciation	CR-043						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
	Some to abundant with depth anhydrite and gypsum veins and laminated to thin layers, slightly pitted, very strong organic/sulfur odour, fractured **337.65**							
338	**Salina Formation - A2 Unit - Carbonate** - Tan to grey, fine-grained, laminated to massive bedded dolostone, argillaceous dolostone,and dolomitic shale interlaminated/interbedded with bituminous laminae, gypsum and anhydrite **338.37**	338.37						
339	**Dolostone** - Tan to tan/grey with depth - Very fine-grained dolostone with abundant dark brown, tan and grey dolomitic shale laminae Trace to some with depth anhydrite and gypsum veins and laminated to thin layers - Slightly pitted - Fractured	CR-044						
340		340.73						
341	**Dolostone** - Tan to tan/grey grading to tan/dark grey from 341.3-342.7 - Fracture at 341.9, infilled/healed - Seven smooth fractures located at 341.0, 341.3, 341.5, 341.8, 342.0 342.1, and 342.2 with no infilling and a fracture at 342.1, smooth with trace pyrite infilling - Laminated to thinly bedded, very fine-grained to fine-grained - Abundant grey-black argillaceous bituminous laminae below 342.1 - Trace anhydrite and gypsum veins and laminated to thin layers - Fractured							
342	**342.29**	CR-045						
343	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded tan/grey and grey argillaceous dolostone and dark grey dolomitic shale - 2.5cm thick dark grey bituminous layer at 342.3 - Very fine to fine-grained, laminated to thinly bedded - Medium soft to hard, locally brecciated - Trace gypsum/anhydrite nodules; sulfurous odour - Fractured							
344		343.62						
	Argillaceous Dolostone and Dolomitic Shale - Interbedded tan/grey and grey argillaceous dolostone and dark grey dolomitic shale - Fracture at 343.9, smooth, closed vertical fracture running though core, at 344.5, smooth with anhydrite infilling, smooth - Very fine to fine-grained, laminated to thinly bedded, medium soft to hard, trace gypsum/anhydrite nodules; sulfurous odour, fractured	CR-046						
		344.62						
345	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded tan/grey and light grey argillaceous dolostone and dark grey dolomitic shale - Dolostone very calcareous - Fracture at 344.8, undulating - Fracture at 345.4, undulating - Fracture at 346.6, undulating - Fracture at 346.8, smooth with a thin layer of shale - Closed gypsum filled sub-vertical running though most of core run - Bedding offset almost 0.5cm along vertical gypsum filled fracture in upper 1m of core - Very fine to fine-grained - Laminated to thinly bedded - Medium soft - Trace gypsum/anhydrite nodules; sulfurous odour - Fractured							
346		CR-047						
347		347.67						DGR6-347.52-AR
348								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
349	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded tan/grey, grey argillaceous dolostone and dark grey dolomitic shale - Dolostone very calcareous - Fracture at 347.7, rough, mm-sized quartz crystals - Very fine to fine-grained - Laminated to thinly bedded - Medium soft to hard - Trace gypsum/anhydrite nodules; sulfurous o - Fractured	CR-048						
350		350.70						
351	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded tan/grey, grey argillaceous dolostone and dark grey dolomitic shale - Fracture at 351.8, rough, gypsum infilling - Very fine to fine-grained - Laminated to thinly bedded - Medium soft to hard - Trace gypsum/anhydrite nodules - Trace pits with majority infilled with calcite - Fractured	CR-049						
352								
353		353.75						
354	**Argillaceous Dolostone and Dolomitic Shale** - Interbedded tan/grey, grey argillaceous dolostone and dark grey dolomitic shale - Very fine to fine-grained - Laminated to thinly bedded - Medium soft to hard - Trace gypsum/anhydrite nodules - Petroliferous odour - Fractured	CR-050						
355								
	355.77							
356	**Dolostone** - Tan/grey, massive bedded or variably thinly bedded, fine-grained and hard, trace shale laminae , trace gypsum and anhydrite veins, fractured							
		356.30						
	Dolostone - Tan/grey, Anhydrite/gypsum infilled/healed sub-vertical fracture at 356.7, massive bedded, fine-grained and hard, trace shale laminae, trace gypsum and anhydrite veins - Fractured	CR-051						DGR6-356.69-AR
357		357.00						
	Dolostone - Tan/grey, anhydrite/gypsum infilled/healed sub-vertical fracture at 358.0, massive bedded, fine-grained and hard, trace shale laminae, localized laminated tan/grey dolostone from 358.0-358.1, trace gypsum and anhydrite veins - Fractured							
358	**358.13**							
		CR-052						
359	**Anhydritic Dolostone** - Sharp contact at 358.13 - Blue to light grey anhydritic dolostone interbedded with dark grey dolomitic							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
	shale and some anhydrite veins and layers - Mottled anhydritic dolostone below 359.6 - White to translucent gypsum veins - Fractured							
		359.85						
360	**Anhydritic Dolostone** - Blue to light grey mottled to with irregular laminae of anhydritic dolostone - Some to abundant mm to cm-thick white to translucent gypsum veins and layers - Massive							
	360.95							
361	**Dolostone** - Mottled and irregular laminae of tan/grey/brown and dark brown dolostone - Abundant dark brown/black laminae - Fractured	CR-053						
	Dolostone - Tan/grey - Massive bedded with some localized highly cemented brecciation - Fine-grained and hard - Trace dark brown laminae - Trace gypsum and anhydrite veins - Fractured							
362								
		362.90						
363	**Dolostone** - Tan/grey - Four completely gypsum infilled fractures at 361.5, 361.6, 361.7 and 361.8 - Massive bedded with some localized highly cemented brecciation - Localized section of tan/grey and light grey of sub-angular clasts between 365.4-365.6 - Fine-grained and hard - Trace dark brown laminae - Trace gypsum and anhydrite veins - Fractured							
364		CR-054						DGR6-364.36-PW-UO
365								
	365.78							DGR6-365.69-AR
	Brecciated Dolostone - Tan/brown, grey, light grey, grey/green brecciated dolostone with grey/green dolomitic shale matrix - Massive - Clasts are angular to rounded and are mm to >3cm - Trace gypsum veins, layers and nodules - Fractured	365.95						
366								DGR6-366.03-PW-UO
367	**Brecciated Anhydritic Dolostone** - Sharp contact 366.9 - Mottled massive to laminated blue to light grey to tan anhydritic dolostone - Abundant dark grey anhydrite veins and laminations - Fractured	CR-055						
	367.50							
368	**Salina Formation - A2 Unit - Evaporite** - Mottled light grey/blue anhydritic dolostone							
	368.34							
369	**Anhydritic Dolostone** - Sharp contact at 368.3 - Blue to light grey/tan anhydritic dolostone - Hard - Massive with localized laminae increasing with depth below 371.1 - Abundantly pitted to vuggy below 371.8 - Fractured	369.00						
370								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
371	**Anhydritic Dolostone** - Blue to light grey/tan anhydritic dolostone - Massive with localized laminae increasing with depth below 371.1 - Abundantly pitted to vuggy below 371.8 - Fractured **371.75**	CR-056						DGR6-370.70-PW-UO
372	**Salina Formation - A1 Unit - Carbonate** - Grey to tan/grey argillaceous dolostone interbedded/laminated with grey to black bituminous shale and trace to abundant anhydrite and gypsum	372.05						
373	**Dolostone** - Gradual transition between 371.1-371.8 from a blue to light-grey/tan anhydritic dolostone to a brown dolostone - Laminated to thinly bedded - Abundantly pitted to vuggy - Sucrosic calcite infilling of pits and vugs - Fractured	CR-057						DGR6-372.70-PW-UO
374	**Dolostone** - Tan brown and light grey - Fracture at 372.5 smooth, infilling black and fine-grained (mm-thick) - Fine to medium-grained - Laminated to thinly bedded - Abundantly vuggy and pitted - Sucrosic calcite infilling of pits and vugs - Abundant laminae of mm-thick gypsum between 374.1-374.6 - 1cm thick anhydrite layer 374.9 - Fractured							DGR6-374.48-PW-UO
375		375.10						DGR6-374.74-AR
	375.35	CR-058						DGR6-375.21-PW-UO
376	**Argillaceous Dolostone** - Grey to dark grey - Fine-grained - Some to abundant dark grey/black bituminous shale laminae - Fractured	375.83						
377	**Argillaceous Dolostone** - Grey to dark grey - Fine-grained - Slightly porous and pitted - One vug at 376.5 - Some to abundant dark grey/black bituminous shale laminae - Fractured	CR-059						DGR6-376.38-PW-UO
378	**Argillaceous Dolostone** - Grey - Fine-grained - Trace to some dark grey/black bituminous shale laminae - Slightly pitted - Fractured	376.66						
379	**Argillaceous Dolostone** - Grey to dark grey - Fine-grained - Trace to some dark grey/black shale laminae - Trace to some discontinuous laminae of white fine-grained calcite veins - Trace to some cm-thick infilled fractures of dark grey to black fine-grained calcite - Trace flecks of pyrite - Large gypsum crystal at 381.2 - Slightly pitted - Fractured	CR-060						DGR6-377.48-PW-UO
380		378.15						
381		CR-061						
	Argillaceous Dolostone	381.20						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
382	**Argillaceous Dolostone** - Dark grey - Fracture at 383.7, infilled with gypsum/anhydrite - Fracture at 384.0, infilled with gypsum/anhydrite - Very fine to fine-grained and hard - Trace grey/black shale laminae - Trace discontinuous laminae of white fine-grained calcite veins - Trace dolomite and calcite discontinuous veins - High concentration of dolomite and calcite discontinuous veins at 381.2-381.4 - Slightly pitted - Fractured	CR-062						DGR6-383.51-PW-UO
383								
384								
		384.25						
385	**Argillaceous Dolostone** - Dark grey - Very fine to fine-grained and hard - High concentration of anhydrite/gypsum discontinuous veins and anhydritic dolostone at 384.3-384.7 - Section of anhydritic dolostone between 385.1-385.4 - Trace grey/black shale laminae - Trace discontinuous laminae of white fine-grained calcite veins below 386.8 - Trace to some flat, white, fibrous laminated to thin anhydrite and gypsum veins - Slightly pitted - Fractured	CR-063						DGR6-385.25-AR
386								
387								
		387.30						
388	**Argillaceous Dolostone** - Grey - Laminated to thinly bedded argillaceous dolostone interlaminated with some black bituminous shale laminae - Fine to very fine-grained and hard - Moderate frequency of dolomite and calcite discontinuous veins decreasing in frequency below 387.9 - Trace flat, white, fibrous laminated to thin anhydrite and gypsum veins and layers - Slightly pitted - Fractured	CR-064						
389								
390								
		390.35						
391	**Argillaceous Dolostone** - Tan/brown to dark grey - Laminated to thinly bedded argillaceous dolostone interlaminated with some black bituminous shale laminae - Fine to very fine-grained - Hard - Abundant dolomite and calcite discontinuous veins that give brecciated appearance - Some flat, white, fibrous laminated to thin anhydrite and gypsum veins below 392.9 - Moderately pitted to vuggy - Fractured to shattered	CR-065						
392								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
393	**Argillaceous Dolostone** - Grey - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with some black bituminous shale laminae - Trace dolomite/calcite discontinuous veins - Trace to some flat, white, fibrous laminated to thin anhydrite and gypsum veins above 395.8 - Fractured	393.40						
394		CR-066						DGR6-393.76-PW-UO
395								DGR6-395.01-AR
396		396.45						
397	**Argillaceous Dolostone** - Grey to brown - Fracture at 398.6, halite infilling, smooth - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with black bituminous shale laminae - Trace dolomite/calcite discontinuous veins Semi-circular calcite infilled vein extending from 395.0-397.5, irregular pattern - Petroliferous odour - Fractured to blocky	CR-067						
398								
399		399.50						
400	**Argillaceous Dolostone** - Grey to brown - Fracture at 399.8, closed with halite and petroliferous residue along fracture, some offset associated with fracture - Three closed fractures at 401.2 infilled with calcite and petroliferous residue - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with black bituminous shale laminae - Trace dolomite/calcite discontinuous veins - Slightly petroliferous - Fractured to blocky	CR-068						
401								
402		402.55						
403								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
404	**Argillaceous Dolostone** - Grey to brown - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with black bituminous shale laminae - Strong petroliferous odour - Fractured to blocky	CR-069						
405								DGR6-404.88-AR
		405.60						
406	**Argillaceous Dolostone** - Grey to brown - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with black bituminous shale laminae - Trace dolomite/calcite discontinuous veins - Strong petroliferous odour - Fractured							
407		CR-070						
408								
		408.65						
409	**Argillaceous Dolostone** - Fracture at 410.5, white infilling - Grey grading to light grey - Very fine to fine-grained and hard - Interlaminated with brown to black bituminous shale laminae - Petroliferous - Fractured to blocky							
410		CR-071						
411								
		411.70						
412	**Argillaceous Dolostone** - Grey - Fracture at 413.9, rough, calcite infilling - Very fine to fine-grained and hard - Laminated to thinly bedded argillaceous dolostone interlaminated with brown to black bituminous shale laminae - Moderately pitted to vuggy - Large partially dolomite/calcite infilled vug at 413.2 - Trace dolomite/calcite discontinuous veins - Strong petroliferous odour - Fractured							
413		CR-072						
414								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
415	**Argillaceous Dolostone** - Grey to brown with depth to 417.3 - Calcite filled veins at 417.1 - Interbedded/laminated with dark brown to black bituminous shale laminae 416.6-417.3 - Core has petroliferous odour and is petroliferous - Core fractured along bituminous laminae during logging (disking) - Laminated light grey dolostone 417.3-417.8 - Very fine-grained - Fractured to blocky	414.75 CR-073						DGR6-415.23-AR
416								
417	**Argillaceous Dolostone** - Light grey - Laminated to massive - Very fine-grained - Fractured to blocky							
	Argillaceous Dolostone - Light grey - Laminated to massive - Very fine-grained - Blocky	417.80						
418	**418.00** **Salina Formation - A1 Unit - Evaporite** - Mottled to thinly bedded light grey/blue anhydrite, anhydritic dolostone and brown dolostone							
419	**Anhydritic Dolostone** - Laminated to thinly bedded - Light-grey/blue anhydritic dolostone and tan/brown anhydritic dolostone - Fine to very fine-grained - Blocky	CR-074						
420		420.85						
421	**Anhydritic Dolostone** - Light-grey/blue anhydritic dolostone and brown anhydritic dolostone - Laminated to thinly bedded - Very fine-grained - Fractured to blocky							
422	**422.96** CR-075							
423	**Salina Formation - A0 Unit** - Dark brown to black, fine-grained, thinly laminated, bituminous dolostone							
424	**Dolostone** - Gradational contact - Interlaminated greyish-brown dolostone and light grey anhydritic dolostone - Fractured to blocky	423.90						DGR6-424.21-AR
425		CR-0						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
426	**Dolostone** - Interlaminated grey to brown/grey dolostone and blackish-brown bituminous argillaceous dolostone - Massive bedded - Fine-grained to medium-grained - Calcareous - Abundant stylolites - Slightly porous to pitted 425.0-425.1 and strongly petroliferous - Bedding becoming much steeper below 426.6 - Fractured to massive	76						DGR6-426.51-PW-UO
427	**427.33**	426.95						
428	**Guelph Formation** - Brown, very fine to medium-grained, vuggy dolostone **Dolostone** - Dark-brown/brown and grey, vuggy and pitted - Massive bedded - Brown dolostone is medium-grained and is in matrix of light grey very fine-grained dolostone - Calcareous and hard - Porous (abundant vugs and pits; commonly partly infilled with calcite/dolomite)	CR-077						DGR6-428.53-PW-UO
429	- Core has petroliferous odour - Trace interbeds/laminae of planar to irregular black shale below 429.9 - Fractured to blocky							
430	**Dolostone** - Brown and grey - Calcite infilled vein at 431.1 - Massive bedded grey with trace interbeds/laminae of planar to irregular black shale between 430.0-430.3; brecciated appearance below 430.3 - Fine and very fine-grained, locally sucrosic and hard - Slightly porous (vugs, some infilled with dolomite crystals); abundantly porous zone (vugs and pits) between 430.6-431.5	430.00						
431	- Fractured to blocky **431.50**	CR-078						
432	**Goat Island Formation** - Light to dark grey/brown, very fine-grained dolostone **Dolostone** - Gradational contact at 431.5 - Light grey and dark grey - Faintly irregularly bedded to massive bedded - Very fine-grained - Hard							DGR6-431.76-PW-UO
433	- Trace stylolites - Fractured to blocky	433.05						
434	**Dolostone** - Grey to light grey with faintly irregular dark grey argillaceous laminae and few localized brown bituminous laminae - Fracture at 435.0, rough - Fine to very fine-grained - Hard - Very fine-grained - Trace stylolites - Fractured to blocky	CR-079						
435								DGR6-435.35-AR
436		436.10						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
437	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and few localized brown bituminous laminae - Fracture at 438.0, rough - Very fine-grained - Trace stylolites - Trace thin porous to pitted sections - Hard - Fractured	CR-080						DGR6-436.54-PW-UO
438								
439		439.15						
440	**Dolostone** - Light grey with faint dark grey argillaceous laminae and few localized brown bituminous laminae - Very fine-grained - Hard - Fractured to massive	CR-081						
441								
442		442.20						
443	**Dolostone** - Light grey with faint dark grey argillaceous laminae and trace localized brown bituminous laminae - Mottled colouring below 444.6 Trace pits and vugs - Very fine-grained - Hard - Blocky to massive	CR-082						DGR6-442.96-PW-UO
444								
445		445.25						
446	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Mottled colouring below 447.4 Trace pits and vugs infilled with trace calcite - Very fine-grained - Hard - Solid	CR-083						DGR6-445.65-AR
447								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
448	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Very fine-grained Trace pits and vugs infilled with trace calcite - Hard - Solid	448.30						
449								DGR6-449.08-PW-UO
450		CR-084						
451	**Dolostone** - Light grey with faintly irregular dark grey argillaceous laminae and trace localized brown bituminous laminae - Very fine-grained - Hard - Blocky to massive	451.35						
452	**452.20**							
453	**Gasport Formation** - Blue/white/grey, fine to coarse-grained, dolomitic limestone **Dolomitic Limestone** - Light to medium grey with dark grey irregular argillaceous laminae and brown irregular bituminous laminae - Slightly pitted core starting around 452.2 and increasing in abundance with depth - Fine to medium-grained - Some stylolites - Soft to hard - Blocky to massive	CR-085						
454		454.40						
455	**Dolomitic Limestone** - Light to medium grey with diffuse brown sections - Two parallel healed fractures with cemented calcite at 456.1 and 456.3 - Massive bedded with irregular black laminae/stylolites - Green/grey mottled section, 455.8-456.0 - Fine to medium-grained - Core becomes more coarse below 455.6 - 0.5cm pyrite nodule at 456.9 - Slightly pitted - 3cm coral fossil at 456.7 - Soft to hard - Blocky to massive							DGR6-455.65-PW-UO
456		CR-086						
457		457.45						DGR6-457.28-AR
458	**Dolomitic Limestone** - Light to medium grey with diffuse brown sections							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
459	~~Light to medium grey with diffuse brown sections~~ - Massive bedded with irregular black laminae/stylolites - Fine to coarse-grained - Slightly porous to pitted - Soft to hard - Blocky to massive	CR-087						
460	**Dolomitic Limestone** - Light to medium grey with diffuse brown sections - Massive bedded with irregular black laminae/stylolites - Fine to coarse-grained - Slightly pitted - Soft to hard - Massive							DGR6-460.10-PW-UO
		460.50						
	460.95							
461	**Lions Head Formation** - Light grey to grey/brown, fine to very fine-grained dolostone							
462	**Dolostone** - Light grey with diffuse grey and brownish grey beds - Mottled - Fine-grained - Trace cm-size round white mudstone clasts and trace stylolites, example at 461.7 - Trace cm-size round grey chert (siliceous) clasts, example at 462.7 - Massive	CR-088						
463								
		463.55						
464	**Dolostone** - Mottled light grey to tan/grey with diffuse grey and brownish grey beds - Fine to very fine-grained - Hard - Trace cm-size round white mudstone clasts and trace stylolites - Trace cm-size round grey chert (siliceous) clasts - Blocky to massive							
	464.98	CR-089						
465	**Fossil Hill Formation** - Light to medium brownish grey coarse-grained dolostone with styolites							
466	**Dolostone** - Light brownish-grey with faint grey diffuse laminae, fine to coarse-grained - Coarser grained beds below 465.4 - Hard to very hard - Increased amount of stylolites below 465.8 - Light green dolomite infilling of pits and vugs at 465.3-465.8 - Blocky to massive							DGR6-465.67-PW-UO
		466.60						DGR6-466.40-AR
467	**Dolostone** - Light brownish-grey with faint grey diffuse laminae, medium to coarse-grained - Hard, some stylolites, massive							
	467.86							
468	**Cabot Head Formation** - Green and red shale grading to interbedded fossiliferous grey carbonate and shale	CR-090						
469	**Shale** - Gradational contact, 467.7-470.0, grading from a laminated light grey	469.65						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
470	dolostone and green shale to a massive bedded green shale - Green shale mottled diffuse contact with red/maroon shale from 468.4-468.5 - Red/maroon shale below 468.5 with trace mottled green shales - Fracture at 468.1, planar, white halite infilling - Fracture at 468.3, smooth - Fracture at 469.0, Planar - Medium soft - Massive bedded - Blocky to massive	468.63						
471	**Shale** - Red/maroon shale with trace green mottles and some green blotches - Massive bedded - Medium soft - Fractured to massive	CR-091						DGR6-471.63-PW-UO
472		472.70						
473	**Shale** - Red/maroon shale with trace green mottles - Trace bands of green shale - Fracture at 473.3, planar, white/clear halite infilling - Massive bedded - Medium soft - Fractured to massive	CR-092						
474								
475		475.75						DGR6-475.08-AR
476	**Shale** - Red/maroon with trace green bands and mottles - Massive bedded - Medium soft - Bore easily breaks apart - Fractured to massive	CR-093						
477								
478								DGR6-477.81-PW-UO
479	**Shale** - Red/maroon - Massive bedded - Medium soft - Bore easily breaks apart - Fractured to massive	478.80 CR-094						
480		479.73						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
481	**Shale** - Diffusely banded red/maroon, grey and green shale - Fracture at 482.1, rough - Trace thinly bedded grey very fine-grained and fossiliferous (brachiopods) limestone beds - Medium soft shale to hard carbonates - Fractured	CR-095						
482		482.51						
483	**Shale** - Banded grey and green shale - Fracture at 484.3, smooth - Trace laminated to thinly bedded grey very fine-grained and fossiliferous limestone beds - Medium soft shale to hard carbonates - Fractured to blocky							
	483.91	CR-096						
484	**Interbedded Shale and Carbonate Beds** - Predominantly mottled grey, grey/green shale thinly to mediumly interbedded with fossiliferous calcareous dolostone - Dolostone is grey/blue, fine to medium-grained, mottled, and contains calcified fossils - Fractured to blocky							DGR6-484.51-PW-UO
485								DGR6-484.83-AR
		485.56						
486	**Interbedded Shale and Carbonate Beds** - Predominantly mottled grey fossiliferous calcareous dolostone with variable amounts of grey/green mud (wackestone) thinly to mediumly interbedded with mottled grey/green shale - Fracture at 486.1, rough - Dark grey/maroon/brown, very soft shale bed 487.0-487.9 - Dolostone is grey/blue, fine to medium-grained, mottled, and contains calcified fossils - Fractured to blocky							
487		CR-097						
488		488.61						
489	**Interbedded Shale and Carbonate Beds** - Predominantly mottled grey fossiliferous calcareous dolostone with variable amounts of grey/maroon/brown mud (wackestone) thinly to medium interbedded with mottled grey/green shale - Dolostone is grey/blue, fine to medium-grained, mottled, and contains calcified fossils - Fractured to blocky	CR-098						
490		490.11						
491	**Interbedded Shale and Carbonate Beds** - Mottled grey fossiliferous calcareous thinly to thickly bedded dolostone with variable amounts of grey/green mud (wackestone) thinly to medium interbedded with mottled grey/green shale - Fracture at 490.4, smooth/rough with an irregular fit - Dolostone is grey/blue, fine to medium-grained, mottled, and trace calcified fossils (bryozoans, coral) - Massive	CR-099						DGR6-490.53-PW-UO

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
492	**Interbedded Shale and Carbonate Beds** - Mottled grey fossiliferous calcareous dolostone with variable amounts of grey/green mud (wackestone)thinly to medium interbedded with mottled grey/green shale - Fracture at 493.0, smooth with an irregular fit - Dolostone is grey/blue, fine to medium-grained, mottled, and trace calcified fossils (bryozoans, coral) - Fractured to blocky	491.93						
493		CR-100						
	493.55							
494	**Manitoulin Formation** - Grey,very fine to medium-grained, fossiliferous, mottled argillaceous to non-argillaceous dolostone with grey/green shale interbeds and chert layers/nodules							
495	**Argillaceous Dolostone** - Mottled fine to medium-grained grey/green argillaceous dolostone, trace interbeds of grey dolostone and green shale - Fracture at 493.6, rough with an irregular fit and pitted/weathered face - Some chert nodules - Massive - Slightly fossiliferous (brachiopods) - 13cm green shale bed at 494.4	494.98						DGR6-495.55-AR
496	**Argillaceous Dolostone** - Mottled fine to coarse-grained grey/green argillaceous dolostone - Fracture at 496.0, smooth/rough, slightly irregular fit - Trace interbeds of grey dolostone and green shale - Some chert nodules - Slightly fossiliferous (bryozoans, brachiopods) - Blocky to massive	CR-101						DGR6-496.21-PW-UO
497								
	497.57							
498	**~~Interbedded Shale and Dolostone~~** - Mottled light grey to green/grey coarse-grained argillaceous dolostone with some thin interbeds and laminae of green shale, slightly fossiliferous, trace light grey thin chert beds, blocky - Fractures at 498.4 and 498.6, smooth/rough, slightly irregular fit and slightly pitted	498.03						
	498.62							
499	**Cherty Dolostone** - Grey/blue to grey/tan, fine to medium-grained grading downwards to medium to coarse-grained, fossiliferous, stylolites, trace irregular black laminae - 4cm-thick grey/white sandstone layer, very hard with a silica infilled vug at 498.7 - Blocky	CR-102						
500								
501		501.08						
	Cherty Dolostone - Grey/tan with some to grey/blue, very fine to medium-grained - Fracture at 501.7, smooth/rough, slightly irregular and pitted - Trace to some irregular black laminae - Fossiliferous - Trace stylolites below 502.1 - Increase in chert content below 502.1 - 2cm-thick packstone bed at 503.7 - 5cm-thick wackstone bed at 504.1 - Blocky to massive	CR-10						DGR6-502.30-PW-UO
502								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
503		503						
504	**504.13**	504.13						
	Limestone - Light-grey/tan, trace laminae of green shale, very fine-grained,hard, trace stylolites, massive bedded, fractured to blocky **504.62**							DGR6-504.67-AR
505	**Interbedded Shale and Dolostone** - Interlaminated grey dolostone and green shale - Fracture at 504.7, rough, slightly irregular - Fracture at 504.9, smooth, halite infilled - Slight maroon colour transition below 507.0 - Fractured to blocky	CR-104						
506								
507	**Interbedded Shale and Dolostone** - Interlaminated grey dolostone and coarse-grained sandstone with green and maroon shale - Trace mottling - Medium soft to hard - Fractured to massive	507.18						
	507.86							
508	**Queenston Formation** - Red to maroon, massive bedded, calcareous to non-calcareous shale with subordinate interbeds of green shale, and grey/brown carbonates and siltstone	CR-105						
509	**Shale** - Sharp contact at 507.9 - Red/maroon with green mottling and blotching - Massive bedded - Trace thin carbonate beds - Medium soft - Massive							
510		510.23						
511	**Shale** - Red/maroon shale with trace to some bands and green shale - Massive bedded - Local carbonate lamination at 510.6 - Medium soft - Solid	CR-106						DGR6-509.27-AR
512								DGR6-512.15-AR DGR6-509.27-AR
513								DGR6-512.84-PW-UNB
		513.28						
	Shale - Red/maroon shale with trace to some bands and green shale - Trace mottles of green shale							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
514	- Medium soft - Massive bedded - White anhydrite nodule at 513.5 - Medium soft - Blocky	CR-107						DGR6-514.48-PW-UNB
515								
516		516.33						
517	**Shale** - Red/maroon shale with some bands and green shale - Medium soft - Massive bedded - Medium soft - Blocky	CR-108						
518		518.15						
519	**Shale** - Red/maroon with blotches, mottles and bands of green shale - Medium soft - Massive bedded - Medium soft - Blocky	CR-109						
520		519.56						
521	**Shale** - Red/maroon with mottles and bands of green shale - Massive bedded - Medium soft - Fractured to blocky	CR-110						
522		522.61						
523	**Shale** - Red/maroon with mottles, blotches and bands of green shale - Fracture at 523.0, smooth - Medium soft - Massive bedded - Trace thin carbonate beds - Medium soft - Blocky	CR-111						
524								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
525	**Shale** - Red/maroon with mottles, blotches and bands of green shale - Medium soft - Massive bedded - Trace thin carbonate beds - Trace pink anhydrite nodules below 528.3 - Medium soft - Fractured to blocky	525.66						
526								
527		CR-112						
528		528.71						
529	**Shale** - Red/maroon with mottles and bands of green shale - Fracture at 529.0, smooth, slickensides - Medium soft - Massive bedded - Trace thin carbonate beds - Trace to some pink anhydrite nodules - Medium soft - Fractured to blocky							
530		CR-113						
531		531.76						
532	**Shale** - Red/maroon shale with blotched green shale, beds and diffuse zones - Massive bedded - Medium soft - Trace pink/white anhydrite nodules - Shattered to blocky							
533		CR-114						
534								
535	**Shale** - Red/maroon with trace green shale mottles, beds and diffuse zones - Core is shattered - Massive bedded - Medium soft - Shattered to fractured	534.81 CR-115 535.00						
	Shale - Red/maroon with trace green shale mottles and diffuse zones							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
536	- Massive bedded - Medium soft - Trace localized pink anhydrite nodules - Solid	CR-116						
537								
538		538.05						
	Shale - Red/maroon with trace green shale mottles and diffuse zones - Fracture at 538.7, completely infilled - Fracture at 538.9, rough - Massive bedded - Medium soft - Trace localized pink anhydrite nodules - Fractured to blocky	CR-117						DGR6-538.69-AR
539		539.50						
	Shale - Red/maroon with trace green shale mottles and diffuse zones - Massive bedded - Medium soft - Trace localized pink anhydrite nodules - Fractured to massive	CR-118						
540								
541								
542								
	Shale - Grey/green shale with trace red/maroon shale mottles and diffuse zones - Massive bedded - Medium soft - Trace localized pink anhydrite nodules - Fractured	542.55						
543		CR-119						
	543.55							
	Interbedded Shale and Limestone - Shale is grey/green and transitions to carbonate layering at 543.6 - Massive bedded - Carbonate interbeds are grey, cm to 5 cm-thick fossiliferous (bryozoans) - Medium soft - Fractured	543.96						
544								
	Interbedded Shale and Limestone - Shale is grey/green with grey interbedded carbonate - Shale is thickly bedded - Medium soft - Carbonate interbeds are grey, cm to 5 cm-thick fossiliferous (bryozoans) - Fractured to blocky	CR-120						
545								
546								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
547	**Interbedded Shale and Limestone** - Green/red maroon thickly bedded, medium soft, calcareous shale grading to medium to thickly interbedded grey/green calcareous shale with carbonate interbeds at 549.5 - Carbonate interbeds are grey, medium to coarse-grained, abundantly fossiliferous (brachiopods) - Carbonate beds with subordinate green shale interbeds below 549.8 - Fractured to blocky	547.01						
548		CR-121						
549								
550	**Interbedded Shale and Limestone** - Green calcareous shale and interbeds of grey, fine-grained, fossiliferous (bivalves, brachiopods) limestone, hard - Fractured to blocky	550.06						
551		CR-122						DGR6-551.73-AR
552								DGR6-551.91-AR
553	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light to dark grey thin to medium carbonate interbeds - Shale is thinly bedded, calcareous, locally contains elongate (mm-long) limestone nodules - Medium soft (shale) to hard (carbonate) - Slightly fossiliferous - Fractured to blocky	553.11						
554		CR-123						
555								DGR6-555.15-AR
556	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light to dark grey thin to medium carbonate interbeds - Shale is thinly bedded, calcareous - Medium soft (shale) to hard (carbonate) - Slightly fossiliferous - Fractured to blocky	556.16						
557		CR-124						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
558								
559		559.21						
560	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light to dark grey thin carbonate interbeds - Shale is thinly bedded, calcareous - Carbonate interbeds are very fine-grained to coarse-grained, fossiliferous and locally abundant - Medium soft (shale) to hard (carbonate) - Slightly fossiliferous - Calcite filled vug at 560.5 - Blocky	CR-125						
561	**Interbedded Shale and Limestone** - Grey/green shale interbedded with light to dark grey thin carbonate interbeds - Shale is thinly bedded, calcareous - Carbonate interbeds are very fine-grained to coarse-grained and slightly fossiliferous and locally bioturbated - Medium soft (shale) to hard (carbonate) - Slightly fossiliferous - Fractured to blocky	560.85						
562		CR-126						
563		563.90						
564	**Interbedded Shale and Limestone** - Grey/green shale interbedded with grey/blue carbonate interbeds - Shale is laminated to thinly interbedded with laminated to thin carbonates - Carbonate interbeds are very fine-grained to coarse-grained and slightly fossiliferous - Medium soft (shale) to hard (carbonate) - Fractured to blocky							
565		CR-127						DGR6-565.18-AR
566								DGR6-565.51-AR
567	**Interbedded Shale and Limestone** - Grey/green with a red/maroon diffuse zone from 567.1-567.7 interbedded with grey/blue carbonate interbeds - Shale is thinly to thickly interbedded with laminated to thin carbonates - Carbonate interbeds are very fine-grained to coarse-grained and slightly fossiliferous - Medium soft (shale) to hard (carbonate) - Fractured to blocky	566.95						DGR6-565.77-AR
568		CR-128						
		568.36						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
569	**Interbedded Shale and Limestone** - Grey/green shale interbedded with grey/blue carbonate interbeds - Shale is laminated to thinly interbedded with laminated to thin carbonates - Carbonate interbeds are very fine-grained to coarse-grained and slightly fossiliferous - Medium soft (shale) to hard (carbonate) - Fractured to blocky	CR-129						
570								DGR6-570.44-AR
	570.70							
571	**Shale** - Dark grey/green shale - Trace laminae and thin beds of carbonates - Massive bedded - Hard - Calcareous - Fractured to blocky	571.41						
572	**Shale** - Red/maroon with green mottles, blotches and diffuse bands - Massive bedded - Hard - Some pink anhydrite nodules below 574.1 - Calcareous - Blocky	CR-130						
573								
574		574.46						
	Shale - Red/maroon with green mottles, diffuse bands and trace blotches - Massive bedded - 5cm-thick pink anhydrite at 575.2							
575	- Hard - Calcareous - Trace carbonate laminae - Blocky	CR-131						
576								
577		577.51						
	Shale - Red/maroon with green mottles, diffuse bands and trace blotches - Massive bedded							
578	- Hard - Calcareous - Trace carbonate laminae - Blocky	CR-132						
579								DGR6-579.29-AR

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
580		580.56						
581	**Shale** - Red/maroon with green mottles, diffuse bands and trace blotches - Massive bedded - Hard - Calcareous - Trace thin to laminated carbonate beds - Shale and carbonate beds are laminated to thinly bedded from 580.6-581.4 and are thinly to medium bedded below 581.4 - Gradational contact at 583.1 - Blocky	CR-133						
582								
583	**583.10**							
	<u>Georgian Bay Formation</u> - Dark greenish/grey shale, interbedded (decreasing abundance with depth) with grey fossiliferous limestone and siltstone beds	583.61						DGR6-583.75-AR
584	**Interbedded Shale and Limestone/Siltstone** - Gradational contact at 583.05 - Green/grey shale interbedded with light grey limestone and grey siltstone - Limestone interbeds are cm's-thick, fossiliferous and locally bioturbated, hard - Blocky							
585		CR-134						DGR6-585.30-AR
								DGR6-585.57-AR
586		586.66						
587	**Interbedded Shale and Limestone/Siltstone** - Green/grey shale interbedded with light grey limestone and grey siltstone - Shale is thinly bedded, calcareous, locally contains limestone clasts, medium soft - Limestone is thinly bedded, trace beds are coarse-grained, locally contain cross-stratification, fossiliferous (brachiopods, crinoids), locally bioturbated, and hard - Siltstone beds are laminated to thinly bedded, calcareous and are locally low-angle cross-laminated, and hard Large gypsum nodule at 587.6 - Blocky to massive							
588		CR-135						
589								
		589.71						DGR6-590.33-AR
590								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
591	**Interbedded Shale and Limestone/Siltstone** - Grey shale interbedded with light grey siltstone and fossiliferous/bioturbated limestone - Shale is thinly to medium bedded and calcareous, medium soft - Limestone is laminated to thinly bedded, medium-grained, fossiliferous and hard, locally bioturbated - Fractured to blocky	CR-136						
592		592.76						
593	**Interbedded Shale and Limestone/Siltstone** - Grey shale interbedded with light grey limestone and grey/green siltstone - Shale is thinly to medium bedded, very soft - Limestone is laminated to thinly bedded, medium-grained, fossiliferous, bioturbated, and hard - 3 fractures at 593.7, smooth; 594.9, smooth, with calcite infilling; and 595.0 , smooth - Fractured	CR-137						
594								
595		595.81						
596								
597	**Interbedded Shale and Limestone/Siltstone** - Laminated to medium bedded grey shale interbedded with laminated to medium bedded, fine to coarse-grained fossiliferous, bioturbated bioclastic limestone, and siltstone - Medium soft (shale) and hard (limestone/siltstone) - Fractured to blocky	CR-138						
598								
599	**Interbedded Limestone/Siltstone and Shale** - Thinly bedded grey shale with thinly to medium bedded limestone - Bioturbated/fossiliferous fine to coarse-grained limestone - Medium soft (shale) and hard (limestone/siltstone) - Light grey limestone bed extending below 598.6 - Fractured to blocky	598.86 CR-139 599.46						
600	**Interbedded Shale and Limestone/Siltstone** - Thinly bedded dark grey shale interbedded with thinly bedded, fine to coarse-grained limestone, and siltstone - Trace localized bioclastic/fossiliferous limestone bed - Increasing shale content with depth - Heavily bioturbated 599.5-600.1 - Core disking into 5-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured to blocky							DGR6-600.20-AR
601		CR-140						
								DGR6-601.48-AR
								DGR6-601.73-AR
601.91		601.91						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
602	**Shale** - Thinly to thickly bedded dark grey shale with some laminae to thin beds of fine to coarse-grained limestone, and siltstone - Fracture at 602.9, smooth - Shale is thin to medium bedded - Trace localized bioclastic/bioturbated/fossiliferous limestone beds - Core disking into 2-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured to blocky	CR-141						
603								DGR6-603.13-AR
604								
605	**Shale** - Dark grey shale with trace laminae to thin beds of fine to coarse-grained limestone, and siltstone - Shale is massive bedded - Trace localized bioclastic/bioturbated/fossiliferous limestone beds - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/sandstone/siltstone) - Fractured to blocky	604.96						
606		CR-142						
607								
608	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 608.2, smooth - Fracture at 608.4, smooth - Bioturbated limestone section between 609.2-609.4 - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Core disking into 5-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured	608.01						
609		CR-143						
610								DGR6-609.95-AR
611	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 613.7, smooth, thin infilling of calcite on fracture surface - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Red/orange (calcite?) nodules at 612.2 and 613.7 - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured	611.06						
612		CR-144						DGR6-612.38-AR
613								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
614	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 615.2, rough, iron oxide staining and infilling - Shale is massive bedded - Trace fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Shattered to fractured	614.11						DGR6-613.43-PT DGR6-613.69-MN-SGS
615		CR-145						
616								
617		617.16						
618	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 618.1, rough - Shale is massive bedded - Trace fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured	CR-146						
619								DGR6-619.46-AR
620		620.21						
621	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 621.9, grey discolouration with some offset of 0.2cm - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Core disking into 3-10cm pieces - Medium soft (shale) and hard (limestone/siltstone) - Fractured	CR-147						
622								
623		623.26						
624	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Fossiliferous limestone with calcified fossils (Cephalopod?) at 625.4 - Core disking into 5-10cm pieces							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
	- Core disking into 5-10cm pieces - Soft (shale) and hard to very hard (limestone/siltstone) - Fractured to blocky							
		CR-148						DGR6-624.52-AR
625								
626								
		626.31						
	Shale - Dark grey shale with interbeds of limestone/siltstone - Fracture at 626.6, rough - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils							
627	- Core disking into 5-10cm pieces - Soft (shale) and hard (limestone/siltstone) - Fractured to blocky							
		CR-149						
628								
629								
		629.36						
	Shale - Dark grey shale with interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils							
630	- Core disking into 5-10cm pieces - Soft (shale) and hard (limestone/siltstone) - Fractured to blocky							
		CR-150						DGR6-630.69-AR
631								
632								
		632.41						
	Shale - Dark grey shale with interbeds of limestone/siltstone - Two fractures at 633.5, and one at 633.6, all with slickensides - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Core disking into 5-10cm pieces and disking - Soft (shale) and hard (limestone/siltstone) - Shattered to blocky							
633								
634		CR-151						
635								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
636	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Fossiliferous limestone layer (8cm) at 636.8 with calcified fossils - Core disking into 2-10cm pieces - Soft (shale) and hard (limestone/siltstone) - Fractured	635.46 CR-152 636.96						
637	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Trace fossils - Core disking into 5-10cm pieces - Soft (shale) and hard (limestone/siltstone) - Fractured	CR-153 638.51						
639	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 639.2, smooth and partially closed, fracture at 639.8, smooth - Shale is massive bedded, trace fossils - Vuggy fossiliferous 3cm-thick limestone layer with anhydrite infilling at 639.3 - Core disking into 1-10cm pieces and disking into crescent shaped pieces - Soft (shale) and hard (limestone/siltstone) - Shattered to fractured	CR-154 640.01						
641	**Shale** - Dark grey shale with trace laminae to medium interbeds of limestone - Shale is massive bedded - Trace fossils - Trace thin fossiliferous limestone layers with calcified fossils - Core disking into 2-10cm pieces - Soft (shale) and hard (limestone/siltstone) - Fractured to massive	CR-155 641.56						
642	**Shale** - Dark grey shale, massive bedded, core disking to 1-5cm pieces - Trace fossils, soft (shale) - Shattered	CR-156 642.16						
644	**Shale** - Dark grey shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Soft to medium soft (shale) - Trace fossils - Trace thin bioclastic (gastropods and brachiopods) fossiliferous limestone layers with calcified fossils - Core disking into 2-10cm pieces - Shattered to fractured	CR-157 645.16						DGR6-644.99-AR

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
647	**Shale** - Dark grey shale with trace thin interbeds of siltstone/limestone - Massive bedded - Core disking to 5-15cm pieces - Trace fossils (gastropods, brachiopods, bivalves, and crinoids) - Trace thin bioclastic (gastropods and brachiopods) fossiliferous limestone layers with calcified fossils - Soft to medium soft (shale) - Fractured	CR-158						DGR6-647.39-PT
648		648.16						
649	**Shale** - Dark grey shale with trace thin interbeds of siltstone/limestone - Fracture at 651.1, smooth, infilling is finely crystalline calcite - Massive bedded - Core disking to 5-15cm pieces (disking not as prevalent) - Trace fossils (gastropods, brachiopods, bivalves, and crinoids) - Trace thin bioclastic (gastropods and brachiopods) fossiliferous limestone layers with calcified fossils - Soft to medium soft (shale) - Fractured	CR-159						DGR6-648.79-AR
650								
651		651.16						DGR6-651.12-PW-UO
652	**Shale** - Dark grey/blue shale with trace laminae to thin interbeds of limestone/siltstone - Two smooth fractures at 651.2 with thin halite infilling - Fracture at 652.1, halite infilling - Shale is massive bedded - Trace fossils - Some core disking into 5-10cm pieces - Soft to medium soft (shale) and hard (limestone/siltstone) - Slight petroliferous odour - Fractured to blocky	CR-160						DGR6-651.52-AR
653								
654		654.16						
655	**Shale** - Dark grey/blue shale with trace laminae to thin interbeds of limestone/siltstone - Fracture at 654.6, smooth, halite infilling - Fracture at 655.2, smooth, halite infilling - Fracture at 655.5, smooth, halite infilling - Shale is massive bedded - Localized halite infillings - Trace fossils - Trace thin bioclastic (gastropods and brachiopods) fossiliferous limestone layers with calcified fossils - Core disking into 5-10cm pieces - Soft to medium soft (shale) and hard to very hard (limestone/siltstone) - Fractured to blocky	CR-161						DGR6-654.58-MN-SGS
656								DGR6-656.24-AR
657		657.16						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
658	**Shale** - Dark grey/blue shale with trace laminae to thin interbeds of limestone/siltstone - Shale is massive bedded - Localized halite infillings - Trace fossils - Trace thin bioclastic (gastropods and brachiopods) fossiliferous limestone layers with calcified fossils - Less core disking into 5-10cm pieces - Soft to medium soft (shale) and hard to very hard (limestone/siltstone) - Fractured to blocky	CR-162						DGR6-658.83-PW-UO
659								DGR6-659.17-PW-UO
660								DGR6-659.82-PW-UO
661	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae - Shale is massive bedded - Slight sulfurous odour on freshly broken core - Fractured to blocky	660.16 CR-163						DGR6-660.39-AR
662								
663		663.16						
664	**Shale** - Dark grey soft to medium soft shale with trace fine-grained, hard, limestone/siltstone laminae - Shale is massive bedded - Fractured to blocky	CR-164						DGR6-664.31-MN-SGS DGR6-664.58-PT
665								
666		666.16						
667	**Shale** - Dark grey soft to medium soft shale with trace fine-grained, hard, limestone/siltstone laminae - Core disking into 5-15cm pieces - Shale is massive bedded - Fractured to blocky	CR-165						DGR6-667.04-AR
668								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
669	**Shale** - Dark grey soft to medium soft shale - Shale is massive bedded - Fractured	669.16 CR-166 669.26						
670	**Shale** - Dark grey soft to medium soft shale with trace fine-grained, hard, siltstone laminae - Core disking into 5-15cm pieces - Shale is massive bedded - Fractured to blocky							
671		CR-167						DGR6-671.09-AR
672		672.16						
673	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae and thin beds - Core disking into 5-15cm pieces - Shale is massive bedded - Fractured to blocky	CR-168						
674								
675		675.16						
676	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae and thin beds - Core disking into 5-15cm pieces - Sedimentary loading feature at 675.8 - Shale is massive bedded - Fractured to blocky	CR-169						DGR6-676.32-AR
677								
678		678.16						
679								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
680	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae and thin beds - Trace fossils (crinoids and bryozoans) - Fracture at 680.3, smooth, 75mm-thick, infilled with white/translucent halite - Shale is massive bedded - Fractured to blocky	CR-170						DGR6-680.25-PW-UO
681		681.16						DGR6-681.13-AR
682	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae - Trace fossils (crinoids and bryozoans) - Core disking into 5-10cm pieces - Abundant drilling (core wear) on core surface below 683.3 - Shale is massive bedded - Fractured							
683		CR-171						
684		684.16						DGR6-684.51-AR
	684.68							
685	**Blue Mountain Formation** - Green/blue to blue/grey to grey with depth, fossiliferous shale interbedded with siltstone and fossiliferous limestone in upper part of formation - Grey to dark grey shale with petroliferous odour and trace siltstone laminae	CR-172						
686								
687	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone (fossiliferous)/siltstone laminae and thin beds - Some fossils (crinoids) - Core disking into 5-30cm pieces - Shale is massive bedded - Fractured to blocky	687.16						DGR6-687.68-AR
688	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone/siltstone laminae - Some fossils - Shale is massive bedded - Fractured to blocky	CR-173						
689								
690		690.16						
	Shale							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
691	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone (fossiliferous)/siltstone laminae and thin beds - Some fossils - Shale is massive bedded - Fractured to blocky	CR-174						DGR6-691.32-AR
692								
693		693.16						
694	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone (fossiliferous)/siltstone laminae - Four smooth halite infilled fractures at 693.9, 694.4, 695.6, 695.8 - Core disking into 5-10cm pieces - Some fossils (crinoids) - Shale is massive bedded - Fractured to blocky	CR-175						DGR6-694.49-GM-CAN DGR6-694.79-PW-UO
695								
696		696.16						DGR6-696.27-AR
697	**Shale** - Dark grey soft to medium soft shale with trace to some fine-grained, hard, limestone (fossiliferous)/siltstone laminae and thin beds - Some fossils (crinoids and bivalves) - Shale is massive bedded - Core disking into 5-10cm pieces - Two parallel smooth and halite infilled at 697.4 and 697.7 - Abundant drilling (core wear) on core surface below 698.8 - Fractured to blocky	CR-176						DGR6-697.67-MN-SGS
698								
699		699.16						
700	**Shale** - Dark grey soft to medium soft shale with trace fine-grained, hard, limestone (slightly fossiliferous)/siltstone laminae and thin beds - Some fossils (crinoids and bivalves) - Core disking - Shale is massive bedded - Blocky	CR-177						DGR6-699.62-PT
701								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
702	**Shale** - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Fracture at 702.7, smooth/rough with some anhydrite infilling - Fracture at 703.1, closed fracture - Fracture at 703.1, smooth - Two smooth fractures with oxide coating at 703.2, and 703.4 (calcite infilling) - Shale is massive bedded - Blocky	702.16 CR-178						DGR6-701.36-AR
705	**Shale** - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Fracture at 705.6, rough, halite infilled - Fracture at 706.4, rough, infilled with orange/red calcite and offset 0.3cm - Shale is massive bedded - Fractured to blocky	705.16 CR-179						
708	**Shale** - Dark grey soft to medium soft shale with trace limestone/siltstone laminae - Shale is massive bedded - Blocky	708.16 CR-180						DGR6-708.95-AR
711		711.16						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
713	**Shale** - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Shale is massive bedded - Bituminous - Blocky	CR-181						
714		714.16						
	Shale - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Shale is massive bedded - Blocky							
715		CR-182						DGR6-715.71-AR
716								
717		717.16						
	Shale - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Shale is massive bedded - Blocky							DGR6-717.68-PT
718		CR-183						DGR6-717.97-MN-SGS
719								
720		720.16						
	Shale - Dark grey soft to medium soft shale with trace limestone/siltstone laminae and thin beds - Core disking into 1-10cm pieces - Shale is massive bedded - Blocky							
721		CR-184						
722								
723		723.16						
	Shale - Dark grey soft to medium soft shale							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
	- Dark grey soft to medium soft shale - Shale is massive bedded - Blocky							
								DGR6-723.67-AR
724								
		CR-185						
725								
726								DGR6-726.01-AR
		726.16						
	Shale - Dark grey soft to medium soft shale - Fossiliferous - Petroliferous odour - Shale is massive bedded - Blocky							
727								
		CR-186						
728								
729								
		729.16						
	Shale - Dark grey soft to medium soft shale - Fossiliferous - Petroliferous odour - Shale is massive bedded - Blocky							DGR6-729.74-AR
730								
		CR-187						
731								
732								
		732.16						
	Shale - Dark grey soft to medium soft shale - Fossiliferous - Petroliferous odour - Shale is massive bedded - Blocky							DGR6-732.74-AR
733								
		CR-188						
734								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
735		735.16						
	Shale - Dark grey soft to medium soft shale - Fossiliferous - Petroliferous odour - Shale is massive bedded - Blocky							DGR6-735.40-MN-SGS
736								
	Shale - Dark grey to brown shale with some laminated to thin very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture - Moderately fossiliferous (brachiopods, crinoids, and other fossil fragments) - Massive	CR-189						DGR6-736.57-PT
737								
738		738.16						DGR6-737.65-AR
	738.25							
739	**Cobourg Formation - Collingwood Member** - Dark grey to black calcareous shale interbedded with grey fossiliferous and argillaceous limestone **Shale** - Dark grey to brown shale with some laminated to thin very fine to medium-grained, very hard, argillaceous limestone with semi-nodular texture, moderately fossiliferous (brachiopods, crinoids, and other fossil fragments), solid							
	739.76	CR-190						
740	**Interbedded Shale and Argillaceous Limestone** - Gradational contact starting at 739.3 - Thin to medium bedded dark brown calcareous shale interbedded with thin to medium bedded, light grey/brown, fossiliferous, argillaceous limestone - Trace bioturbated layers - Massive							
741		741.16						DGR6-741.79-AR
742	**Interbedded Shale and Argillaceous Limestone** - Thin to medium bedded dark brown calcareous shale interbedded with thin to thickly bedded, light grey/brown, fossiliferous, argillaceous limestone - Trace bioturbated layers - Massive	CR-191						
743								DGR6-742.79-AR
744		744.16						
	Interbedded Shale and Argillaceous Limestone - Thin to medium bedded dark brown calcareous shale interbedded with thin to medium bedded, light grey/brown, fossiliferous, argillaceous limestone - Trace bioturbated layers - Massive							
745								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
746	**746.06**	CR-192						
747	**Cobourg Formation - Lower Member** - Mottled light grey, very fine to coarse-grained, very hard, fossiliferous, argillaceous limestone **Argillaceous Limestone** - Sharp contact at 746.1 - Mottled light grey to grey, very fine-grained, very hard, argillaceous limestone - Some irregular, calcareous, medium soft, dark grey shale laminated to thin beds - Fossiliferous - Semi-nodular to nodular texture - Massive	747.16						DGR6-747.54-PW-UO DGR6-747.74-AR
748		CR-193						DGR6-747.99-GM-CAN
749	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive							
750		750.16						
751	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive	CR-194						DGR6-750.55-PT DGR6-750.80-MN-SGS
752								DGR6-751.68-AR
753		753.16						
754	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - 2cm-diameter calcite nodule - Massive	CR-195						
755								DGR6-755.19-GM-CAN DGR6-755.43-PW-UO
756		756.16						
	Argillaceous Limestone - Mottled light grey							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
757	- Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Trace calcite veins and thin layers - Massive	CR-196						
758								DGR6-758.01-AR
759		759.16						
760	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive	CR-197						
761								DGR6-761.76-MN-SGS
762		762.16						DGR6-762.01-PT
763	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive	CR-198						DGR6-762.40-AR
764								DGR6-763.83-AR
765		765.16						
766	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Slightly fossiliferous - Argillaceous - Petroliferous odour freshly broken core - Semi-nodular to nodular texture - Massive	CR-199						DGR6-765.50-PW-UO
767								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
768	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive	768.16						DGR6-768.08-PW-UO DGR6-768.31-PT DGR6-768.58-MN-SGS
769		CR-200						
770								
771		771.16						
772	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Massive	CR-201						
773								
774		774.16						
775	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous - Argillaceous - Semi-nodular to nodular texture - Some calcite nodules - Massive	CR-202						
776								
777		777.16						
778	**Argillaceous Limestone** - Mottled light grey - Very fine-grained - Very hard - Fossiliferous	C						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
779	- Argillaceous - Semi-nodular to nodular texture - Some calcite nodules - Massive	R-203						
780	**780.16**	780.16						
781	**Sherman Fall Formation** - Grey, medium to coarse-grained to fine-grained with depth, fossiliferous, argillaceous limestone interbedded with grey/green shale; shale interbeds increase in abundance with depth **Interbedded Argillaceous Limestone and Shale** - Grey limestone interbedded with dark grey/green shale laminae and thin beds - Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous	CR-204						
782	- Shale laminae and thin beds are abundant, locally contain limestone nodules and core breaks along shale beds/laminae - Trace calcite nodules - Massive							
783	783.16							
784	**Interbedded Argillaceous Limestone and Shale** - Grey limestone interbedded with dark grey/green shale laminae and thin beds - Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous - Shale laminae and thin beds are abundant, locally contain limestone nodules and core breaks along shale beds/laminae - Trace calcite nodules - Massive	CR-205						
785								
786	786.16							
787	**Interbedded Argillaceous Limestone and Shale** - Grey limestone interbedded with dark grey/green shale laminae and thin beds - Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous - Shale laminae and thin beds are abundant, locally contain limestone nodules and core breaks along shale beds/laminae - Trace calcite nodules - Localized concentrated layer of calcite nodules at 787.4 - Massive	CR-206						
788								
789	789.16							
	Interbedded Argillaceous Limestone and Shale - Grey limestone interbedded with dark grey/green shale laminae and thin beds							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
790	- Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous - Shale laminae and thin beds are abundant, and core breaks along shale beds/laminae - Trace calcite nodules - Massive	CR-207						
791								
792		792.16						
793	**Interbedded Argillaceous Limestone and Shale** - Grey limestone interbedded with dark grey/green shale laminae and thin beds - Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous - Shale laminae and thin beds are abundant, and core breaks along shale beds/laminae - Trace calcite nodules - Some beds have mottled appearance - Massive	CR-208						
794								
795		795.16						
796	**Interbedded Argillaceous Limestone and Shale** - Fracture at 796.9, smooth - Grey limestone interbedded with dark grey/green shale laminae and thin beds - Limestone is fine to medium-grained, argillaceous, locally coarse-grained, bioclastic, and fossiliferous - Shale laminae and thin beds are abundant, and core breaks along shale beds/laminae - Trace calcite nodules - Some beds have mottled appearance - Massive	CR-209						
797								
798		798.16						
799	**Interbedded Argillaceous Limestone and Shale** - Fractures at 798.9, 799.7 and 800.9, smooth - Mottled, grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Mottled, dark grey/green, irregular, medium soft, fossiliferous shale laminae and thin beds - Blocky to Massive	CR-210						
800								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
801	**Interbedded Argillaceous Limestone and Shale** - Fractures at 798.9, 799.7 and 800.9, smooth - Mottled, grey, fine to medium-grained, thin to medium bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Mottled, dark grey/green, irregular, medium soft, fossiliferous shale laminae and thin beds - Petroliferous odour - Blocky to Massive	801.16						
802		CR-211						
803								
804		804.16						
805	**Interbedded Argillaceous Limestone and Shale** - Halite or gypsum-infilled fracture at 807.0, rough - Grey, fine to coarse-grained, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shale laminae and thin beds - Petroliferous odour - Blocky	CR-212						
806								
807		807.16						
808	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shaley laminae to medium bedded - Trace bioclastic beds - Blocky to massive	CR-213						
809								
810		810.16						
811	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Shale beds locally contain carbonate clasts and nodules - Trace bioclastic beds - Blocky	CR-						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
812		812.14						
813	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Shale beds locally contain carbonate clasts and nodules - Trace bioclastic beds - Blocky	813.16						
814								
	814.66	CR-215						
815	**Kirkfield Formation** - Grey, fine to medium-grained, argillaceous, fossiliferous limestone interbedded and dark grey/green shale							
816		816.16						
817	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Shale beds locally contain carbonate clasts and nodules - Trace bioclastic beds - Blocky to massive	CR-216						
818								
819		819.16						
820	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, fossiliferous, hard argillaceous limestone, locally coarse-grained and bioclastic - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Shale beds locally contain trace carbonate clasts and nodules - Trace bioclastic beds - Blocky to massive	CR-217						
821								
822		822.16						
	Interbedded Argillaceous Limestone and Shale							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
823	- Fractures at 823.0,and 823.7, smooth - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Shale beds locally contain trace carbonate clasts and nodules - Blocky to massive	CR-218						
824								
825		825.16						
826	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly to medium bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Trace calcite nodules - Blocky to massive	CR-219						
827								
828		828.16						
829	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Petroliferous odour - Blocky to massive	CR-220						
830								
831		831.16						
832	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	CR-221						
833								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
834	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	834.16						
835		CR-222						
836								
837		837.16						
838	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	CR-223						
839								
840		840.16						
841	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	CR-224						
842								
843		843.16						
844	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	CR-22						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
845		845						
846	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Blocky to massive	846.16						
847		CR-226						
848								
849		849.16						
850	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to medium bedded - Increase in shale content below 850.8 - Blocky to massive	CR-227						
851								
852		852.16						
853	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Trace bioturbation - Dark grey, irregular/mottled/planar medium soft shale laminae to thickly bedded Dark grey/black 15cm-thick shale layer with petroliferous odour - Blocky to massive	CR-228						
854								
855		855.16						
	Interbedded Argillaceous Limestone and Shale							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 --------- 90	Sample ID
856	- Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Strongly petroliferous 857.0-857.4 - Blocky to massive	CR-229						
857								
858		858.16						
859	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly to medium bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - Strongly petroliferous 858.7 - Blocky to massive	CR-230						
860								
861		861.16						
862	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale thinly to medium bedded from 861.2-863.2 - Sharp transition to a bioturbated/mottled argillaceous limestone at 863.2 - Sharp contact at 863.6 of a light grey, fine to medium-grained limestone, trace stylolites, trace bioclastic layers, trace fossils, no shale content and extends to end of core run - Blocky to massive	CR-231						
863								
864		864.16						
865	**Interbedded Argillaceous Limestone and Shale** - Grey, fine to medium-grained, mottled, thinly to medium bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Bioturbated - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded - 0.5cm-thick calcite infilled vugs at 864.6, 865.1 - Blocky to massive - Fractured to blocky	CR-232						
866								

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
867		867.16						
	Interbedded Argillaceous Limestone and Shale - Grey, fine to medium-grained, mottled, thinly to medium bedded, trace fossiliferous, hard argillaceous limestone, locally coarse-grained - Dark grey, irregular/mottled/planar medium soft shale laminae to thinly bedded to 868.4 - Gradual transition at 868.4 to end of core run to a bioturbated, irregular, disturbed and mottled limestone with trace amounts of dark grey shale - localized vugs and pits at 868.9 core run, calcite Infilling - Blocky to massive	CR-233						
868								
869								
870	**Interbedded Argillaceous Limestone and Shale** - Mottled light grey to tan limestone, slightly bioturbated, disturbed with trace amounts of dark grey shale - Blocky	870.16						
	870.50							
	<u>Coboconk Formation</u>							
871	- Tan to grey, dominantly fine-grained with subordinate medium and coarse-grained beds, locally petroliferous limestone with bituminous shale	CR-234						
	Limestone - Yellow/tan limestone with dark grey/black shale - Some stylolites from 870.5-871.4							
872	- Gradational transition at 871.4 to a medium grey, fine-grained, laminated to medium bedded limestone with laminated thin dark grey shale bedding that are locally bioturbated and slightly fossiliferous - Localized calcite and gypsum infilled veins, pitting and vugs - Trace to some stylolites, hard, blocky to massive							
873		873.16						
	Limestone - Grey/light grey fossiliferous limestone, hard, laminated with dark grey/black laminated locally bioturbated and slightly fossiliferous medium soft shale - Mottled/disturbed shale parting below 874.7 are increasingly grey/brown - Moderately styolitic - 2cm diameter vug at 874.7 infilled with calcite	CR-235						
874	- Very fine to fine-grained - Moderately pitted to vuggy throughout with calcite infilling - Hard - Massive							
875								
876		876.16						
	876.67							
	Marker Bed, - Volcanic ash layer							
	876.81							
877		CR-236						
	Limestone							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
878	- Light grey to light tan - Laminated to thin to disturbed bedding (bioturbated) - Very fine to fine-grained - Slightly fossiliferous - Some dark grey/brown shale beds and laminae - Moderately pitted with calcite infilling - Hard - Massive							
879		879.16						
880	**Limestone** - Grey - Laminated to thin to disturbed bedding (bioturbated) - Very fine to fine-grained - Slightly fossiliferous - Some dark grey/brown shale beds and laminae - Moderately pitted with calcite infilling - Trace stylolites - Trace tan/brown limestone clasts at 880.2 - Hard - Massive	CR-237						
881								
882		882.16						
883	**Limestone** - Grey to tan - Laminated to thin to disturbed bedding (bioturbated) - Very fine to fine-grained - Slightly fossiliferous - Trace oolites - Trace bioclasts - Some dark grey/brown shale beds and laminae - Moderately pitted with calcite infilling - 4cm-longX1cm-thick, clear and effervescent calcite infilled vug at 883.7 - Mottled tan/brown chert layer 1 cm thick at 884.9 - Slightly petroliferous at 884.7-884.9 - Hard - Massive	CR-238						
884								
885		885.16						
886	**Limestone** - Grey to tan, laminated to thin to disturbed bedding (bioturbated), very fine to fine-grained, slightly fossiliferous, trace oolites, trace bioclasts - Some dark grey/brown shale beds and laminae - Transition to grey fine to medium-grained limestone mottled with black bituminous limestone at 887.2-887.9 - Moderately pitted with calcite infilling - Petroliferous throughout core - Abundant stylolites from 885.5-887.1 - Calcite infilled vug at 886.8 - Dark grey/brown, fine-grained, strongly petroliferous, abundantly pitted, bioclastic, mottled porous limestone below 887.9, hard, massive	CR-239						
887								
		887.99						
888	**Marker Bed**, - Tan to brown dolostone between 888.0-888.1	**888.09** 888.16						

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
889	**Limestone** - Dark grey/brown, fine-grained, strongly petroliferous, abundantly pitted, bioclastic, mottled porous limestone transition at 888.4 into grey/dark grey mottled limestone - Abundant irregular and discontinuous shale laminae and blebs; locally produces mottled appearance where bioturbation has not destroyed bedding - Stylolites - Oolitic and bioclastic - Bituminous layers - Hard - Massive	CR-240						
890								
891		891.16						
892	**Limestone** - Grey/dark grey mottled limestone - Abundant irregular and discontinuous shale laminae and blebs; locally produces mottled appearance where bioturbation has not destroyed bedding - Stylolites - Oolitic and bioclastic - Bituminous layers - Hard - Massive	CR-241						
893								
894		894.16						
895	**Limestone** - Grey/dark grey mottled limestone - Abundant irregular and discontinuous shale laminae and blebs; locally produces mottled appearance where bioturbation has not destroyed bedding - Trace petroliferous odour - Stylolites - Oolitic and bioclastic - Bituminous layers - Hard - Gradational decrease in mottled discontinuous shale laminae and blebs below 896.9 - Massive	CR-242						
896								
897	**897.20**	897.16						
898	**Gull River Formation** - Light grey to grey to tan/brown with depth, very fine to medium-grained, locally bioturbated, fossiliferous and locally petroliferous limestone with brown and black shale laminae	CR-243						
899	**Limestone** - Light grey to dark grey with some tan grey sections - Laminated and mottled - Recemented tan limestone breccia from 897.2-897.4 - Calcite infilled vugs at 898.1, 898.2, 899.4 - Stylolites - Oolitic and bioclastic - Medium bed of non laminated limestone at 898.5 - Hard - Massive							

Depth (mLBGS) 1m:30m	Stratigraphic Description	Core Run (mLBGS)	Stratigraphy	Core Recovery 100 % 0	R.Q.D. 100 % 0	Nat. Frac. Freq. 0 /m 5	Fracture Or. 0 ---------- 90	Sample ID
900		900.16						
	Limestone - Light grey limestone with thin to medium tan interbeds - Gradational transition to a coarser grained limestone below 900.6 - Fine to coarse-grained - Shaley laminations - Petroliferous odour - Abundantly styolitic - Strongly petroliferous at multiple locations throughout core - Gas releasing near vugs at 902.0- 902.2 - .2 metre thick tan limestone bed at 900.9 - Abundant stylolites - Natural fractures at 902.6, 902.9 - Hard - Massive	CR-244						
901								
902								
903	**903.16**	903.16						
904								

Prepared by: MAM
Checked by: KGR

Doc. TR-09-01_DGR6_R0

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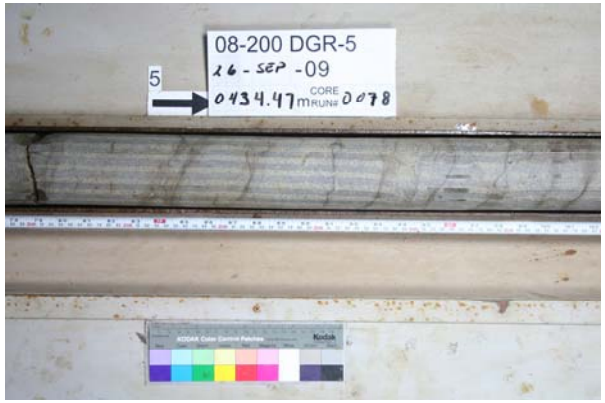
APPENDIX E

Examples of Core Photography



Example of Six Sequential Core Run Photos – DGR-5, Core Run 78 (434.47 to 437.52 mBGS)
Gasport Formation Dolomitic Limestone
Technical Report: TR-09-01 Drilling, Logging and Sampling of DGR-5 and DGR-6

FIGURE E.1	TR-09-01_Fig E.1 Core Run Photos_R0.doc	Prepared by: DJR Reviewed by: GDB Date: Feb. 22, 2011

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Salina Formation A2 Unit Carbonate – Anhydritic Dolostone DGR-5, CR040

Georgian Bay Formation – Interbedded Shale and Limestone with fossiliferous beds DGR-5, CR121

Cobourg Formation Collingwood Member – Argillaceous Limestone DGR-5, CR170

Salina Formation F Unit – Dolostone with Anhydrite/Gypsum veins DGR-6, CR013

Salina Formation A0 Unit – Bituminous Dolostone DGR-6, CR076

Coboconk Formation – Bioturbated Limestone DGR-6, CR238

Example of Close-up Photographs of Core Features
Technical Report: TR-09-01 Drilling, Logging and Sampling of DGR-5 and DGR-6

Prepared by: DJR

Reviewed by: GDB

Date: Feb. 22, 2011

FIGURE E.2

TR-09-01_Fig E.2 Core Close up Photos_R0.doc

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Salina Formation A2 Unit Evaporite – Anhydritic Dolostone DGR-5, CR049

Goat Island Formation – Dolostone DGR-5, CR075

Kirkfield Formation – Interbedded Argillaceous Limestone and Shale DGR-5, CR200

Salina Formation B Unit – Brecciated Dolomitic Shale DGR-6, CR039

Fossil Hill Formation – Dolostone DGR-6, CR089

Manitoulin Formation – Cherty Dolostone DGR-6, CR103

Example Photographs of Core Sub-Samples **Technical Report: TR-09-01 Drilling, Logging and Sampling of DGR-5 and DGR-6**		Prepared by: DJR Reviewed by: GDB Date: Feb. 22, 2011
FIGURE E.3	TR-09-01_Fig E.3 Core Sub-Sample Photos_R0.doc	

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Goat Island Formation – Dolostone DGR-5, CR076

Kirkfield Formation – Interbedded Argillaceous Limestone and Shale DGR-5, CR195

Salina Formation A2 Unit Carbonate – Dolostone DGR-6, CR057

Georgian Bay Formation – Shale DGR-6, CR160

Example of Photographs of Filled Core Boxes **Technical Report: TR-09-01 Drilling, Logging and Sampling of DGR-5 and DGR-6**		Prepared by: DJR Reviewed by: GDB Date: Feb. 22, 2011
FIGURE E.4	TR-09-01_Fig E.4 Core Box Photos_R0.doc	Geofirma Engineering Ltd

APPENDIX F

Summary of Core Samples Collected from DGR-5 and DGR-6

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Table F.2 Summary of Core Sample Collection by Depth for DGR-6

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR5-215.17	3	9-Sep-09	26	Salina F Unit	Archive		
DGR5-225.41	6	9-Sep-09	27	Salina F Unit	Archive		
DGR5-233.47	9	10-Sep-09	27	Salina F Unit	Archive		
DGR5-246.78	13	10-Sep-09	23	Salina E Unit	Archive		
DGR5-255.40	16	11-Sep-09	24	Salina E Unit	Archive		
DGR5-264.17	19	11-Sep-09	29	Salina C Unit	Archive		
DGR5-272.66	23	12-Sep-09	30	Salina B Unit	Archive		
DGR5-284.27	27	12-Sep-09	23	Salina B Unit	Archive		
DGR5-295.36	31	13-Sep-09	27	Salina B Unit	Archive		
DGR5-306.87	35	13-Sep-09	30	Salina B Unit	Archive		
DGR5-312.28	37	13-Sep-09	24	Salina B Unit	Archive		
DGR5-326.90	41	14-Sep-09	33	Salina A2 Unit	Archive		
DGR5-334.46	44	15-Sep-09	24	Salina A2 Unit	Archive		
DGR5-339.38	45	15-Sep-09	21	Salina A2 Unit	Archive		
DGR5-342.95	47	15-Sep-09	25	Salina A2 Unit	Archive		
DGR5-345.44	47	15-Sep-09	27	Salina A2 Unit	U of O - Pore Water		
DGR5-346.06	48	15-Sep-09	22	Salina A2 Unit	Archive		
DGR5-347.99	48	15-Sep-09	23	Salina A2 Unit	Archive		
DGR5-349.04	49	16-Sep-09	20	Salina A2 Unit	Archive		
DGR5-351.24	49	16-Sep-09	27	A2 Evaporite	Archive		
DGR5-352.08	50	16-Sep-09	22	A2 Evaporite	U of O - Pore Water		
DGR5-354.64	50	16-Sep-09	23	A2 Evaporite	U of O - Pore Water		
DGR5-356.43	51	16-Sep-09	30	Salina A1 Unit	Archive		
DGR5-356.89	51	16-Sep-09	24	Salina A1 Unit	U of O - Pore Water		
DGR5-358.01	52	16-Sep-09	19	Salina A1 Unit	U of O - Pore Water		
DGR5-358.99	52	16-Sep-09	22	Salina A1 Unit	U of O - Pore Water		
DGR5-361.64	53	16-Sep-09	21	Salina A1 Unit	U of O - Pore Water		
DGR5-364.50	54	17-Sep-09	26	Salina A1 Unit	Archive		
DGR5-368.20	55	17-Sep-09	18	Salina A1 Unit	U of O - Pore Water		
DGR5-378.16	58	19-Sep-09	23	Salina A1 Unit	U of O - Pore Water		
DGR5-378.78	58	19-Sep-09	22	Salina A1 Unit	Archive		
DGR5-387.21	61	19-Sep-09	26	Salina A1 Unit	Archive		
DGR5-395.43	65	24-Sep-09	20	Salina A1 Unit	Archive		
DGR5-406.36	68	25-Sep-09	20	Salina A0 Unit	Archive		
DGR5-407.22	69	25-Sep-09	19	Salina A0 Unit	U of O - Pore Water		
DGR5-410.29	70	25-Sep-09	21	Guelph	U of O - Pore Water		
DGR5-413.22	71	25-Sep-09	22	Guelph	U of O - Pore Water		
DGR5-413.57	71	25-Sep-09	15	Guelph	U of O - Pore Water		
DGR5-418.50	72	25-Sep-09	23	Goat Island	Archive		

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR5-422.14	73	26-Sep-09	25	Goat Island	U of O - Pore Water		
DGR5-422.81	74	26-Sep-09	27	Goat Island	Archive		
DGR5-426.96	75	26-Sep-09	30	Goat Island	U of O - Pore Water		
DGR5-432.17	77	26-Sep-09	29.5	Goat Island	U of O - Pore Water		
DGR5-434.60	78	26-Sep-09	27	Gasport	Archive		
DGR5-440.13	79	27-Sep-09	23	Gasport	U of O - Pore Water		
DGR5-444.71	81	27-Sep-09	29	Lions Head	U of O - Pore Water		
DGR5-445.00	81	27-Sep-09	30	Lions Head	Archive		
DGR5-447.45	82	27-Sep-09	39	Fossil Hill	U of O - Pore Water		
DGR5-452.92	84	27-Sep-09	22	Cabot Head	U of O - Pore Water		
DGR5-455.00	84	27-Sep-09	30	Cabot Head	Archive		
DGR5-458.00	86	30-Sep-09	25	Cabot Head	Archive		
DGR5-460.12	87	6-Oct-09	20	Cabot Head	U of O - Pore Water		
DGR5-472.44	92	7-Oct-09	22	Cabot Head	U of O - Pore Water		
DGR5-472.66	92	7-Oct-09	22	Cabot Head	Archive		
DGR5-474.78	93	7-Oct-09	27	Manitoulin	Archive		
DGR5-477.42	93	7-Oct-09	26	Manitoulin	U of O - Pore Water		
DGR5-480.91	95	7-Oct-09	29	Manitoulin	U of O - Pore Water		
DGR5-485.37	96	7-Oct-09	26	Manitoulin	Archive		
DGR5-491.52	98	7-Oct-09	25	Queenston	Archive		
DGR5-497.24	100	8-Oct-09	28	Queenston	Archive		
DGR5-497.50	100	8-Oct-09	25	Queenston	U of O - Pore Water		
DGR5-497.78	100	8-Oct-09	30	Queenston	UNB - Porewater (NWMO)		
DGR5-503.51	102	13-Oct-09	25	Queenston	Archive		
DGR5-511.15	104	13-Oct-09	33	Queenston	Archive		
DGR5-513.92	105	14-Oct-09	32	Queenston	UNB - Porewater (NWMO)		
DGR5-514.22	105	14-Oct-09	27	Queenston	U of O - Pore Water		
DGR5-516.18	106	14-Oct-09	27	Queenston	Archive		
DGR5-520.36	107	14-Oct-09	22	Queenston	Archive		
DGR5-525.57	109	14-Oct-09	24	Queenston	U of O - Pore Water		
DGR5-525.81	109	14-Oct-09	24	Queenston	UNB - Porewater (NWMO)		
DGR5-531.17	111	15-Oct-90	17	Queenston	Archive		
DGR5-539.55	114	15-Oct-09	24	Queenston	Archive		
DGR5-545.00	116	16-Oct-09	24	Queenston	Archive		
DGR5-548.02	117	16-Oct-09	24	Queenston	Archive		
DGR5-548.31	117	16-Oct-09	34	Queenston	Archive		
DGR5-551.07	118	16-Oct-09	24	Queenston	Archive		
DGR5-555.15	119	16-Oct-09	19	Queenston	Archive		
DGR5-557.44	120	16-Oct-09	22	Queenston	UNB - Porewater (NWMO)		
DGR5-557.65	120	16-Oct-09	20	Queenston	U of O - Pore Water		

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR5-561.88	121	16-Oct-09	24	Geogian Bay	Archive		
DGR5-564.96	122	16-Oct-09	20	Geogian Bay	U of O - Pore Water		
DGR5-565.17	122	16-Oct-09	20	Geogian Bay	UNB - Porewater (NWMO)		
DGR5-567.72	123	16-Oct-09	30	Geogian Bay	Archive		
DGR5-573.83	125	17-Oct-09	20	Geogian Bay	Archive		
DGR5-578.82	127	17-Oct-09	23	Geogian Bay	Archive		
DGR5-583.40	128	17-Oct-09	18	Geogian Bay	SGS - SEM / EDS	SGS - Lithogeochemistry	SGS - XRD & Petrography
DGR5-583.69	128	17-Oct-09	19	Geogian Bay	Core Labs - Petrophysics		
DGR5-584.98	129	18-Oct-09	26	Geogian Bay	Archive		
DGR5-590.07	130	18-Oct-09	18	Geogian Bay	Archive		
DGR5-595.62	132	18-Oct-09	22	Geogian Bay	Archive		
DGR5-598.13	133	18-Oct-09	30	Geogian Bay	UNB - Porewater (NWMO)		
DGR5-598.37	133	18-Oct-09	19	Geogian Bay	U of O - Pore Water		
DGR5-600.31	134	19-Oct-09	24	Geogian Bay	Archive		
DGR5-605.55	135	19-Oct-09	20	Geogian Bay	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR5-605.98	136	19-Oct-09	17	Geogian Bay	Archive		
DGR5-612.31	138	19-Oct-09	16	Geogian Bay	Core Labs - Petrophysics		
DGR5-612.62	138	19-Oct-09	19	Geogian Bay	Archive		
DGR5-618.93	140	19-Oct-09	23	Geogian Bay	Archive		
DGR5-623.03	141	19-Oct-09	24	Geogian Bay	Archive		
DGR5-624.95	142	19-Oct-09	32	Geogian Bay	UNB - Porewater (NWMO)		
DGR5-625.23	142	19-Oct-09	24	Geogian Bay	U of O - Pore Water		
DGR5-630.00	143	19-Oct-09	17	Geogian Bay	Archive		
DGR5-635.16	145	20-Oct-09	23	Geogian Bay	Archive		
DGR5-640.13	147	21-Oct-09	19	Geogian Bay	Archive		
DGR5-643.19	148	21-Oct-09	22	Geogian Bay	Core Labs - Petrophysics		
DGR5-645.16	148	21-Oct-09	19	Geogian Bay	SGS - XRD & Petrography	SGS - Lithogeochemistry	SGS - SEM / EDS
DGR5-646.44	149	21-Oct-09	20	Geogian Bay	Archive		
DGR5-649.27	150	21-Oct-09	28	Geogian Bay	UNB - Porewater (NWMO)		
DGR5-649.51	150	21-Oct-09	20	Geogian Bay	U of O - Pore Water		
DGR5-651.02	150	21-Oct-09	18	Geogian Bay	Archive		
DGR5-652.62	151	21-Oct-09	17	Geogian Bay	Canmet - Direct Shear		
DGR5-654.80	152	21-Oct-09	24	Blue Mountain	Archive		
DGR5-656.52	152	21-Oct-09	36	Blue Mountain	Canmet - Direct Shear		
DGR5-660.20	153	22-Oct-09	20	Blue Mountain	Archive		
DGR5-664.97	155	22-Oct-09	22	Blue Mountain	Archive		
DGR5-668.28	156	22-Oct-09	22	Blue Mountain	Archive		
DGR5-671.30	157	22-Oct-09	20	Blue Mountain	U of O - Pore Water		
DGR5-671.55	157	22-Oct-09	30	Blue Mountain	UNB - Porewater (NWMO)		
DGR5-673.37	158	22-Oct-09	21	Blue Mountain	Archive		

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR5-677.25	159	22-Oct-09	21	Blue Mountain	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR5-678.52	159	22-Oct-09	20	Blue Mountain	Core Labs - Petrophysics		
DGR5-679.63	160	23-Oct-09	23	Blue Mountain	Archive		
DGR5-683.35	161	23-Oct-09	26	Blue Mountain	UNB - Porewater (NWMO)		
DGR5-683.57	161	23-Oct-09	17.5	Blue Mountain	U of O - Pore Water		
DGR5-685.80	162	23-Oct-90	30	Blue Mountain	Canmet - Direct Shear		
DGR5-687.42	162	23-Oct-09	22	Blue Mountain	Archive		
DGR5-688.64	163	23-Oct-09	27	Blue Mountain	Archive		
DGR5-692.35	165	23-Oct-09	23	Blue Mountain	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR5-693.47	165	23-Oct-09	23	Blue Mountain	Archive		
DGR5-695.00	166	23-Oct-09	22	Blue Mountain	Core Labs - Petrophysics		
DGR5-696.13	166	23-Oct-09	24	Blue Mountain	Archive		
DGR5-697.54	167	23-Oct-09	18	Blue Mountain	Core Labs - Petrophysics		
DGR5-697.85	167	23-Oct-09	20	Blue Mountain	U of O - Pore Water		
DGR5-698.10	167	23-Oct-09	30	Blue Mountain	UNB - Porewater (NWMO)		
DGR5-698.77	167	23-Oct-09	35	Blue Mountain	Canmet - Direct Shear		
DGR5-699.49	167	23-Oct-09	20	Blue Mountain	SGS - Lithogeochemistry	SGS - SEM / EDS	SGS - XRD & Petrography
DGR5-700.70	168	4-Feb-10	26	Cobourg - Collingwood	Canmet - Direct Shear		
DGR5-701.28	168	4-Feb-10	38	Cobourg - Collingwood	Canmet - Triaxial		
DGR5-702.26	168	23-Oct-09	20	Cobourg - Collingwood	Canmet - Uniaxial & AEM		
DGR5-702.51	168	23-Oct-09	30	Cobourg - Collingwood	Archive		
DGR5-702.81	168	4-Feb-10	29	Cobourg - Collingwood	Canmet - Triaxial		
DGR5-704.99	169	24-Oct-09	21	Cobourg - Collingwood	SGS - Lithogeochemistry	SGS - SEM / EDS	SGS - XRD & Petrography
DGR5-705.36	169	24-Oct-09	20	Cobourg - Collingwood	Core Labs - Petrophysics		
DGR5-705.90	169	4-Feb-10	22	Cobourg - Collingwood	Canmet - Direct Shear		
DGR5-708.60	170	24-Oct-09	32	Cobourg - Collingwood	Archive		
DGR5-710.33	171	24-Oct-09	17	Cobourg	Archive		
DGR5-711.96	171	24-Oct-09	19	Cobourg	Canmet - Uniaxial & AEM		
DGR5-712.74	172	24-Oct-09	28	Cobourg	Core Labs - Petrophysics		
DGR5-712.98	172	24-Oct-09	20	Cobourg	Archive		
DGR5-715.40	172	24-Oct-09	20	Cobourg	SGS - Lithogeochemistry	SGS - SEM / EDS	SGS - XRD & Petrography
DGR5-715.60	172	24-Oct-09	20	Cobourg	U of O - Pore Water		
DGR5-717.31	173	24-Oct-09	32	Cobourg	Archive		
DGR5-719.38	174	24-Oct-09	28	Cobourg	Canmet - Uniaxial & AEM		
DGR5-719.65	174	4-Feb-10	27	Cobourg	Canmet - Direct Shear		
DGR5-719.91	174	24-Oct-09	22	Cobourg	U of O - Pore Water		
DGR5-723.77	175	25-Oct-09	28	Cobourg	Archive		
DGR5-724.90	176	25-Oct-09	20	Cobourg	U of O - Pore Water		
DGR5-725.12	176	25-Oct-09	25	Cobourg	Core Labs - Petrophysics		
DGR5-725.33	176	25-Oct-09	16	Cobourg	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry

Table F.1 Summary of Core Sample Collection by Depth for DGR-5

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR5-725.50	176	4-Feb-10	35	Cobourg	Canmet - Direct Shear		
DGR5-729.70	177	4-Feb-10	29	Cobourg	Canmet - Direct Shear		
DGR5-729.91	177	25-Oct-09	19	Cobourg	Archive		
DGR5-731.02	178	25-Oct-09	24	Cobourg	U of O - Pore Water		
DGR5-731.27	178	25-Oct-09	23	Cobourg	Canmet - Uniaxial & AEM		
DGR5-732.20	178	4-Feb-10	28	Cobourg	Canmet - Direct Shear		
DGR5-733.62	178	25-Oct-09	24	Cobourg	Archive		
DGR5-734.06	179	25-Oct-09	22	Cobourg	U of O - Pore Water		
DGR5-735.61	179	25-Oct-09	32	Cobourg	Canmet - Uniaxial & AEM		
DGR5-736.85	179	25-Oct-09	24	Sherman Fall	U of O - Pore Water		
DGR5-739.00	180	4-Feb-10	18	Sherman Fall	Canmet - Direct Shear		
DGR5-740.91	181	26-Oct-09	33	Sherman Fall	Archive		
DGR5-741.90	181	4-Feb-10	20	Sherman Fall	Canmet - Direct Shear		
DGR5-745.23	182	26-Oct-09	26	Sherman Fall	U of O - Pore Water		
DGR5-746.57	183	26-Oct-09	23	Sherman Fall	Archive		
DGR5-747.27	183	26-Oct-09	18	Sherman Fall	U of O - Pore Water		
DGR5-749.82	184	26-Oct-09	25	Sherman Fall	Archive		
DGR5-755.30	185	26-Oct-09	23	Sherman Fall	U of O - Pore Water		
DGR5-755.62	186	27-Oct-09	30	Sherman Fall	Archive		
DGR5-757.54	186	27-Oct-09	20	Sherman Fall	Core Labs - Petrophysics		
DGR5-763.13	187	27-Oct-09	31	Sherman Fall	Archive		
DGR5-764.72	189	27-Oct-09	20	Sherman Fall	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR5-765.51	189	27-Oct-09	20	Sherman Fall	Archive		
DGR5-766.75	189	27-Oct-09	20	Kirkfield	Archive		
DGR5-772.76	191	27-Oct-09	29	Kirkfield	Archive		
DGR5-777.81	193	28-Oct-09	29	Kirkfield	Archive		
DGR5-780.85	194	28-Oct-09	30	Kirkfield	Archive		
DGR5-782.21	194	28-Oct-09	25	Kirkfield	U of O - Pore Water		
DGR5-786.25	196	28-Oct-09	26	Kirkfield	Archive		
DGR5-787.51	196	28-Oct-09	23	Kirkfield	U of O - Pore Water		
DGR5-791.61	197	29-Oct-09	32	Kirkfield	Archive		
DGR5-793.74	198	28-Oct-09	25	Kirkfield	U of O - Pore Water		
DGR5-796.09	199	28-Oct-09	29	Kirkfield	Archive		
DGR5-799.17	200	29-Oct-09	21	Kirkfield	U of O - Pore Water		
DGR5-803.40	201	29-Oct-09	31	Kirkfield	Archive		
DGR5-805.80	202	28-Oct-09	20	Kirkfield	U of O - Pore Water		
DGR5-806.62	202	28-Oct-09	21	Kirkfield	Archive		

Table F.2 Summary of Core Sample Collection by Depth for DGR-6

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR6-219.65	3	14-Jul-09	30	Salina F Unit	Archive		
DGR6-228.38	7	14-Jul-09	27	Salina F Unit	Archive		
DGR6-237.42	10	16-Jul-09	20	Salina F Unit	Archive		
DGR6-248.71	14	16-Jul-09	27	Salina F Unit	Archive		
DGR6-253.55	16	17-Jul-09	21.5	Salina E Unit	Archive		
DGR6-262.68	19	17-Jul-09	22	Salina E Unit	Archive		
DGR6-275.50	23	18-Jul-09	20	Salina E Unit	Archive		
DGR6-285.00	26	19-Jul-09	12	Salina E Unit	Archive		
DGR6-293.70	29	19-Jul-09	18	Salina E Unit	Archive		
DGR6-311.41	35	20-Jul-09	18	Salina B Unit	Archive		
DGR6-315.84	36	20-Jul-09	21	Salina B Unit	Archive		
DGR6-324.23	39	21-Jul-09	18	Salina B Unit	Archive		
DGR6-333.52	42	21-Jul-09	17	B Evaporite	Archive		
DGR6-347.52	47	22-Jul-09	16	Salina A2 Unit	Archive		
DGR6-356.69	51	23-Jul-09	18.5	Salina A2 Unit	Archive		
DGR6-364.36	54	24-Jul-09	16	Salina A2 Unit	U of O - Pore Water		
DGR6-365.69	54	24-Jul-09	14	Salina A2 Unit	Archive		
DGR6-366.03	55	25-Jul-09	16.5	Salina A2 Unit	U of O - Pore Water		
DGR6-370.70	56	25-Jul-09	22	A2 Evaporite	U of O - Pore Water		
DGR6-372.70	57	25-Jul-09	20	Salina A1 Unit	U of O - Pore Water		
DGR6-374.48	57	25-Jul-09	20	Salina A1 Unit	U of O - Pore Water		
DGR6-374.74	57	25-Jul-09	27	Salina A1 Unit	Archive		
DGR6-375.21	58	26-Jun-09	22	Salina A1 Unit	U of O - Pore Water		
DGR6-376.38	59	26-Jul-09	21	Salina A1 Unit	U of O - Pore Water		
DGR6-377.48	62	27-Jul-09	16	Salina A1 Unit	U of O - Pore Water		
DGR6-383.51	62	27-Jul-09	16	Salina A1 Unit	U of O - Pore Water		
DGR6-385.25	63	27-Jul-09	20	Salina A1 Unit	Archive		
DGR6-393.76	66	28-Jul-09	19	Salina A1 Unit	U of O - Pore Water		
DGR6-395.01	66	28-Jul-09	20	Salina A1 Unit	Archive		
DGR6-404.88	69	29-Jul-09	21	Salina A1 Unit	Archive		
DGR6-415.23	73	29-Jul-09	27	Salina A1 Unit	Archive		
DGR6-424.21	76	3-Jul-09	24	Salina A0 Unit	Archive		
DGR6-426.51	76	30-Jul-09	23	Salina A0 Unit	U of O - Pore Water		
DGR6-428.53	77	30-Jun-09	24	Guelph	U of O - Pore Water		
DGR6-431.76	78	30-Jul-09	18	Goat Island	U of O - Pore Water		
DGR6-435.35	79	30-Jul-09	24	Goat Island	Archive		
DGR6-436.54	80	31-Jul-09	18.5	Goat Island	U of O - Pore Water		
DGR6-442.96	82	6-Aug-09	16	Goat Island	U of O - Pore Water		
DGR6-445.65	83	6-Aug-09	35	Goat Island	Archive		
DGR6-449.08	84	6-Aug-09	32	Goat Island	U of O - Pore Water		
DGR6-455.65	86	6-Aug-09	21	Gasport	U of O - Pore Water		
DGR6-457.28	86	6-Aug-09	30	Gasport	Archive		
DGR6-460.10	87	7-Aug-09	22	Gasport	U of O - Pore Water		
DGR6-465.67	89	7-Aug-09	32	Fossil Hill	U of O - Pore Water		
DGR6-466.40	89	7-Aug-09	27	Fossil Hill	Archive		
DGR6-471.63	91	7-Aug-09	33	Cabot Head	U of O - Pore Water		
DGR6-475.08	92	7-Aug-09	29	Cabot Head	Archive		
DGR6-477.81	93	8-Aug-09	21	Cabot Head	U of O - Pore Water		
DGR6-484.51	96	8-Aug-09	30	Cabot Head	U of O - Pore Water		

Table F.2 Summary of Core Sample Collection by Depth for DGR-6

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR6-484.83	96	8-Aug-09	30	Cabot Head	Archive		
DGR6-490.53	99	8-Aug-09	18	Cabot Head	U of O - Pore Water		
DGR6-495.55	101	8-Aug-09	33	Manitoulin	Archive		
DGR6-496.21	101	8-Aug-09	22	Manitoulin	U of O - Pore Water		
DGR6-502.30	103	9-Aug-09	25	Manitoulin	U of O - Pore Water		
DGR6-504.67	104	9-Aug-09	28	Manitoulin	Archive		
DGR6-509.27	105	9-Aug-09	2627	Queenston	Archive		
DGR6-512.15	106	9-Aug-09	26	Queenston	Archive		
DGR6-512.84	106	11-Aug-09	31	Queenston	UNB - Porewater (NWMO)		
DGR6-514.48	107	11-Aug-09	25	Queenston	UNB - Porewater (NWMO)		
DGR6-538.69	117	26-Nov-09	24	Queenston	Archive		
DGR6-551.73	122	26-Nov-09	21	Queenston	Archive		
DGR6-551.91	122	26-Nov-09	16	Queenston	Archive		
DGR6-555.15	123	26-Nov-09	26	Queenston	Archive		
DGR6-565.18	127	27-Nov-09	20	Queenston	Archive		
DGR6-565.51	127	27-Nov-09	22	Queenston	Archive		
DGR6-565.77	127	27-Nov-09	22	Queenston	Archive		
DGR6-570.44	129	28-Nov-09	18	Queenston	Archive		
DGR6-579.29	132	28-Nov-09	26	Queenston	Archive		
DGR6-583.75	134	28-Nov-09	28	Geogian Bay	Archive		
DGR6-585.30	134	28-Nov-09	28	Geogian Bay	Archive		
DGR6-585.57	134	28-Nov-09	26	Geogian Bay	Archive		
DGR6-590.33	136	29-Nov-09	31	Geogian Bay	Archive		
DGR6-600.20	138	29-Nov-09	24	Geogian Bay	Archive		
DGR6-601.48	140	30-Nov-09	19	Geogian Bay	Archive		
DGR6-601.73	140	30-Nov-09	32	Geogian Bay	Archive		
DGR6-603.13	141	1-Dec-09	20	Geogian Bay	Archive		
DGR6-609.95	143	1-Dec-09	21	Geogian Bay	Archive		
DGR6-612.38	144	1-Dec-09	23	Geogian Bay	Archive		
DGR6-613.43	144	1-Dec-09	26	Geogian Bay	Core Labs - Petrophysics		
DGR6-613.69	144	1-Dec-09	25	Geogian Bay	SGS - XRD & Petrography	SGS - Lithogeochemistry	SGS - SEM / EDS
DGR6-619.46	146	2-Dec-09	14	Geogian Bay	Archive		
DGR6-624.52	148	2-Dec-09	20	Geogian Bay	Archive		
DGR6-630.69	150	2-Dec-09	32	Geogian Bay	Archive		
DGR6-644.99	157	6-Jan-10	22	Geogian Bay	Archive		
DGR6-647.39	158	6-Jan-10	15	Geogian Bay	Core Labs - Petrophysics		
DGR6-648.79	159	7-Jan-10	18	Geogian Bay	Archive		
DGR6-651.12	159	7-Jan-10	13	Geogian Bay	U of O - Pore Water		
DGR6-651.52	160	7-Jan-10	17	Geogian Bay	Archive		
DGR6-654.58	161	7-Jan-10	7	Geogian Bay	SGS - SEM / EDS	SGS - XRD & Petrography	SGS - Fracture Mineralogy
DGR6-656.24	161	7-Jan-10	19	Geogian Bay	Archive		
DGR6-658.83	162	7-Jan-10	17	Geogian Bay	U of O - Pore Water		
DGR6-659.17	162	7-Jan-10	25	Geogian Bay	U of O - Pore Water		
DGR6-659.82	162	7-Jan-10	19	Geogian Bay	U of O - Pore Water		
DGR6-660.39	163	7-Jan-10	20	Geogian Bay	Archive		
DGR6-664.31	164	8-Jan-10	15	Geogian Bay	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Fracture Mineralogy
DGR6-664.58	164	8-Jan-10	17	Geogian Bay	Core Labs - Petrophysics		
DGR6-667.04	165	8-Jan-10	18	Geogian Bay	Archive		
DGR6-671.09	167	10-Jan-10	25	Geogian Bay	Archive		

Table F.2 Summary of Core Sample Collection by Depth for DGR-6

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR6-676.32	169	10-Jan-10	24	Geogian Bay	Archive		
DGR6-680.25	170	10-Jan-10	19	Geogian Bay	U of O - Pore Water		
DGR6-681.13	170	11-Jan-10	29	Geogian Bay	Archive		
DGR6-684.51	172	11-Jan-10	17	Geogian Bay	Archive		
DGR6-687.68	173	11-Jan-10	21	Blue Mountain	Archive		
DGR6-691.32	174	11-Jan-10	26	Blue Mountain	Archive		
DGR6-694.49	175	11-Jan-10	23	Blue Mountain	Canmet - Direct Shear		
DGR6-694.79	175	11-Jan-10	25	Blue Mountain	U of O - Pore Water		
DGR6-696.27	176	11-Jan-10	21	Blue Mountain	Archive		
DGR6-697.67	176	11-Jan-10	31	Blue Mountain	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR6-699.62	177	12-Jan-10	24	Blue Mountain	Core Labs - Petrophysics		
DGR6-701.36	177	12-Jan-10	20	Blue Mountain	Archive		
DGR6-708.95	180	15-Jan-10	26	Blue Mountain	Archive		
DGR6-715.71	182	15-Jan-10	17.5	Blue Mountain	Archive		
DGR6-717.68	183	15-Jan-10	28	Blue Mountain	Core Labs - Petrophysics		
DGR6-717.97	183	15-Jan-10	30	Blue Mountain	SGS - Lithogeochemistry	SGS - XRD & Petrography	SGS - SEM / EDS
DGR6-723.67	185	16-Jan-10	23	Blue Mountain	Archive		
DGR6-726.01	185	16-Jan-10	20	Blue Mountain	Archive		
DGR6-729.74	187	16-Jan-10	19	Blue Mountain	Archive		
DGR6-732.74	188	16-Jan-10	25	Blue Mountain	Archive		
DGR6-735.40	189	16-Jan-10	24	Blue Mountain	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR6-736.57	189	16-Jan-10	24	Blue Mountain	Core Labs - Petrophysics		
DGR6-737.65	189	16-Jan-10	22	Blue Mountain	Archive		
DGR6-741.79	191	16-Jan-10	24	Cobourg - Collingwood	Archive		
DGR6-742.79	191	17-Jan-10	29	Cobourg - Collingwood	Archive		
DGR6-747.54	193	17-Jan-10	21	Cobourg	U of O - Pore Water		
DGR6-747.74	193	17-Jan-10	22	Cobourg	Archive		
DGR6-747.99	193	17-Jan-10	25	Cobourg	Canmet - Uniaxial & AEM		
DGR6-750.55	194	17-Jan-10	27	Cobourg	Core Labs - Petrophysics		
DGR6-750.80	194	17-Jan-10	25	Cobourg	SGS - Lithogeochemistry	SGS - SEM / EDS	SGS - XRD & Petrography
DGR6-751.68	194	17-Jan-10	25	Cobourg	Archive		
DGR6-755.19	195	17-Jan-10	25	Cobourg	Canmet - Uniaxial & AEM		
DGR6-755.43	195	17-Jan-10	26	Cobourg	U of O - Pore Water		
DGR6-758.01	196	17-Jan-10	29	Cobourg	Archive		
DGR6-761.76	197	17-Jan-10	23	Cobourg	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR6-762.01	197	17-Jan-10	28	Cobourg	Core Labs - Petrophysics		
DGR6-762.40	198	17-Jan-10	27	Cobourg	Archive		
DGR6-763.83	198	17-Jan-10	26	Cobourg	Archive		
DGR6-765.50	199	17-Jan-10	27	Cobourg	U of O - Pore Water		
DGR6-768.08	199	17-Jan-10	30	Cobourg	U of O - Pore Water		
DGR6-768.31	200	17-Jan-10	29	Cobourg	Core Labs - Petrophysics		
DGR6-768.58	200	17-Jan-10	27	Cobourg	SGS - XRD & Petrography	SGS - SEM / EDS	SGS - Lithogeochemistry
DGR6-770.07	200	17-Jan-10	26	Cobourg	Canmet - Uniaxial & AEM		
DGR6-772.34	201	17-Jan-10	22	Cobourg	Archive		
DGR6-773.56	201	17-Jan-10	23	Cobourg	U of O - Pore Water		
DGR6-773.82	201	17-Jan-10	27	Cobourg	Canmet - Uniaxial & AEM		
DGR6-776.29	202	17-Jan-10	24	Cobourg	U of O - Pore Water		
DGR6-776.52	202	17-Jan-10	24	Cobourg	Archive		
DGR6-782.08	204	18-Jan-10	20	Sherman Fall	Archive		

Table F.2 Summary of Core Sample Collection by Depth for DGR-6

Sample ID	Core Run	Date Collected	Sample Length (cm)	Formation	Analysis - 1	Analysis - 2	Analysis - 3
DGR6-782.24	204	18-Jan-10	20	Sherman Fall	U of O - Pore Water		
DGR6-787.32	206	18-Jan-10	25	Sherman Fall	U of O - Pore Water		
DGR6-787.56	206	18-Jan-10	27	Sherman Fall	Archive		
DGR6-794.42	208	18-Jan-10	21	Sherman Fall	U of O - Pore Water		
DGR6-794.64	208	18-Jan-10	21	Sherman Fall	Archive		
DGR6-795.72	209	18-Jan-10	20	Sherman Fall	Archive		
DGR6-797.06	209	18-Jan-10	27	Sherman Fall	U of O - Pore Water		
DGR6-797.31	209	18-Jan-10		Sherman Fall	Core Labs - Petrophysics		
DGR6-801.99	211	18-Jan-10	28	Sherman Fall	Archive		
DGR6-802.43	211	18-Jan-10	26	Sherman Fall	Archive		
DGR6-806.49	212	18-Jan-10	23	Sherman Fall	Archive		
DGR6-812.18	214	19-Jan-10	23	Sherman Fall	Archive		
DGR6-817.28	216	19-Jan-10	26	Kirkfield	Archive		
DGR6-821.99	217	19-Jan-10	20	Kirkfield	Archive		
DGR6-822.77	218	19-Jan-10	20	Kirkfield	U of O - Pore Water		
DGR6-828.03	219	19-Jan-10	24	Kirkfield	Archive		
DGR6-831.54	221	19-Jan-10	20	Kirkfield	U of O - Pore Water		
DGR6-833.74	221	19-Jan-10	26	Kirkfield	Archive		
DGR6-836.90	222	19-Jan-10	20	Kirkfield	Archive		
DGR6-838.99	223	19-Jan-10	27	Kirkfield	U of O - Pore Water		
DGR6-841.93	224	19-Jan-10	28	Kirkfield	Archive		
DGR6-844.18	225	20-Jan-10	26	Kirkfield	U of O - Pore Water		
DGR6-846.79	226	20-Jan-10	23	Kirkfield	Archive		
DGR6-851.55	227	20-Jan-10	26	Kirkfield	U of O - Pore Water		
DGR6-854.69	228	20-Jan-10	21	Kirkfield	Archive		
DGR6-856.54	229	20-Jan-10	23	Kirkfield	U of O - Pore Water		
DGR6-857.29	229	20-Jan-10	18	Kirkfield	Archive		
DGR6-857.87	229	20-Jan-10	28	Kirkfield	Archive		
DGR6-861.96	231	20-Jan-10	23	Kirkfield	U of O - Pore Water		
DGR6-863.65	231	20-Jan-10	23	Kirkfield	U of O - Pore Water		
DGR6-866.59	232	20-Jan-10	29	Kirkfield	Archive		
DGR6-870.44	234	20-Jan-10	25	Kirkfield	U of O - Pore Water		
DGR6-871.43	234	20-Jan-10	28	Coboconk	Archive		
DGR6-874.28	235	21-Jan-10	23	Coboconk	U of O - Pore Water		
DGR6-875.25	235	21-Jan-10	25	Coboconk	Archive		
DGR6-876.74	236	21-Jan-10	17	Coboconk	U of O - Pore Water		
DGR6-880.40	237	21-Jan-10	27	Coboconk	U of O - Pore Water		
DGR6-881.61	237	21-Jan-10	26	Coboconk	Archive		
DGR6-886.53	239	24-Jan-10	28	Coboconk	U of O - Pore Water		
DGR6-886.99	239	24-Jan-10	30	Coboconk	Archive		
DGR6-892.77	241	24-Jan-10	32	Coboconk	Archive		
DGR6-898.58	243	24-Jan-10	25	Gull River	Archive		
DGR6-899.14	243	24-Jan-10	18	Gull River	U of O - Pore Water		
DGR6-901.93	244	24-Jan-10	30	Gull River	Archive		