



## ASSESSMENT REPORT TITLE PAGE AND SUMMARY

**TITLE OF REPORT: Groundhog Property 2012 Geological Assessment Report**

**TOTAL COST: \$3,049,171.87**

AUTHOR(S): Brad Van Den Bussche, P.Geol.

SIGNATURE(S): 

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):  
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S):

YEAR OF WORK: 2012

PROPERTY NAME: Groundhog

CLAIM NAME(S) (on which work was done):

417079, 417080, 417081, 417082, 417085, **417088**, 417089, 417090, 417094, 417095, 417096,  
417098, 417520, 417521, 417522, 417523

COMMODITIES SOUGHT: Anthracite Coal

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: Ominica  
NTS / BCGS: 104 A 16

LATITUDE: \_\_\_\_\_ 56 ° \_\_\_\_\_ 52 ' \_\_\_\_\_ "  
LONGITUDE: \_\_\_\_\_ 128 ° \_\_\_\_\_ 16 ' \_\_\_\_\_ " (at centre of work)  
UTM Zone: 9 EASTING: 545000 NORTHING: 6305000

OWNER(S): Atrum Coal Groundhog Inc

MAILING ADDRESS: #401-915 Fort Street, Victoria, BC V8V 3K3

OPERATOR(S) [who paid for the work]: Atrum Coal Groundhog Inc.

MAILING ADDRESS: #401-915 Fort Street, Victoria, BC V8V 3K3

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**) Groundhog, Cretaceous, coal, anthracite, Carrier Formation, Cretaceous, Beirnes Synclinorium

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS		PROJECT COSTS APPORTIONED (incl. support)	
GEOLOGICAL (scale, area)					
Ground, mapping					
Photo interpretation					
GEOPHYSICAL (line-kilometres)					
Ground					
Magnetic					
Electromagnetic					
Induced Polarization					
Radiometric					
Seismic					
Other					
Airborne					
GEOCHEMICAL (number of samples analysed for ...)					
Soil					
Silt					
Rock					
Other					
DRILLING (total metres, number of holes, size, storage location)					
4992.23 m core		15 drill holes	HQ	Groundhog Camp	
					417080 417085
					417081 417523
					417094 417079
					417098
					\$3,049,171.87
Non-core					
RELATED TECHNICAL					
Sampling / Assaying					
Petrographic					
Mineralographic					
Metallurgic					
PROSPECTING (scale/area)					
PREPATORY / PHYSICAL					
Line/grid (km)					
Topo/Photogrammetric (scale, area)					
Legal Surveys (scale, area)					
Road, local access (km)/trail					
Trench (number/metres)					
Underground development (metres)					
Other					
				<b>TOTAL COST</b>	\$3,049,171

# Groundhog Anthracite Project Geological Assessment Report 2012

Atrum Coal  
October 2013

Pages 5 and 24-26 contain data that remain confidential under the terms of the *Coal Act Regulation*, Section 2(1). They have been removed from the public version.

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/free/10\\_251\\_2004#section2](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/free/10_251_2004#section2)



# Contents

1. Summary .....	4
2. Introduction .....	6
2.1. Location and Physiographic Setting .....	6
2.2. Access .....	7
2.3. Climate .....	7
2.4. Historical Perspective .....	7
2.5. Acknowledgements .....	11
3. Tenure .....	12
4. Geology .....	14
4.1. Regional Geology .....	14
4.1.1. Ashman Formation .....	15
4.1.2. Currier Formation .....	16
4.1.3. McEvoy Formation .....	16
4.1.4. Devil's Claw Formation .....	16
4.2. Local Geology .....	17
4.3. Structural Geology .....	19
4.4. Deposit Type .....	22
5. 2012 Exploration Program .....	22
6. Coal Quality .....	24
7. Resources .....	25
7.1. Resource Estimate .....	25
7.2. Resource Classification .....	25
8. Cost Incurred .....	26
9. Conclusions .....	26
10. References .....	27

## List of Figures

Figure 2.1: Location of Groundhog Anthracite Project, nearby ports and railway lines .....	6
Figure 3.1: Groundhog Coal Tenure Locations .....	12
Figure 4.1: Groundhog Coalfield Location .....	14
Figure 4.2: Stratigraphic Column (Table of Formations) - Groundhog Property .....	15
Figure 4.3: Detailed Stratigraphic Column - Groundhog Property .....	18
Figure 4.4: General Structural Geology.....	21

## List of Tables

Table 3.1: Groundhog Coal Tenures - Coal Licences.....	13
Table 3.2 Groundhog Coal Tenures - Coal Licence Applications.....	13
Table 5.1: Drill Hole Summary and Collar Survey Table.....	23
Table 7.1: Overall summary of cumulative coal resources increasing with depth (air-dried tonnes).....	26

## List of Appendices

Appendix 1: Coal Seam Summary

Appendix 2: Geophysical Logs

Appendix 3: Descriptive Core Logs

Appendix 4: Raw Coal Quality Results

Appendix 5: Composite Coal Quality Results

Appendix 6: Petrographic Analysis Results

Appendix 7: Cost Summary Report

Appendix 8: Maps and Cross Sections

# 1. Summary

The Groundhog Anthracite Project (Groundhog) is situated within the Groundhog Coalfield located in northwestern British Columbia's Cassiar Land District. The project lies close to the northern extremity of the Skeena Mountains within the Bowser Basin approximately 180 km north of Hazelton and 150 km northeast of Stewart, British Columbia, Canada. Other nearby cities include Smithers, British Columbia 240 km to the south, and Prince George, British Columbia 490 km to the southeast. Current access to Atrum Coal's Groundhog Project is limited to the Chipmunk and Kluatantan airstrips, both of which are located southeast of the property.

In May 2012 Atrum Coal Groundhog Inc. (Atrum) acquired Groundhog and conducted their first field program in September and October 2012.

The Groundhog Anthracite Property currently consists of 16 contiguous coal licences covering 7,472ha and seven adjoining coal licence applications covering 11,118 Ha for a total of 18,590 ha.

Geologically, the Groundhog Coalfield is located in the northern portion of the Bowser Basin, bounded by the Skeena Arch to the north and the Stikine Arch to the south

Using the nomenclature coined by Cookanoo and Bustin in 1991, the formations of the Bowser Lake Group from oldest to youngest are as follows: the Ashman Formation, Currier Formation, McEvoy Formation, and the Devil's Claw Formation. The coal measures are located within the Currier Formation, which at Groundhog is approximately 600 metres thick and comprised of siltstone, mudstone, sandstone and coal. There are at least 25 known coal seams within the Currier Formation on the Groundhog Property, numbered from #90 at the top of the coal sequence through to #10 seam located at the base of the coal sequence. Seam numbers in increments of 5 are typically more significant and easier to correlate. Seams range in thickness from tens of centimetres to more than 7 metres, and typically range from .5 to 3 metres for the main seams. The sediments of the Bowser basin have undergone two major deformational events, the first of which was of the highest intensity. Compression from the northeast and the southwest occurred during the uplift of the Coast Crystalline Belt. Locally the result of this F1 deformation can be observed in the northwest-southeast trending Beirnes Synclinorium.

The 2012 field program consisted of 4,992 metres of drilling in 15 diamond drill cored holes, all of which were located on the coal licences. In total 833 core samples were collected from the 2012 drilling program, of which 507 individual ply samples were analyzed for raw coal quality. From the initial ply samples, 80 composite samples were made to represent some potential product intervals and basic size and washability work was done on these composites. In addition 10 samples were selected and petrographic analysis was performed by Pearson and Associates of Victoria, BC.

Coal on the Groundhog Coalfield is anthracite in rank by the ASTM classification of coal rank with RoMax vitrinite values generally ranging from 3.83 to more than 5 percent.

Page 5 contains coal quality data and remains confidential under the terms of the *Coal Act Regulation*, Section 2(1). It has been removed from the public version.

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/free/10\\_251\\_2004#section2](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/free/10_251_2004#section2)

## 2. Introduction

### 2.1. Location and Physiographic Setting

The Groundhog Anthracite Project (Groundhog) is situated within the Groundhog Coalfield located in northwestern British Columbia's Cassiar Land District. The project lies close to the northern extremity of the Skeena Mountains within the Bowser Basin approximately 180 km north of Hazelton and 150 km northeast of Stewart, British Columbia, Canada. Other nearby cities include Smithers, British Columbia 240 km to the south, and Prince George, British Columbia 490 km to the southeast (Figure 2.1)



**FIGURE 2.1: LOCATION OF GROUNDHOG ANTHRACITE PROJECT, NEARBY PORTS AND RAILWAY LINES**

The Groundhog Coalfield sits within the catchment area of Skeena River system. The Groundhog Anthracite property itself is bisected north to south by the Skeena River and is contained to the western slopes of the Skeena River valley and the northeast flank of Devil's Claw Mountain. The property reaches from the north slope of Mt. Jackson to just south of Beirnes Creek, and the drainages of Discovery, Davis, Evans, and Anthracite Creek run through the property from the southwest to the northeast until they meet the Skeena River. The eastern portion of the property is characterized by low to moderate relief while the western edge of the property's elevation is steeper due to the position of Devil's Claw Mountain.

The most abundant trees in the area are the alpine species including spruce and fir as well as poplar. The tree line is approximately 1,350m with tree growth fairly dense below 1,100m.

## 2.2. Access

Current access to Atrum Coal's Groundhog Project is limited to the Chipmunk and Kluatantan airstrips, both of which are located southeast of the property. The Kluatantan airstrip lies directly beside the project's base camp and is used regularly by fixed wing aircraft and helicopters providing transport and supplies to the camp.

A portion of the British Columbia Railway (BCR) extends from Prince George northwest to Bear Lake. Prior to 1977 steel for the rail was laid from Bear Lake to the Chipmunk airstrip located 30 km southeast of the property but the railway was not completed. North of the airstrip a construction road was graded and cleared parallel to the east bank of the Skeena River and continues to 5 km southeast of the property. From this point to just beyond the northern edge of the property the line has been graded and cleared but remains in poor condition.

If the rail line leading to the Groundhog Property were to be completed, access to sea ports along the west coast would be possible. The distance by rail from Atrum's property to Fort St. James, Prince George, Prince Rupert, and Vancouver is 381 km, 497 km, 1,234 km, and 1,294 km respectively.

## 2.3. Climate

The regional climate surrounding the Groundhog Property can be classed as Northern Cordillera and is characterized by long sub-zero winters and short cool summers. The Chipmunk Weather Station located approximately 25 km southeast of the property has recorded average monthly temperatures from -17.8 degrees Celsius in January to 12.0 degrees Celsius in July. The average precipitation recorded in the nearby Dease Lake is 420 mm per year, which includes the rainfall equivalent of a mean annual snowfall of 229 cm per year.

## 2.4. Historical Perspective

During the 1872 to 1878 gold rush, prospectors traveling to Cassiar from Fraser Lake made the first coal discoveries near the Groundhog Coalfield. It wasn't until 1900 though, that the first report mentioning the Groundhog Coalfield was given to the Canadian Department of Railways and Canals by V.H. Dupont. His report detailed the existence of several outcroppings of coal located at the convergence of Didene Creek and the Spatsizi River approximately 50 km northwest of Atrum Coal's current Groundhog Project.

In 1903 the first claims were staked in the Groundhog Coalfield by James McEvoy and W.W. Leach, who also has holdings on the Skeena River and the Discovery, Currier and Davis Creeks. Preliminary exploration of the area commenced in 1904 and inquiries were made into the building of a rail route near the coalfield.

During the period between 1910 and 1912 exploration was carried out by various companies and individuals. G.H. Malloch completed a geological evaluation of the southern Groundhog Property in 1911 and was the first to begin applying nomenclature to the local stratigraphic formations. The abundance of interest in the area around this time was partially due to the expectation that the

Canadian Northeastern Railway would be built to extend near the Groundhog Coalfield's location. With the onset of World War One all exploration ceased along with the railway construction.

Activity at the Groundhog Coalfield did not resume until several years after the end of the Second World War. In 1948 A.F. Buckman and B.A. Latour of the Geological Survey of Canada (GSC) conducted geological reconnaissance and compiled a report of their findings along with the details of all previous exploration that had taken place. The GSC revisited the Groundhog Coalfield in 1957 with Operation Stikine. This resulted in the creation of a base map but no definitive correlation of coal seams, stratigraphy, or structural information.

In 1966 Coastal Coal acquired coal exploration licences on the Discovery Property in the Groundhog Coalfield. Two years later in 1968 Professor R.V. Best and a team spent nine weeks conducting helicopter assisted exploration of the licenced areas during which approximately 3,885 km<sup>2</sup> was mapped. From this exploration, Best was able to divide the local strata into four definable units: Lower Conglomerate, Lower Shale, Upper Shale and Upper Conglomerate. The 56 surface samples taken during this time were subjected to proximate analysis. The report written by J.M. Black detailed the results of this analysis but did not indicate which laboratory processed the samples. Black's report also provided the sample's locations on extensive hand drawn geological maps of the property.

From 1969 to 1970, W.D. Tompson led a joint venture in the Groundhog Coalfield between Quintana Minerals Corporation, National Coal Corporation Ltd, and Placer Development Ltd. Exploration consisted of surface mapping and six diamond drill holes, most of which plot just west of Atrum Coal's current Groundhog Property. Samples were taken from coal seams within the six drill holes and sent for proximate analysis and specific gravity testing at Commercial Testing and Engineering (CT&E) in Ladner, British Columbia.

Tompson's team determined that the property was directly underlain by rocks of what was termed the "Coal-Bearing Lithosome". This lithosome was part of the nomenclature Tompson had designed for the stratigraphic sequence he assembled for the property, which is listed in depositional order as follows: McEvoy Ridge Lithosome, Coal-Bearing Lithosome, Devil's Claw Conglomerate Lithosome and the Lonesome Mountain Lithosome. The local strata were further subdivided into three facies and correlated with the depositional and tectonic history of the Bowser Basin in 1974 by G.H. Eisbacher. Eisbacher examined the eastern margin of the basin and applied the following titles to his subdivisions: Duti River-Slamgeesh Facies, Groundhog-Gunanoot Facies, and the Jenkins Creek Facies.

In 1977 BC Hydro considered using coal to operate a thermal power generating plant and appointed W.D. Tompson, from the previously mentioned joint venture, to review all work that had been done in the Groundhog Coalfield. All drilling, trenching, sampling and mapping was detailed in an extensive report. After examining all existing information, Tompson stated "The coalfield is in the very early stages of exploration, so therefore it is not possible to accurately calculate the coal reserves or the tonnage of recoverable clean coal. However, it is shown that the area between Evans Creek and Discovery Creek is underlain by relatively undisturbed coal seams." From this data Tompson determined four exploration targets for BC Hydro to explore.

In 1978 Groundhog Coal acquired seventy-seven coal exploration licences in the Groundhog Coalfield. The company started out with a large exploration program aimed at reviewing and confirming previous

work done in the area, but after some initial analysis it was decided that the local geology was not as clearly defined as originally anticipated. The project was reorganized with a focus on the more promising targets, and coal exploration licences were reduced from seventy-seven to three which encompassed parts of Upper Discovery Creek and Davis Creek. Traverses along both Upper Discovery Creek and Davis Creek were carried out by B. Mountford in the field seasons of 1978 and 1979. Mountford dug out and measured partially exposed coal seams along Upper Discovery Creek but noted he was unable to locate several of the coal seams along Davis Creek which had been mentioned in previous reports.

In 1980 Mountford, accompanied by L.G. Scott, completed a helicopter assisted preliminary geological program on the three remaining Groundhog Coal exploration licences. Kerr reported after mapping a 25 km area with evenly spaced 25m grids that coal outcroppings were few and far between and generally only found adjacent to the main creeks. When encountered, the coal seams were sampled and mapped in detail. Measurements taken during these field excursions led Kerr to conclude that there was no evidence to support the existence of any major structural disturbances in the Groundhog Coalfield aside from gently dipping  $10^{\circ}$  to  $20^{\circ}$  beds with strikes varying from  $130^{\circ}$  to  $185^{\circ}$ . Surface samples taken were sent for proximal analysis at Commercial Testing and Engineering (CT&E) in Ladner, British Columbia.

Later in 1980, L.G. Scott obtained 6 more coal exploration licences in the Groundhog Coalfield, of which John Kerr and team completed a cumulative eleven day preliminary analysis. These new licences covered several known and projected coal outcroppings near Telfer Creek, Beirnes Creek, and Currier Creek.

In 1981 coal exploration licences were issued to Petro-Canada for the eastern boundary of the Groundhog Coalfield. After initial exploration of the area, Petro-Canada concluded that insufficient thickness and quality of the coal seams, in conjunction with tight folding, made the area unsuitable for conventional mining. Despite suggesting that the currently held licences be abandoned, Petro-Canada recommended the close monitoring of any GSC programs taking place in the Bowser Basin as well as any exploration being conducted by other licence holders in the area.

Other work completed in 1981 with the Groundhog Coalfield included six diamond drill holes completed by Imperial Metals near or on the current Groundhog Property. No official report was released but geophysical logs, strip logs, and descriptive logs were filed with the BC government.

In 1982 and 1983 Suncor acquired twenty-nine coal exploration licences amounting to a 6,439 hectare property located in the southern portion of the Groundhog Coalfield near Mount Jackson. In 1983 Suncor carried out a helicopter supported geological mapping, trenching, and sampling program spanning all the licences held. Sixteen trenches totaling 104.2m were dug, and samples taken were sent to Calgary for analyses by Birtley Coal and Minerals Testing Ltd. Field teams traversed the exposed south facing slopes of Mount Jackson and Falconer Mountain. From these traverses stratigraphic columns were created and it was interpreted that coal seams should be present underneath the lower north facing slopes of Mount Jackson and extend beneath the Jackson Flats, McEvoy Flats, and Trail Creek.

In 1984 Groundhog Coal Limited commenced an exploration program on six licences they obtained in 1982. The licences were located west of the Skeena River valley between Beirnes Creek and Currier



Creek. The program consisted of geological mapping, trenching, and sampling but no drill program was conducted. A total of twelve trenches were dug, from which 23 representative coal samples were taken and subjected to analysis at Cyclone Engineering Sales Ltd. (Cyclone) in Edmonton, Alberta.

Indicated resource estimates calculated by Groundhog Coal Limited following their 1984 exploration program included information obtained from samples, trenches, and diamond drill holes completed by National Joint Venture's 1970 program and Imperial Metals' 1981 program. Estimates were based on the classifications adopted by Cordillera Region and Energy, Mines and Resources Canada in Report ER79-9, Coal Resources and Reserves of Canada. In their report Groundhog Coal Limited further defined their indicated resources as "those computed partly from specific measurements and partly from reasonable geologic projections. For the mountainous regions the maximum distance between points of observation should be 600 metres or less". According to those parameters Groundhog Coal Limited calculated the historical in-situ indicated resources at 11.5 million tonnes within their coal exploration licence area.

Gulf Resources Canada Limited also conducted exploration programs in 1983 and 1984 on thirty-two coal exploration licences making up their Evans Creek Property just east of the licences held by Groundhog Coal Limited. The programs consisted of helicopter supported 1:10,000 scale geological mapping based along drainage channels, and nine hand trenches. Representative samples taken from trenched coal seams with a true thickness greater than 0.5 metres were sent to C T & E in 1983 and Loring Laboratories Ltd in Calgary, Alberta for analysis in 1984.

Between 1985 and 1988 Gulf added eighteen new licences to the south of their initial thirty-two licences. Work done in 1985 on the Evans Creek Property was used as the basis for a speculative resource estimate 504 million tonnes. After an exploration program consisting of geological mapping, trenching, and sampling was carried out in 1988, Gulf's speculative resources estimate for the expanded Evans Creek Property was brought up to 1,538Mt.

In 2008, a drill program was completed by WestHawk. The work consisted of geologic mapping, trenching, diamond drilling, downhole geophysical logging, sampling and subsequent analytical work. Samples were subjected to both coal quality analyses and one sample was tested for vitrinite reflectance.

The original 2012 Moose Mountain Technical Services model was built with twenty-three diamond drillholes totaling 4,643.2m and 30 hand trenches totaling 95.5m.

In May 2012 Atrum Coal Groundhog Inc. (Atrum) acquired Groundhog and conducted their first field program in September and October 2012.

## 2.5. Acknowledgements

The work undertaken for the Groundhog geological investigation between September 2012 and September 2013, including the 2012 field exploration program was conducted by various contractors, consultants and staff under the management and supervision of Atrum Coal Groundhog Ltd. staff. This report was prepared by Mr. B Van Den Bussche of Kaybri Resource Management Ltd. with input from Atrum geological staff and the following groups:

- Loring Laboratories Ltd. for sample coal quality analyses
- Pearson Petrographics for coal petrographic analysis
- Dr. Barry Ryan for input and assistance in coal quality analysis
- CJL Enterprises for Management and Expediting
- Lakelse Helicopters for helicopter field support
- Century Geophysics for downhole geophysical logging
- Moose Mountain Resources for geological consulting support
- EP Popyk for coal logging and quality support
- Tysata Airlines for fixed wing air support
- Driftwood Drilling Ltd. for Core Drilling Services

Mr. Brad Van Den Bussche (P.Geol.) of Atrum Coal Groundhog Inc. received a Bachelor of Science Degree in Geology (Honors) (1985) from the University of Manitoba and is a professional geologist registered under APEGGA in the Province of Alberta. Since university graduation he has been employed as an exploration and development geologist with Gulf Canada Resources Ltd., worked as Chief Geologist at Norwest Mine Services Ltd., was involved as a partner at Coal Gas Technology Ltd., and worked as VP Exploration for numerous junior resource companies (Richards Oil and Gas Ltd., Antioquia Gold Inc. and Atrum Coal NL) through his wholly owned consulting company Kaybri Resource Management Ltd.

### 3. Tenure

The Groundhog Anthracite Property currently consists of 16 contiguous coal licences covering 7,472ha and seven adjoining coal licence applications covering 11,118 Ha for a total of 18,590 ha. The property coal licences are all held by Atrum Coal Groundhog Inc. and are summarized on Table 3.1 and Table 3.2 and shown on Figure 3.1)

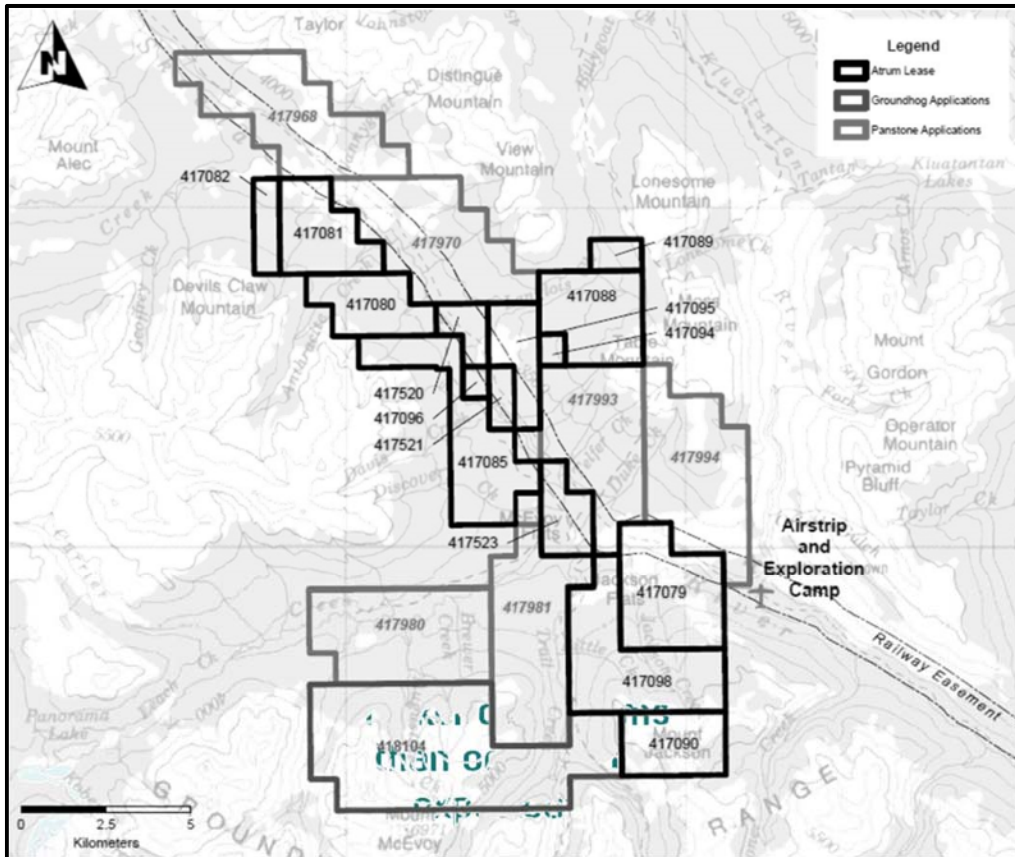


FIGURE 3.1: GROUNDHOG COAL TENURE LOCATIONS

**TABLE 3.1: GROUNDHOG COAL TENURES - COAL LICENCES**

Tenure Number	Owner Number		Map Number	Work Recorded To	Status	Mining Division	Area
417079	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	991
417080	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	565
417081	147498	100%	104A099	2012.10.21	Good Standing 2012.10.21	15 OMINECA	636
417082	147498	100%	104A099	2012.10.21	Good Standing 2012.10.21	15 OMINECA	212
417085	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	1031
417088	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	777
417089	147498	100%	104A099	2012.10.21	Good Standing 2012.10.21	15 OMINECA	142
417090	147498	100%	104A079	2012.10.21	Good Standing 2012.10.21	15 OMINECA	568
417094	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	71
417095	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	425
417096	147498	100%	104A089	2012.10.21	Good Standing 2012.10.21	15 OMINECA	71
417098	147498	100%	104A079	2012.10.21	Good Standing 2012.10.21	15 OMINECA	1204
417520	147498	100%	104A089	2013.09.12	Good Standing 2013.09.12	15 OMINECA	212
417521	147498	100%	104A089	2013.09.12	Good Standing 2013.09.12	15 OMINECA	142
417522	147498	100%	104A089	2013.09.12	Good Standing 2013.09.12	15 OMINECA	71
417523	147498	100%	104A089	2013.09.12	Good Standing 2013.09.12	15 OMINECA	354

**TABLE 3.2 GROUNDHOG COAL TENURES - COAL LICENCE APPLICATIONS**

Tenure Number	Owner Number		Map Number	Work Recorded To	Status	Mining Division	Area
418104	147498	100%	104A079		Good Standing	15 OMINECA	2775
417968	147498	100%	104A099		Good Standing	16 OMINECA	1411
417970	147498	100%	104A099		Good Standing	17 OMINECA	1412
417993	147498	100%	104A089		Good Standing	18 OMINECA	1273
417994	147498	100%	104A090		Good Standing	19 OMINECA	1415
417981	147498	100%	104A079		Good Standing	20 OMINECA	1416
417980	147498	100%	104A089		Good Standing	21 OMINECA	1416

## 4. Geology

### 4.1. Regional Geology

The Groundhog Coalfield is located in the northern portion of the Bowser Basin, bounded by the Skeena Arch to the north and the Stikine Arch to the south (Figure 4.1). The basin is situated in the Cordilleran Eugeosyncline and characterized by a regressive coarsening upwards sequence of clastic sediments deposited when uplift of the Coastal Mountains formed an inland sea. This marine regression deposited an approximately 4000 metre thick regressive sequence known as the Bowser Lake Group. The Bowser Lake Group is unconformably overlain by the Late Cretaceous Tango Creek Member of the Sustut Group and unconformably overlies the Triassic/Jurassic Takla-Hazelton assemblage, though neither of these bounding assemblages is present on Atrium Coal's Property. Figure 4.2 shows a Stratigraphic Column for the Groundhog Property.

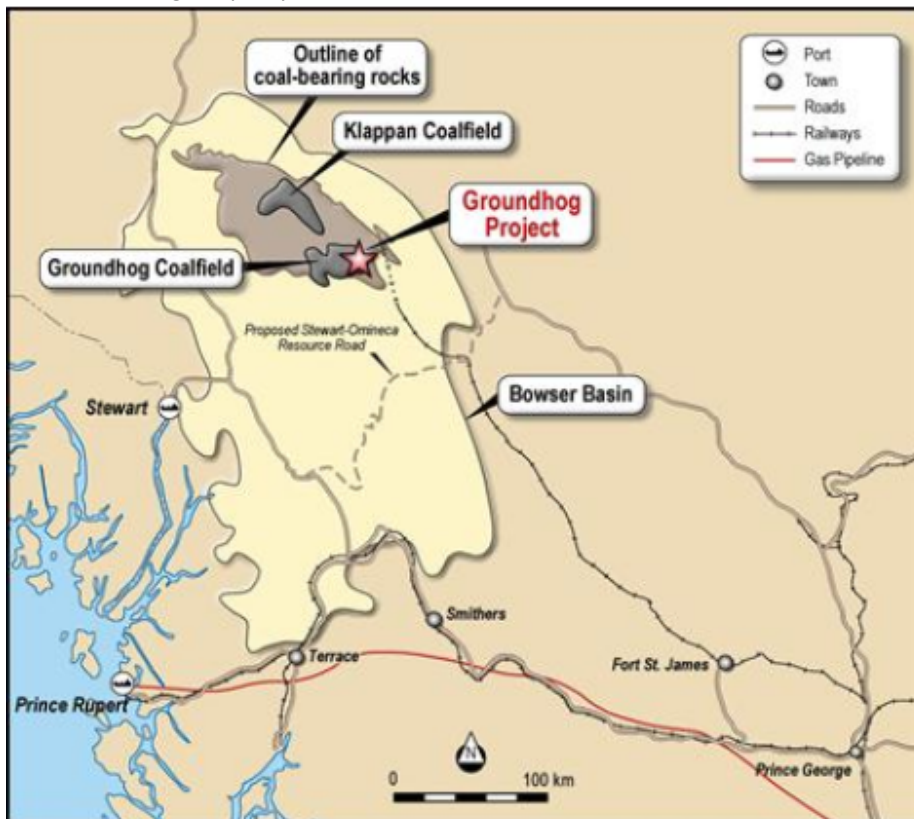
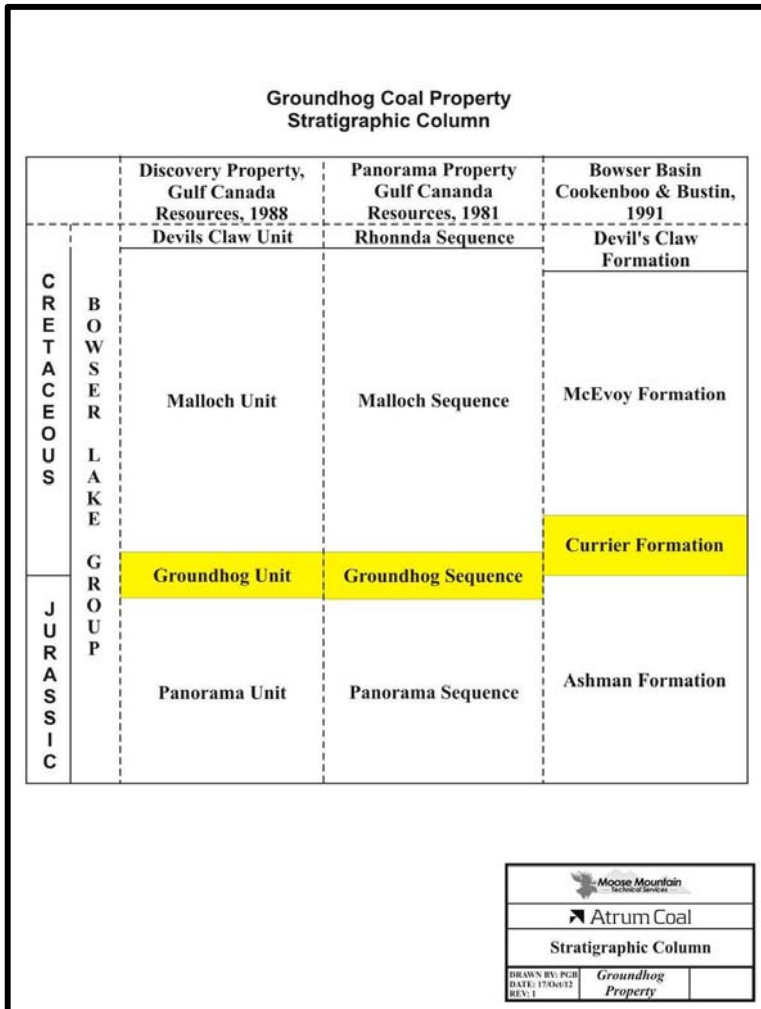


FIGURE 4.1: GROUNDHOG COALFIELD LOCATION



**FIGURE 4.2: STRATIGRAPHIC COLUMN (TABLE OF FORMATIONS) - GROUNDHOG PROPERTY, (MMTS, 2012)**

Using the nomenclature coined by Cookanoo and Bustin in 1991, the formations of the Bowser Lake Group from oldest to youngest are as follows: the Ashman Formation, Currier Formation, McEvoy Formation, and the Devil’s Claw Formation.

#### 4.1.1. Ashman Formation

The approximately 1800 metre thick, fully marine Ashman Formation is the oldest formation in the Bowser Lake Group and has been referred to in pre-1991 reports as the Panorama Sequence or the Panorama Unit. The Jurassic age formation is composed of mostly dark bluish grey to black shale that coarsens upwards repetitively to shallow-marine sandy mudstone and sandstone. Weathered tan coloured sandstone units near the top of the formation have been noted by Gulf geologists as containing bivalve fossils.

#### 4.1.2. Currier Formation

The Currier Formation is approximately 1000 metre thick and is the primary coal bearing formation of the Groundhog Coalfield. Prior to 1991 the Currier Formation was referred to either as the Groundhog Sequence or Groundhog Unit. The change from a fully marine depositional environment to this alternating marine and non-marine depositional environment is recorded in the gradational contact between the Ashman and Currier Formations. The deltaic Currier Formation is composed of alternating beds of shale and sandstone with lesser amounts of siltstone, conglomerate and coal. The coarsening upwards strata range from 30 to 60 metre thick beds at the bottom of the formation then begin to thin into 6 to 10 metre thick beds approaching the top.

Gulf geologists noted that the thickest coal seams were located closer to the bottom of the Currier Formation in what they called the Groundhog Unit which was approximately 600 metres thick. The unit is reported as having a slight orange colour to it which helped distinguish it from the underlying Panorama Unit (Ashman Formation). A one metre thick orange band of bivalve bearing mudstone was recorded by Gulf as overlying the thick orange sandstone bed which marks the top of the Panorama Unit (Ashman Formation). Despite being distinctive, the bivalve bearing bed is discontinuous and has thus far not been useful for correlation purposes.

Historically the northern part of the Bowser Basin has good coal development within the Currier Formation. Twenty-five meta-anthracite to anthracite grade coal seams have been recorded in the northern Bowser Basin.

#### 4.1.3. McEvoy Formation

Strata from the 600 to 1000 metre thick McEvoy Formation are interpreted as being deposited in paralic marine and brackish waters from a fluviially dominated delta system. Evidence for this depositional environment can be seen in terrestrial plant fossils preserved in the sediments. Coarsening-upward, silty mudstones are the dominant facies but sandstones and conglomerates are present, as well as thin sub-anthracite seams. The gradational contact with the overlying Devil's Claw Formation is observed as a major increase in the frequency of conglomerate units.

#### 4.1.4. Devil's Claw Formation

The Devil's Claw Formation consists primarily of thick successions of conglomerates with minor interbeds of sandstone, siltstone and shale. This 300 to 500 metre thick formation is interpreted as being deposited in a high energy environment such as that of an alluvial fan. Both large scale cross bedding of conglomerates with pebble to cobble sized clasts and homogenous conglomerates can be seen in the Devil's Claw Formation. Both are clast-supported and composed of well-sorted and well-rounded chert, volcanic quartz and occasionally granodiorite clasts.

## 4.2. Local Geology

At Groundhog, the thickness of the coal-bearing Currier Formation, is approximately 600 metres thick.

The bottom of the Groundhog Unit was recognized by Gulf geologists on the property by the occurrence of a one metre thick, orange band of oyster bearing mudstone on top of thick, orange, cliff forming sandstones that mark the top of the Panorama unit (Ashman Formation). However, because the oyster bed is not consistently present, the only reliable way to recognize the Groundhog Unit (Currier Formation) is by the presence of coal. Generally, the coal-bearing unit has an orangey cast that helps distinguish it from the underlying Ashman and overlying McEvoy Formations.

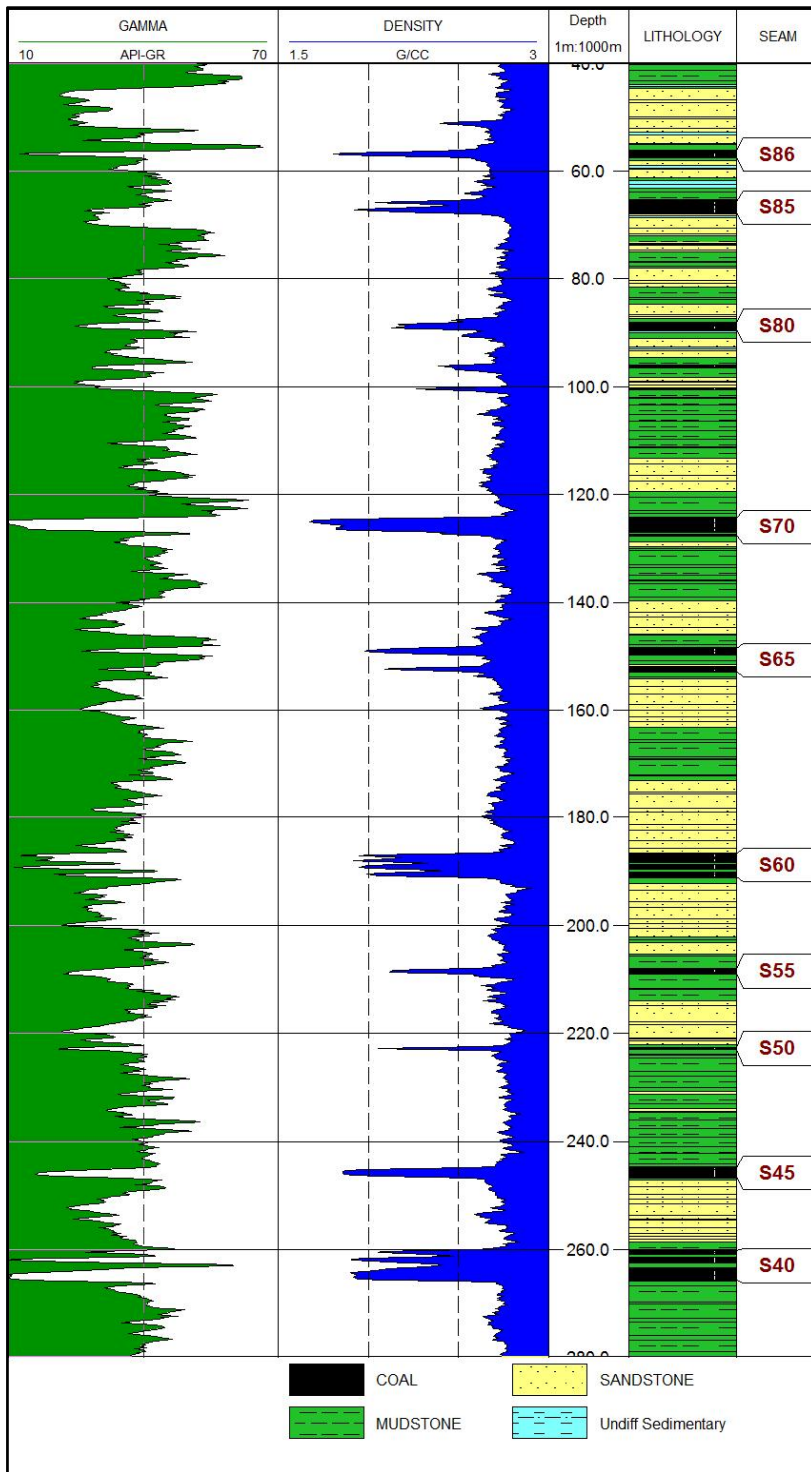
There is good coal development in the Currier Formation across a broad area in the northern Bowser Basin. At least 25 individual coal seams have been documented in the northern Bowser Basin with the thickest seams found to the north in the Mount Klappan area. The coals seams are anthracite and meta-anthracite in rank.

On the Groundhog Property, seams that were trenched in the early part of the twentieth century were given names such as the Upper Discovery, Lower Discovery, Pond, Ross, Beirnes, Garneau, Abraham and Elevation 3990 Seams. The maximum coal seam intersection in one drillhole was 2.9 metres. This seam is known as the Upper Discovery Seam, taking its name from the trenched seam beside which the drillhole was collared. Due to the paucity of drillhole information, however, correlation of seams has proven to be difficult.

In the Moose Mountain report, the seams at Groundhog have been numbered from the bottom, oldest, Seam 1 to the youngest, upper, Seam 7. Seam 5 has a lower split called Seam 5L.

Atrum has recently renamed and correlated the seams of the deposit and is currently working on an update of the geological model incorporating all 2013 exploration and structural interpretation. There are at least 25 known coal seams within the Currier Formation on the Groundhog Property, numbered from #90 at the top of the coal sequence through to #10 seam located at the base of the coal sequence. Seam numbers in increments of 5 are typically more significant and easier to correlate. Seams range in thickness from tens of centimetres to more than 7 metres, and typically range from .5 to 3 metres for the main seams (Figure 4.3)





**FIGURE 4.3: DETAILED STRATIGRAPHIC COLUMN - GROUNDHOG PROPERTY (XTRACT, 2013)**

By combining the 2012 exploration data with historical data, including both drill hole and trenching data, 44 independent seams have been identified, of which 11 are considered to be significant.

Seams are considered to be significant if they are encountered in most drill holes, and have an average thickness over one metre. The most significant seams include the 40, 60, 70 and 80 seams of which 70 has been identified as the most important seam due to its thickness, lateral extent and relatively shallow depth of cover.

Seam 40 has an average thickness of 2.72 metres, a minimum thickness of 0.1 metres and maximum thickness of 8.82 metres. This seam is encountered in many holes across the field area, but due to its depth it has not been encountered in all holes.

Seam 60 has an average thickness of 2.04 metres, a minimum thickness of 0.2 metres and a maximum thickness off 7.8 metres.

Seam 70 has an average thickness of 2.06 metres, a minimum thickness of 0.15 metres and a maximum thickness off 6.89 metres.

Seam 80 has an average thickness of 1.68 metres, a minimum thickness of 0.2 metres and a maximum thickness off 6.79 metres.

Data shows that the thickness of seams can vary significantly within each seam, this has been interpreted as the result of both lithologically controlled thickness and structural movement from folding or faulting. The thickest intercepts fall on the hinge of a fold, through an isoclinal fold or due to thrust faulting coupled with a thicker zone in the seam. Appendix 1 is a coal seam summary of all the drill holes from the 2012 exploration program.

### 4.3. Structural Geology

The sediments of the Bowser basin have undergone two major deformational events, the first of which was of the highest intensity. Compression from the northeast and the southwest occurred during the uplift of the Coast Crystalline Belt. Locally the result of this F1 deformation can be observed in the northwest-southeast trending Beirnes Synclinorium (Figure 4.4) and thrust faulting that is more intense in the southern portion of the Groundhog Coalfield than in the north. The southwest limb of the synclinorium dips gently, bringing coal seams in the area closer to surface near the outer most extent of the limb. Evidence for shearing of the coal seams in this portion of the synclinorium is minimal. The northeast limb however, is overturned and associated with extensive cleavage and shearing in the coal seams as the limb approaches the Skeena River. Cleavages related to F1 deformation are well developed in fine grained lithologies near the fold axes.

Northwest-southeast compressional F2 deformation is coaxial to that of F1, forming shallow, open northeast-southwest trending folds that affect the plunge of F1 folds by approximately 5°. F2 folds vary in wave length from 100m to 700m and vary in amplitude from 100m to 200m. Flat laying thrust faults resulting from the F2 deformation event are thought to be related to the hanging walls of drag folds and have displacement visible along bedding surfaces.

Bustin and Moffatt (1983) suggested that the style of deformation in the Bowser Basin is related to lithology. This hypothesis is supported in the way that the higher, more competent, massive beds of the Devil's Claw and Upper McEvoy units are characterized by broad, open, low-amplitude folds while the

relatively thin-bedded, fine-grained lower McEvoy and Currier units are characterized by high amplitude, shorter wavelength folds that tend to be disharmonic with the overlying units.

The Groundhog Thrust Fault is the principle fault within the Groundhog Coalfield. Striking approximately 310°, with an unknown dip, the fault extends from Currier Creek northwest outside of Atrum's property. Along the fault, rocks of the McEvoy Formation are commonly thrust over those of the Currier Formation. The front of the fault is serrated with multiple lobes of McEvoy Formation rock protruding over Currier Formation rocks.

Approximately 6.5 kilometres west of the Groundhog thrust fault lies the Upper Currier Creek normal fault. Striking approximately 315° to 340°, with a believed near vertical dip, the fault extends north from the headwaters of Currier Creek.

Historic reports and associated maps suggest multiple anticlines and synclines trending northwest-southeast within the Beirnes Synclinorium, but additional mapping to confirm previously reported measurements is needed.

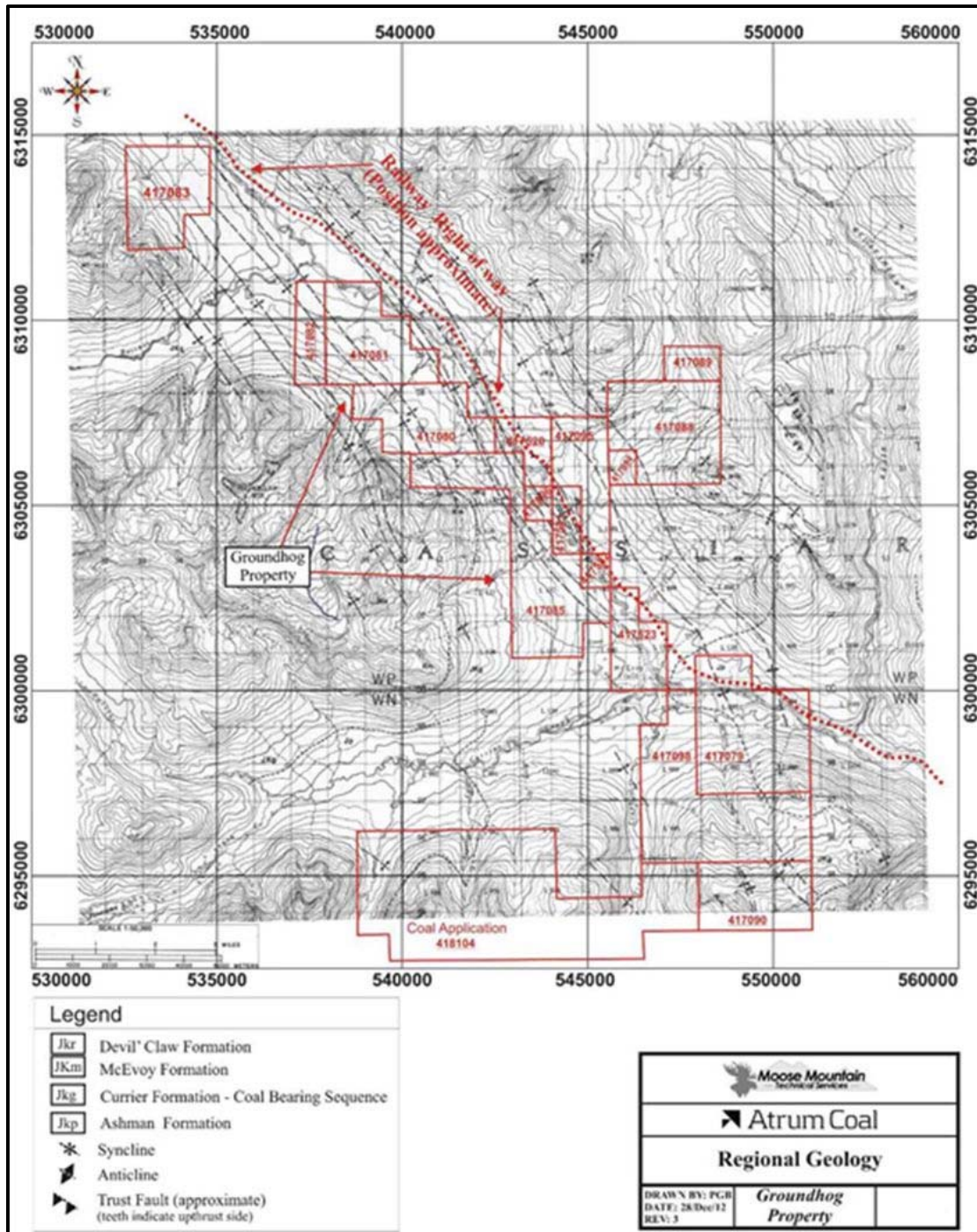


FIGURE 4.4: GENERAL STRUCTURAL GEOLOGY (MMTS, 2012)

#### 4.4. Deposit Type

The definition of “Deposit Type” for coal properties is different from that applied to other types of geologic deposits. For coal deposits this is an important concept because the classification of a coal deposit as a particular type determines the range of values that may be applied during the estimation of reserves and resources.

As specified in Geological Survey of Canada (GSC) Paper 88-21, which is a reference for coal deposits as specified in NI 43-101, coal “Deposit Types” are either surface mineable, underground mineable, non-conventional or sterilized. All of the deposits of interest at Groundhog in this report refer to the surface mineable coals. In addition to “Deposit Types” the GSC Paper 88-21 also refers to “Geology Types”, which are a definition of the amount of geological complexity, usually imposed by the structural complexity of the area. The classification of a coal deposit by “Geology Type” determines the approach to be used for the resource estimation methodology and the limits to be applied to certain key estimation criteria.

The identification of a particular deposit type for a coal property defines the confidence that can be placed in the extrapolation of data values away from a particular point of reference. The classification scheme of the GSC is similar to many other international coal reserve classification systems but it has one significant difference. This system is designed to accommodate differences in the degree of tectonic deformation of different coal deposits in Canada. Four classes are provided for that range from the first, which is for deposits of the Plains type with low tectonic disturbance, to the fourth which is for Rocky Mountains type deposits such as that of Byron Creek, which is classed as "severe". The second class is referred to as "moderate"; the gently to moderately dipping but only moderately faulted strata of the Panorama properties are typical of this class. The Mount Klappan Anthracite deposit to the north is classified as “complex” due to the tight folds, steep and overturned limbs and common faults. However, portions of that property that are not so deformed are also considered “moderate”.

MMTS classified Groundhog as structurally moderate, but recent exploration has shown that at least portions of the deposit are likely complex structurally.

A copy of geological maps and cross sections can be found in Appendix 8.

### 5. 2012 Exploration Program

All exploration work was undertaken between September and October 2012. The field program consisted of 4,992 metres in 15 diamond drill cored holes, all of which were located on the coal licences outlined in section 3. Table 5.1 is a drillhole summary, including collar survey information. The exploration program was designed to test the extent of the coal measures within approximately 300 to 350m of surface throughout the coal licences. Much of the area had not been previously tested by drilling, but contained surface mapping and trenching information from legacy data in previous assessment reports, which helped guide the general layout of the drill program. The entire 2012 drill program was by air only access, where drill pad construction, rig movement and drill crews were all supported by helicopter. All 15 core holes were drilled using wireline core retrieval system then described, photographed, sampled for coal and geophysically logged. All core was HQ (63.5 mm diameter) and core recoveries typically were greater than 90%. For each of the exploration programs

conducted between 1995 and 1998. An SRS 300 helicopter portable hydraulic drill was used to complete the drilling program. Driftwood Diamond Drilling of Smithers, BC completed all the diamond drilling requirements.

**TABLE 5.1: DRILL HOLE SUMMARY AND COLLAR SURVEY TABLE**

Drillhole	TD Geophysics (m)	Logs Run	Casing depth (m)	Overburden thickness (m)	Date started	Date completed	Driller	Easting	Northing	Elevation	Dip
DDH-GH-12-01	400.48	GD, GN	10.54	10.54	18-Sep-12	21-Sep-12	Driftwood	544429.56	6302631.08	1003.33	-90
DDH-GH-12-02	288.44	GD, GN	10.36	10.36	22-Sep-12	24-Sep-12	Driftwood	545929.88	6300633.44	896.66	-90
DDH-GH-12-03	282.54	GD, GN	11.27	11.27	23-Sep-12	24-Sep-12	Driftwood	544019.88	6302449.17	1052.54	-90
DDH-GH-12-04	309.60	GD, GN	6.09	6.09	25-Sep-12	27-Sep-12	Driftwood	539352.67	6309707.26	1059.12	-90
DDH-GH-12-05	333.75	GD, GN	6.09	6.09	25-Sep-12	28-Sep-12	Driftwood	540607.60	6307374.87	1151.13	-90
DDH-GH-12-06	315.66	GD, GN	3.04	3.04	28-Sep-12	30-Sep-12	Driftwood	538983.61	6309330.97	1094.49	-90
DDH-GH-12-07	284.49	GD, GN	4.57	4.57	29-Sep-12	30-Sep-12	Driftwood	541125.80	6307678.51	1107.13	-90
DDH-GH-12-08	306.60	GD, GN	5.18	5.18	30-Sep-12	02-Oct-12	Driftwood	538166.55	6309698.49	1094.77	-90
DDH-GH-12-09	398.04	GD, GN	6.09	6.09	01-Oct-12	05-Oct-12	Driftwood	541271.04	6306293.73	1174.97	-90
DDH-GH-12-10	309.20	GD, GN	5.79	5.79	03-Oct-12	05-Oct-12	Driftwood	538480.09	6310235.19	1048.72	-90
DDH-GH-12-11	421.36	GD, GN	9.14	9.14	04-Oct-12	08-Oct-12	Driftwood	547676.76	6298679.46	981.08	-90
DDH-GH-12-12	306.32	GD, GN	8.83	8.83	06-Oct-12	08-Oct-12	Driftwood	541850.44	6306912.24	1087.53	-90
DDH-GH-12-13	297.99	GD, GN	6.09	6.09	09-Oct-12	10-Oct-12	Driftwood	549550.05	6298105.11	1131.77	-90
DDH-GH-12-14	397.30	GD, GN	9.14	9.14	09-Oct-12	13-Oct-12	Driftwood	546094.45	6306432.77	1193.65	-90
DDH-GH-12-15	340.46	GD, GN	4.57	4.57	13-Oct-12	14-Oct-12	Driftwood	547444.46	6299380.39	911.01	-90

Drill Holes were named to reflect the drillhole type, the Project, the year and the hole number. As an example: DDH-GH-12-01

- DDH - Diamond Drill Hole
- GH – Groundhog Project
- 12 - 2012
- 01 – Hole #1

All holes were logged with a slim-line gamma-density tool was lowered through the drill stem to obtain at least one complete geophysical log of the hole. Detailed logging (1:50 Scale) was undertaken only over significant coal seam intervals. Whenever possible exploration drill-holes were also logged open hole (only DH-GH-12-01)

In general all holes were logged through the drill stem to obtain a gamma density log at 1:100 and 1:200 scale, a neutron log at 1:100 scale and an expanded scale gamma density at 1:50 scale. Due to the late timing in the season and the restriction to air only access, geophysical logging was restricted to through the drill stem after hole DH-GH-12-01 to reduce risk and time. Copies of the downhole geophysical logs are included in Appendix 2.

All cores collected were descriptively logged in detail (Appendix 3) by geologists on site. Once described and measured, the coals and selected host rock samples were bagged and labeled for subsequent analysis.

## 10. References

- B.C. Hydro, *Geology of the Groundhog Coalfield*. Assessment Report 100, 1977.
- Groundhog Coal Ltd., *A Summary Report on the Groundhog Coalfield*. Assessment Report 101, 1980.
- Groundhog Coal Ltd., *Groundhog Coal Property, Geology Report*. Assessment Report 105, 1984.
- Gulf Canada Resources Inc., *Evans Creek Coal Project, Geological Report*. Assessment Report 095, 1985.
- Gulf Canada Resources Inc., *Panorama Coal Project, Geological Report*. Assessment Report 112, 1980.
- Gulf Canada Resources Inc., *Panorama Coal Project, Geological Report*. Assessment Report 113, 1981.
- Gulf Canada Resources Inc., *Evans Creek Coal Project, Geological Report*. Assessment Report 749, 1988.
- Hughes, J.D., L. Klatzel-Mudry, and D.J. Nikols. *A Standardized Coal Resource/Reserve Reporting System for Canada*. Paper 88-21 Geological Survey of Canada. 1989.
- Imperial Metals Corp., *Groundhog, Geological Report*. Assessment Report 114, 1981.
- Moose Mountain Technical Services, JORC Estimate for Groundhog Anthracite Project, November 20, 2012.
- Moose Mountain Technical Services, JORC Estimate for Groundhog and Groundhog Extension Anthracite Project, January 3, 2013.
- National Coal Corp., *Exploration of the Groundhog Coalfield*. Assessment Report 098, 1970.
- Suncor Inc. Resources Group, *Geological Appraisal of the Mt. Jackson Coal Property, B.C.* Assessment Report 107, 1982.
- Suncor Inc. Resources Group, *Geological Appraisal of the Mt. Jackson Coal Property, B.C.* Assessment Report 108, 1983.
- West Hawk Development Corp., *Technical Report, Groundhog Coal Property*. NI 43-101 Report, 2007.
- Xstract Mining Consultants, Groundhog Anthracite Project – Resource Estimate, April 2013.

## Appendix 1 - Coal Seam Summary



Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
DDH-GH-12-01	24.45	25.80	1.35	1.48	70	1.84	80.72
	26.15	26.29	0.13				
	41.35	41.55	0.20	0.35	65	0.75	46.67
	41.95	42.10	0.15				
	56.63	56.82	0.20	1.30	60	1.67	77.41
	57.20	58.30	1.10				
	115.28	115.64	0.36	0.60	55	0.92	65.22
	115.96	116.20	0.24				
	150.44	150.88	0.44	0.96	50	1.96	48.98
	151.88	152.40	0.52				
	161.76	162.00	0.24	0.51	49	0.80	63.75
	162.29	162.56	0.27				
	200.20	200.45	0.25	1.25	45	2.08	60.10
	200.68	201.04	0.36				
	201.64	202.28	0.64				
	237.96	238.40	0.44	0.92	40	1.00	92.00
	238.48	238.96	0.48				
	272.48	274.04	1.56	1.70	35	3.70	45.97
	276.04	276.18	0.14				
	384.92	385.56	0.64	1.88	30	6.96	27.01
385.76	386.40	0.64					
391.28	391.88	0.60					
DDH-GH-12-02	12.20	12.90	0.70	0.70	85	0.70	100.00
	40.90	41.30	0.40	0.40	80	0.40	100.00
	69.60	71.35	1.75	1.75	70	1.75	100.00
	86.70	87.40	0.70	0.70	65	0.70	100.00
	138.60	139.00	0.40	3.75	60	12.75	29.41
	139.10	139.45	0.35				
	139.60	140.00	0.40				
	140.75	141.10	0.35				
	141.70	142.55	0.85				
	143.90	144.30	0.40				
	150.20	150.90	0.70	2.30	55	10.00	23.00
	151.05	151.35	0.30				
	194.40	194.73	0.33				
	194.83	195.10	0.27				
	195.45	196.35	0.90				
	203.60	204.40	0.80				
	219.80	221.20	1.40	2.25	50	2.45	91.84
	221.40	222.25	0.85				
	250.20	251.20	1.00	1.00	45	1.00	100.00
268.30	269.30	1.00	1.00	40	1.00	100.00	
	25.88	26.61	0.73	1.30	85	3.69	35.23
	27.20	27.71	0.51				

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
DDH-GH-12-03	29.51	29.57	0.06				
	52.17	52.69	0.52	0.52	80	0.52	100.00
	75.25	75.30	0.05	1.14	70	1.20	95.00
	75.36	76.45	1.09				
	115.41	116.42	1.01	1.73	60	5.55	31.17
	120.19	120.61	0.42				
	120.66	120.96	0.30				
	158.95	159.65	0.70	0.70	55	0.70	100.00
	177.11	177.59	0.48	1.13	50	14.86	7.60
	178.95	178.97	0.02				
	191.34	191.97	0.63				
	248.90	249.01	0.11	0.83	45	0.87	95.40
	249.05	249.77	0.72				
	269.50	270.22	0.72	0.72	40	0.72	100.00
DDH-GH-12-04	40.20	40.70	0.50	1.77	70	2.59	68.34
	41.52	42.79	1.27				
	85.48	86.00	0.52	0.52	65	0.52	100.00
	120.30	120.60	0.30	0.30	62	0.30	100.00
	147.10	147.40	0.30	3.07	60	8.43	36.42
	147.68	148.02	0.34				
	148.12	148.70	0.58				
	148.84	149.30	0.46				
	150.35	151.38	1.03				
	153.95	154.22	0.27	2.14	55	3.22	66.46
	155.44	155.53	0.09				
	170.10	171.12	1.02				
	171.60	172.27	0.67				
	172.37	172.52	0.15				
	173.02	173.32	0.30	0.96	54	1.04	92.31
	194.96	195.36	0.40				
	195.44	196.00	0.56				
	222.14	222.26	0.12	1.43	50	2.24	63.84
	222.53	223.70	1.17				
	224.24	224.38	0.14				
	235.60	236.26	0.66	0.66	47	0.66	100.00
253.93	255.52	1.59	1.59	45	1.59	100.00	
282.37	282.64	0.27	2.45	40	14.22	17.23	
282.96	283.12	0.16					
293.40	294.03	0.63					
294.18	294.88	0.70					
295.90	296.59	0.69					
	61.04	62.45	1.41	1.85	85	3.36	55.06
	63.96	64.40	0.44				
	97.96	98.56	0.60				

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
DDH-GH-12-05	98.80	99.10	0.30	1.80	80	5.12	35.16
	102.18	103.08	0.90				
	117.30	118.81	1.51	1.51	70	1.51	100.00
	152.43	152.57	0.14	0.14	60	0.14	100.00
	201.60	202.32	0.72	4.02	55	7.02	57.26
	202.44	202.80	0.36				
	203.40	203.76	0.36				
	204.12	204.40	0.28				
	205.20	205.64	0.44				
	206.76	208.62	1.86	5.54	50	17.73	31.25
	218.55	219.10	0.55				
	219.40	220.12	0.72				
	223.70	224.12	0.42				
	224.80	226.56	1.76				
	227.00	227.92	0.92				
	228.40	228.78	0.38				
	235.37	235.92	0.55				
	236.04	236.28	0.24	6.95	40	6.95	100.00
	270.05	277.00	6.95				
	309.40	309.65	0.25	1.32	35	4.30	30.70
310.80	311.33	0.53					
313.16	313.70	0.54					
DDH-GH-12-06	27.27	27.68	0.41	0.41	85	0.41	100.00
	40.92	42.60	1.68	1.68	80	1.68	100.00
	73.16	73.60	0.44	3.27	70	4.07	80.34
	74.10	74.67	0.57				
	74.77	75.07	0.30				
	75.27	77.23	1.96	1.06	65	1.06	100.00
	93.57	94.63	1.06				
	121.62	122.18	0.56	0.88	62	1.30	67.69
	122.60	122.92	0.32				
	134.23	134.90	0.67	2.46	60	7.45	33.02
	138.02	139.03	1.01				
	140.90	141.68	0.78				
	153.18	154.48	1.30	1.83	56	6.71	27.27
	159.36	159.89	0.53	1.87	55	2.92	64.04
	169.18	170.38	1.20				
	170.82	171.09	0.27				
	171.70	172.10	0.40	0.81	54	0.96	84.37
	184.92	185.40	0.48				
	185.55	185.88	0.33				
	228.96	229.59	0.63	1.18	50	4.14	28.50
232.55	233.10	0.55					
275.44	275.95	0.51					

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam (m)	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
	276.28	276.65	0.37	2.63	40	13.76	19.11
	296.44	297.15	0.71				
	297.92	298.60	0.68				
	305.00	305.24	0.24				
	309.20	310.20	1.00				
DDH-GH-12-07	19.65	19.93	0.28	2.28	80	3.55	64.23
	20.25	21.20	0.95				
	21.99	22.42	0.43				
	22.58	23.20	0.62				
	29.70	30.20	0.50	0.50	78	0.50	100.00
	58.55	59.10	0.55	3.65	70	3.85	94.81
	59.30	62.40	3.10				
	86.50	87.09	0.59	2.04	60	7.54	27.06
	87.18	87.50	0.32				
	90.39	90.54	0.15				
	93.06	94.04	0.98				
	165.77	166.21	0.44	1.52	55	5.43	27.99
	170.12	171.20	1.08	2.52	50	24.73	10.19
	183.38	183.68	0.30				
	184.00	185.20	1.20				
	202.20	202.71	0.51				
207.60	208.11	0.51	3.20	40	3.20	100.00	
259.20	262.40	3.20					
DDH-GH-12-08	48.42	50.00	1.58	3.73	80	4.53	82.34
	50.22	51.98	1.76				
	52.56	52.95	0.39				
	80.82	81.50	0.68	1.18	72	1.38	85.51
	81.70	82.20	0.50				
	90.15	93.60	3.45	3.45	70	3.45	100.00
	134.37	134.70	0.33	0.33	65	0.33	100.00
	139.84	140.38	0.54	0.54	64	0.54	100.00
	151.59	152.37	0.78	0.78	61	0.78	100.00
	163.62	165.14	1.52	3.78	60	6.43	58.79
	165.40	166.04	0.64				
	168.43	170.05	1.62				
	178.60	178.92	0.32	3.27	55	8.34	39.21
	180.07	180.67	0.60				
	181.01	181.60	0.59				
	181.80	182.16	0.36				
	182.40	182.95	0.55				
	184.35	184.71	0.36				
	186.45	186.94	0.49				
224.65	225.18	0.53	2.54	50	5.85	43.42	
227.38	228.30	0.92					

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m)	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
	229.41	230.50	1.09				
	244.04	244.93	0.89	0.89	45	0.89	100.00
	250.40	251.00	0.60	0.60	44	0.60	100.00
	257.20	257.56	0.36	0.36	43	0.36	100.00
	289.60	290.15	0.55	2.61	40	8.82	29.59
	292.00	292.84	0.84				
	297.20	298.42	1.22				
DDH-GH-12-09	28.05	28.92	0.87	0.87	85	0.87	100.00
	33.74	34.28	0.54	0.81	80	1.01	80.20
	34.48	34.75	0.27				
	40.87	41.25	0.38	0.38	78	0.38	100.00
	58.69	58.93	0.24	0.24	75	0.24	100.00
	81.98	82.84	0.86	2.68	70	5.02	53.39
	84.46	85.88	1.42				
	86.60	87.00	0.40				
	92.16	92.61	0.45	0.45	69	0.45	100.00
	100.38	101.20	0.82	0.82	68	0.82	100.00
	109.56	109.75	0.19	0.19	67	0.19	100.00
	119.14	119.26	0.12	0.12	66	0.12	100.00
	138.16	138.45	0.29	0.70	65	1.05	66.67
	138.80	139.21	0.41				
	190.30	191.30	1.00	1.16	60	5.11	22.70
	195.25	195.41	0.16				
	273.48	274.20	0.72	1.33	55	1.92	69.27
	274.79	275.40	0.61				
	288.79	290.84	2.05	2.05	50	2.05	100.00
	310.00	311.20	1.20	2.78	45	4.18	66.51
311.58	312.63	1.05					
313.65	314.18	0.53					
347.82	348.72	0.90	6.55	40	6.98	93.84	
349.15	354.80	5.65					
DDH-GH-12-10	25.98	27.07	1.09	1.09	70	1.09	100.00
	36.80	37.48	0.68	0.68	68	0.68	100.00
	66.08	66.43	0.35	0.35	67	0.35	100.00
	87.13	87.80	0.67	0.67	65	0.67	100.00
	106.36	106.80	0.44	0.44	64	0.44	100.00
	122.00	122.47	0.47	0.47	61	0.47	100.00
	142.00	143.30	1.30	6.72	60	11.40	58.95
	143.80	145.17	1.37				
	145.21	145.99	0.78				
	146.59	146.95	0.36				
	147.65	148.01	0.36				
	149.82	150.50	0.68				
	150.96	151.78	0.82				

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
	152.35	153.40	1.05				
	179.01	179.21	0.20	0.20	54	0.20	100.00
	195.23	195.96	0.73	0.73	50	0.73	100.00
	215.30	216.28	0.98	0.98	45	0.98	100.00
	270.16	272.81	2.65	4.39	40	6.64	66.11
	273.45	274.34	0.89				
	275.26	275.69	0.43				
	276.38	276.80	0.42				
DDH-GH-12-11	83.05	83.50	0.45	0.45	85	0.45	100.00
	100.28	100.52	0.24	0.60	80	0.84	71.43
	100.76	101.12	0.36				
	130.70	131.58	0.88	6.64	70	19.20	34.58
	140.87	142.60	1.73				
	143.45	143.64	0.19				
	143.80	145.30	1.50				
	147.28	149.28	2.00				
	149.56	149.90	0.34	2.25	60	2.80	80.36
	194.62	196.00	1.38				
	196.55	197.42	0.87	2.52	55	6.80	37.06
	218.20	218.76	0.56				
	219.81	220.46	0.65				
	223.10	223.53	0.43				
	223.80	224.28	0.48				
	224.60	225.00	0.40	1.66	50	3.61	45.98
	285.89	286.25	0.36				
	286.65	287.60	0.95				
	289.15	289.50	0.35	0.93	45	1.46	63.70
	301.36	301.68	0.32				
	302.21	302.82	0.61	1.50	40	6.25	24.00
	333.19	333.69	0.50				
	334.21	334.68	0.47				
	338.91	339.44	0.53				
	355.68	356.15	0.47	0.47	31	0.47	100.00
	362.05	362.38	0.33	13.11	35	24.58	53.34
	362.84	364.70	1.86				
	365.96	366.40	0.44				
	366.78	367.30	0.52				
	369.61	375.59	5.98				
376.14	378.37	2.23					
384.88	386.63	1.75	2.47	85	10.68	23.13	
21.37	22.12	0.75					
27.70	28.32	0.62					
56.29	57.37	1.08					
65.58	66.97	1.39					

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
DDH-GH-12-12	88.20	88.42	0.22	0.72	80	1.00	72.00
	88.51	88.65	0.14				
	88.84	89.20	0.36				
	96.00	96.27	0.27	0.27	78	0.27	100.00
	100.20	100.60	0.40	0.40	75	0.40	100.00
	124.40	126.98	2.58	2.80	70	3.15	88.89
	127.33	127.55	0.22				
	148.50	149.60	1.10	1.80	65	4.32	41.67
	152.00	152.30	0.30				
	152.42	152.82	0.40				
	186.78	187.59	0.81	3.35	60	4.22	79.38
	187.65	188.38	0.73				
	188.69	189.59	0.90				
	190.09	191.00	0.91				
	208.10	208.86	0.76	0.76	55	0.76	100.00
	222.57	223.00	0.43	0.43	50	0.43	100.00
	244.92	246.55	1.63	1.63	45	1.63	100.00
	260.19	260.90	0.71	4.10	40	5.53	74.14
261.41	262.48	1.07					
263.40	265.72	2.32					
DDH-GH-12-13	No major seam was intersected						
DDH-GH-12-14	12.88	13.40	0.52	1.44	80	2.12	67.92
	14.08	15.00	0.92				
	53.95	54.53	0.58	1.35	70	11.78	11.46
	64.96	65.73	0.77				
	103.70	104.55	0.85	2.41	68	16.45	14.65
	112.65	113.40	0.75				
	114.99	115.19	0.20				
	119.54	120.15	0.61	1.11	65	4.67	23.77
	137.65	137.98	0.33				
	139.19	139.50	0.31				
	141.70	141.80	0.10				
	141.95	142.32	0.37	0.62	60	0.62	100.00
	226.50	227.12	0.62				
	269.39	269.99	0.60	1.83	55	4.90	37.35
	272.20	272.60	0.40				
	272.80	273.36	0.56				
	274.02	274.29	0.27				
	300.20	301.16	0.96	0.96	50	0.96	100.00
313.40	314.28	0.88	0.88	45	0.88	100.00	
352.61	352.93	0.32	2.22	40	6.29	35.29	
353.38	353.62	0.24					
356.50	357.00	0.50					
357.24	357.72	0.48					

Hole	From (m)	To (m)	Drilled Thickness Net Coal by Ply (m)	Drilled Net Coal Thickness by Seam ( m )	Possible Seam No:	Drilled Coal + Rock Thickness by Seam (m)	Coal / Coal + Rock Ratio
	357.91	358.20	0.29				
	358.51	358.90	0.39				
DDH-GH-12-15	9.00	9.80	0.80	0.80	85	0.80	100.00
	34.82	35.35	0.53	0.81	80	1.14	71.05
	35.68	35.96	0.28				
	62.00	62.75	0.75	2.67	70	14.55	18.35
	67.31	67.70	0.39				
	71.96	72.90	0.94				
	75.90	76.35	0.45				
	76.41	76.55	0.14	0.74	68	0.79	93.67
	89.45	89.57	0.12				
	89.62	90.24	0.62	0.84	65	0.84	100.00
	102.00	102.84	0.84				
	127.10	127.63	0.53	0.53	60	0.53	100.00
	199.40	200.40	1.00	2.10	50	2.82	74.47
	201.00	201.34	0.34				
	201.39	201.67	0.28				
	201.74	202.22	0.48				
	219.60	221.30	1.70	3.29	45	4.47	73.60
222.48	224.07	1.59					
235.00	235.49	0.49	0.49	44	0.49	100.00	

\*All the coal plys greater than 0.9m are highlighted

\*\* Coal/Coal+Rock is displayed as percentage with greater than 75% being highlighted



### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-01
Drilling Start Date	18-Sep-12
Drilling Finish Date	21-Sep-12
Confirmed Easting	544429.56
Confirmed Northing	6302631.08
Elevation	1003.33
Azimuth	
Dip	-90
Depth	400.48
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	544433
PreCollar Northing	6302633
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	26-Sep-12
Coal Logger	EP
Coal Logging Dates	
Comments	

## Appendix 2 – Geophysical Logs

## Appendix 3 – Descriptive Core Logs

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft	Lith. m	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
	0	0.00	8.39	8.39			8.13m									Casing to 8.13	
		8.39	8.68	0.29				SST	SLT	FG	LGY					rubble	
	0.86						9.14m										
		8.68	9.51	0.83				MDST	COALY	VFG	DGY					Coal spoil w/ MDST fragments	
		9.51	10.17	0.66				SLT		FG	DGY					Few CM scale SST bands	
		10.17	11.26	1.09				SST		CG	LGY					Few mm to cm scale MDST bands & rounded fragments (py in SST @ 12-12.1m)	
	1.58						12.19m									(pyrite in SST @12-12.1m)	
90°		11.26	14.26	3.00				SST		CG	LGY					As above	
	1.59						15.24m										
		14.26	14.54	0.28				SST		CG	LGY					As above	
							Box 3										
		14.54	17.44	2.90				SST		CG	LGY					As above	
	1.19						18.29m										
		17.44	17.80	0.36				SST		MG	MGY					mm scale MDST laminations	
							Box 4										
		17.80	19.44	1.64				SST		MG	MGY					As above, increasing MDST content twds base of interval	
90°		19.44	20.44	0.99				SST	MDST	MG	MGY					interbedded SST + MDST mm-cm scale laminations	
	1.47						21.34										
		20.44	21.09	0.65				SST	MDST	MG	MGY					As above	
							Box 5										
		21.09	23.60	2.52				SST	MDST	MG	MGY					As above	
	0.12						24.38										
		23.60	24.08	0.48				SST	MDST	MG	MGY					As above	
																End pg. 2	
		24.08	24.25	0.17				MDST	SLT	FG	DGY	0°		90°		mm scale SLT laminations, py bed 1/2 cm at base	
		24.25	24.45	0.20		35805		MDST	SLT	FG	DGY	0°		90°		ROOF SAMPLE, mm scale SLT laminations, py bed 1/2 cm at base	0
							Box 6										
	0	24.45	25.45	1.00		35806		COAL	C4		BLK					Top 30 cm fairly solid, but sheared, next 67 cm broken chunks of coal, numerous chunks showing shearing, becoming duller near the base. Irregular quartz veins near top.	70
	0	25.45	25.80	0.35		35807		COAL	C4		BLK					As above crushed coal	70
																End Pg. 3	
		25.80	26.00	0.20		35808		MDST		VFG	DGY					FLOOR SAMPLE Sheared fracture surface	0
		26.00	26.15	0.15				MDST		VFG	DGY					Sheared fracture surface	
		26.15	26.29	0.13				COAL		FG	BLK					cm scale MDST band, bright coal, mm scale quartz veinlets	
		26.29	26.42	0.13				MDST		VFG	DGY					mm-scale coaly laminations	
	1.43						27.43										
		26.42	27.26	0.83				MDST		VFG	DGY					As above + mm scale quartz veinlets, slickensides on fracture surface	
							Box 7										
		27.26	27.65	0.39				MDST		VFG	DGY					As above + few mm-scale SST laminations	
90°		27.65	29.53	1.88				SST		CG	LGY					Few mm-scale MDST laminations, few mm-scale quartz veinlets 15 deg. To CA	
	1.93						30.48										

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
		29.53	30.62	1.09				SST		CG	LGY					As above	
																End pg 4	
							Box 8										
		30.62	31.62	1.00				SST		CG	LGY					As above	
90°		31.62	32.55	0.93				SST		MG	LGY					few mm-scale MDST laminations, few mm-scale quartz veinlets	
	1.52						33.53										
		32.55	33.65	1.10				SST		MG	LGY					As above	
		33.65	33.90	0.25				SLT		FG	MGY					few mm-scale SST laminations, mm-scale quartz veinlets	
							Box 9										
		33.90	34.27	0.37				SLT		FG	MGY					As above	
		34.27	34.97	0.70				MDST		VFG	DGY					few cm-scale SST bands	
90°		34.97	35.72	0.75				SST		MG	LGY					few mm-cm scale MDST laminations	
	1.66						36.58										
		35.72	37.10	1.38				SST		MG	LGY					As above	
																End Pg. 5	
90°		37.10	37.20	0.10				SLT	MDST	MG	MGY					mm scale MDST laminations, few cm-scale SST laminations, mm-scale quartz band	
		37.20	38.87	1.67				SLT	MDST	MG	MGY					As above	
	1.09						39.62										
		38.87	40.38	1.51				SLT	MDST	MG	MGY					As above	
		40.38	40.59	0.21				MDST		VFG	DGY					mm-scale py blebs throughout	
							Box 11										
		40.59	41.35	0.76				MDST		VFG	DGY					As above	
		41.35	41.53	0.18		35809		COAL+ROC6			BLK					Mostly Rock, very carbonaceous rock	65
		41.53	41.55	0.02				Coal Loss								Coal Loss	
		41.55	41.66	0.11				Rock Loss								Rock Loss	
		41.66	41.95	0.29				MDST	CARB	VFG	DK BLK					Very soft, odd coal spar, irregular quartz veining,	
							42.67										
		41.95	42.10	0.15		35810		COAL+ROC6			BLK					Mostly Rock, very carbonaceous, 85% ash	65
																End pg 6	
		42.10	43.06	0.96				MDST		VFG	DGY					few mm-cm scale quartz veinlets, CARB, sheared, fractured surfaces	
		43.06	43.66	0.60				SST	SLT	FG	LGY					mm-scale quartz veinlets throughout, perpendicular quartz infilling fractures	
							Box 12										
35°		43.66	44.93	1.28				SST	SLT	FG	LGY					As above	
	0.74						45.72										
		44.93	45.22	0.29				SST	SLT	FG	LGY					As above	
50°		45.22	46.87	1.65				MDST		VFG	DGY					CARB on top 20cm of interval, few mm-scale coaly laminations, mm-scale quartz veinlets throughout in filling fractures	
							Box 13										
		46.87	47.20	0.33				MDST		VFG	DGY					As above (w/o CARB interval)	
60°		47.20	47.94	0.74				SST	MDST	MG	MGY					mm-cm scale MDST laminations throughout, mm scale quartz veinlets infilling fractures	
																End Pg 7	
	1.21						48.77										

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
90°		47.94	50.12	2.18				SST	MDST	MG	MGY	x-cutes bedding	60°			As above	
							Box 14										
		50.12	51.00	0.87				SST	MDST	MG	DGY					As above	
	0.81						57.82										
		51.00	53.31	2.32				SST	MDST	MG	MGY					As above, fault zone 52.5-53.4m moderately broken, local gouges py mineralization brecciated-quartz infilling fractures	
							Box 15										
		53.31	54.06	0.75				SST	MDST	MG	MGY					As above	
	0.10						54.86										
		54.06	55.03	0.97				SST	MDST	MG	MGY					As above, fault zone	
		55.03	55.49	0.46				SST		VCG	LGY					Quartz veinlets + clasts	
		55.49	56.63	1.13				MDST	SST	FG	DGY					mm scale clasts, quartz veinlets	
																End Pg. 8	
							Box 16										
	0	56.63	56.82	0.20				COAL	C5		BLK					Boney Coal, High Ash, dull black	
	0	56.82	57.00	0.17				MDST	CARB	VFG	BLK					Carbonaceous, thin coal beds	
		57.00	57.14	0.14		35801		MDST	CARB	VFG	BLK					ROOF SAMPLE. As above Carb Mdst	0
							57.91										
	0	57.14	57.20	0.06		35801		MDST	CARB	VFG	BLK					ROOF SAMPLE. As above Carb Mdst	0
	0	57.20	57.82	0.62		35802		COAL	C4							Broken crushed to bits, odd pyrite bleb	60
	0.20	57.82	58.30	0.48		35803		COAL	C2							Quartz veins @90 degrees & 0 degrees, trace pyrite, fractured, sheared, Slickensides (small fault), One thin bed @ 25 degrees BCA. Light for coal	60
																End Pg. 9	
		58.30	58.50	0.20		35804		MDST	SST	FG	DGY					FLOOR SAMPLE< quartz veinlets, mm-scale, some vuggy, mm-scale coaly lenses @ top of interval, mm-scale SST laminations	0
		58.50	59.64	1.14				MDST	SST	FG	DGY					quartz veinlets, mm-scale, some vuggy, mm-scale coaly lenses @ top of interval, mm-scale SST laminations	
							Box 17										
		59.64	60.16	0.52				MDST		FG	DGY	cm spacing	90°			not very competent, breaks easily along cracks	
	1.30						60.96										
		60.16	61.10	0.93				MDST		FG	DGY					As above	
		61.10	62.96	1.868537				MDST	SST	FG	MGY					mm-cm scale SST laminations throughout, CG SST, LGY	
							Box 18										
		62.96	63.12	0.155711				MDST	SST	FG	MGY					As above	
	1.60						64										
		63.12	63.47	0.352946				MDST		VFG	DGY					mm-scale coalified lenses breaks apart easily on cracks	
		63.47	63.68	0.21		35811		MDST		VFG	DGY					ROOF SAMPLE, mm-scale coalified lenses breaks apart easily on cracks	0
20	0.25	63.68	64.05	0.37		35812		COAL	C4		BLK					Numerous irregular quartz veins & thin pyrite beds, 4 fractures parallel to bedding ( approx. 20 to 25 degrees BCA)	99

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
15	0.18	64.05	64.06	0.01		35812		COAL LOSS								COAL LOSS	99
		64.06	64.26	0.20		35813		MDST	CARB	VFG	BLK					FLOOR SAMPLE Very Soft, numerous coal spars & beds very poor RQD, but mostly due to desiccation.	0
		64.26	66.05	1.79				MDST	CARB	VFG	BLK					As above MDST	
																End Pg. 11	
		66.05	67.85	1.79				MDST	SST	FG	DGY					mm-cm scale SST laminations, few mm-scale coaly laminations	
							box 19										
	1.62						67.06										
		67.85	68.89	1.04				MDST		VFG	DGY					few mm scale coalified lenses	
		68.89	70.64	1.75				SST		CG	LGY					few mm-scale MDST laminations + clasts (FG) perpendicular mm 2cm	
	1.56						70.1										
		70.64	70.92	0.28				SST		CG	LGY					as above	
							BOX 20										
90		70.92	71.98	1.06				SST		CG	LGY					As above, 30cm band of MDST laminations in middle of interval	
50°		71.98	73.39	1.42				SST	MDST	MG	LGY					mm-scale quartz veinlets, cm-scale quartz + calcite infilling fractures, possible hinge zone (BCA changes from 90° to 50° to 90°) local gouge w/ quartz infusions + parasitic folds	
	0.7						73.15										
		73.39	73.90	0.50				SST	MDST	MG	LGY					As above	
							BOX 21										
		73.90	74.75	0.85				SST	MDST	MG	LGY					As above, local gouge	
35°		74.75	76.21	1.46				MDST		FG	DGY					mm-scale coalified lenses, 30cm SST-MG, LGY in middle of interval, mm-scale quartz veinlets	
	0.2						76.2										
		76.21	76.68	0.47				MDST		FG	DGY					As above (no SST interval)	
				0.00			box 22										
60°		76.68	79.04	2.36				MDST		FG	DGY		10°			As above, possible hinge zone? 77.5-78m, steepening of fractures and bedding	
	1.97						79.25										
		79.04	79.23	0.19				SST		MG	LGY					few mm-scale MDST laminations	
																End Pg. 13	
							box 23										
60°		79.23	80.23	0.99				SST		MG	LGY					As above	
60°		80.23	81.17	0.94				SST		CG	LGY					3cm MDST clast, few mm-cm scale MDST laminations, cm scale quartz vein	
		81.17	81.73	0.56				SST		MG	LGY					mm-cm scale MDST clasts-rounded	
	1.58						82.30										
		81.73	82.24	0.51				SST		MG	LGY					As above, few MDST clasts + laminations	
							box 24										
		82.24	82.62	0.39				SST		MGY	LGY					As above	
65°		82.62	84.48	1.85				MDST	SST	FG	DGY					mm-cm scale laminations, local gouge, slickenlines on fracture surface- possible fault zone 83.25-83.5m	
	0.96						85.34										
		84.48	84.56	0.08				MDST	SST	FG	DGY					As above	
		84.56	84.76	0.20		35814		MDST	SST	FG	DGY					ROOF SAMPLE As above	0

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
																End Pg. 14	
	0	84.76	84.99	0.23		35815		COAL	C5		BLK	3	10			Irregular quartz veins, very hard for coal, thin pyrite beds (less than 1/2mm thick)	99
		84.99	85.08	0.09		35815		COAL LOSS								COAL LOSS	99
		85.08	85.28	0.20		35815		MDST	SST	FG	DGY					FLOOR SAMPLE mm-cm scale laminations, mm-scale quartz veinlets	0
							box 25										
60°		85.28	87.62	2.34				MDST	SST	FG	DGY					As above, local gouge (cm scale zone), mm-scale quartz veinlets, BCA changes- possible fold closure	
10°																	
60°																	
	1.15						88.39										
		87.62	88.62	1.00				MDST	SST	FG	DGY					As above	
							box 26										
		88.62	90.67	2.05				MDST	SST	FG	DGY					As above	
																End Pg 15	
	1.21						91.44										
		90.67014	91.85	1.18				MDST	SST	FG	DGY					parasitic folds, pyrite, 10cm gouge + broken zone, mm-cm scale quartz veinlets	
							box 27										
55°		91.85084	93.66	1.81				MDST		VFG	BLK					mm-cm scale quartz veinlets, brecciated MDST fragments in quartz, 10cm band of MG, DGY, SLT	
	2.09						94.29										
		93.66	95.10	1.44				MDST		VFG	BLK					As above	
							box 28										
		95.10	96.70	1.60				SST		FG	LGY					cm scale quartz + dolomite (fibrous) veinlets- 10°to CA	
	1.92						97.54										
		96.70	98.29	1.59				SST		FG	LGY					As above	
							box 29										
		98.29	99.73	1.44				SST		FG	LGY					As above	
																End pg 16	
	2.8						100.58										
		99.73	101.37	1.64				SST		FG	LGY					As above, quartz infilling fractures	
							box 30										
		101.37	102.83	1.46				SST		FG	LGY					As above	
	1.69						103.63										
		102.83	104.59	1.77				SST		FG	LGY					As above	
							box 31										
		104.59	105.88	1.28				SST		FG	LGY					As above	
	2.68						106.68										
																END PG 17	
		105.88	107.65	1.78				SST		MG	LGY					As above	
							Box 32										
		107.65	107.96	0.31				SST		MG	LGY					As above	
		107.96	108.12	0.16				SST	SLT	MG	LGY					few mm scale quartz veinlets, mm to cm scale SLT laminations throughout	
	1.09/3						109.73m										
75°		108.12	110.80	2.68				SST	SLT	MG	LGY	3cm spacing	75°			As above, SST coarsening down interval, angular SLT fragments w/in some quartz veinlets	



BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		110.80	111.94	1.14				SST	SLT	MG	LGY					As above	
	1.32/3						112.78										
90°		111.94	114.02	2.07				SST	SLT	MG	LGY					As above	
							Box 34										
85	0.78	114.02	114.98	0.97				MDST	SLTST	VFG	BLK-GREY	8	85			85% Mdst, 15% Sltst. Mdst: 1mm to 4mm bed thickness. Sltst: Wispy 1 mm thick beds.	
							115.82										
		114.98	115.07	0.09				MDST	CARB	VFG	BLK	~40	90			Very Soft, odd pyrite bed	
90	0	115.07	115.28	0.21		35817		MDST	CARB	VFG	BLK	~40	90			ROOF SAMPLE, As above Carb. Mudstone	0
	0	115.28	115.53	0.25		35818		COAL	C3		BLK					Irregular Quartz veins, sheared into "disks"	55
		115.53	115.64	0.11				COAL LOSS								COAL LOSS	
	0	115.64	115.92	0.28		35819		MDST	CARB	VFG	BLK					As above Carb Mdst.	0
		115.92	115.96	0.04		35819		ROCK LOSS								ROCK LOSS	0
																End pg. 18	
		115.96	116.03	0.07		35820		COAL LOSS								COAL LOSS	55
	0	116.03	116.20	0.17		35820		COAL	C3		BLK					As above coal, except for numerous pyrite beds, & wispy pyrite lences,	55
		116.20	116.40	0.20		35821		MDST	SLTST	VFS TO MOD.	BLK/GREY	26				FLOOR SAMPLE, As below Mdst/Sltst	0
85	0.39	116.40	117.52	1.12				MDST	SLTST	VFS TO MOD.	BLK/GREY	26				Interbedded Mdst & Sltst. 60% Mdst, 40% Sltst. Mdst: beds range from wispy to 4 cm thick, but the average is 3mm thickness. Sltst: beds range from 1mm to 5 cm. Contains rip up clasts of the Mdst. Two SS @ 45 degrees, minor amount of quartz veining.	
																END PG 18A	
							Box 35										
85		117.52	118.09	0.57				SST	MDST	CG	LGY					mm-cm scale mudstone laminations throughout (MDST=DGY&VFG)	
	0.57/3						118.87										
		118.09	120.74	2.66				SST	MDST	CG	LGY					As above Few mm scale quartz veinlets	
							Box 36										
70		120.74	121.31	0.57				SST		CG	LGY					Few MDST laminations (mm-cm scale) Few mm scale quartz veinlets	
	1.13/3						121.92m										
70		121.31	122.55	1.24				SST		CG	LGY					As above	
45		122.55	123.78	1.23				SST	MDST	CG	LGY					cm scale MDST laminations throughout mm scale quartz veinlets w/ angular MDST & SST fragments laminations & x-cutting veinlets show evidence of faulting	
							Box 37										
		123.78	124.36	0.58				SST	MDST	CG	LGY					As above	
																Sheared fracture surfaces	
							124.97m									End Pg 19	
	0/3	124.36	126.70	2.34				SST	MDST	CG	LGY					As above	
							Box 38										
		126.70	127.33	0.63				SST	MDST	CG	LGY					As above	
	1.68/3						128.02m										

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	BCD	FCA	Notes	Seam
		From	To	Drilled	True												
45°		127.33	129.66	2.33				SST		CG	LGY	>10cm spacing	45			Few mm-cm scale MDST laminations throughout Few mm-cm scale quartz veinlets slickensides on fracture surfaces 10cm zone in lower part of interval w/ quartz veinlets w/ angular veinlets sedimentFragments, bedding angle changes below this zone	
75°							Box 39										
		129.66	130.40	0.74				SST		CG	LGY					Few mm scale SLT&MDST laminations few mm scale quartz veinlets	
	2.14/3						131.06m										
		130.40	132.70	2.30				SST		CG	LGY					As above Few mm-cm scale MDST clasts (rounded) 5cm MDST band near base of interval	
																End Pg 20	
							Box 40										
		132.70	133.30	0.61				SST		CG	LGY					As above 10cm MDST band @ base of interval	
	2.17/3						134.11m										
		133.30	135.94	2.64				SST		CG	LGY					As above MDST laminations mm-cm scale	
																End box 40	
																End Pg 21	
							Box 41										
		135.94	136.34	0.40				SST		CG	LGY					Few cm scale MDST laminations Few quartz veinlets (mm scale)	
	1.54/3						137.16m										
		136.34	137.17	0.83				SST		CG	LGY					As above Few rounded MDST clasts	
60/30		137.17	139.04	1.87				SST	MDST	CG	LGY					mm-cm scale MDST laminations throughout mm-scale quart veinlets x-cut bedding & shw evidence of faulting Few MDST clasts in SST (<1cm)	
							Box 42										
		139.04	139.36	0.32				SST	MDST	CG	LGY					As above	
	1.44/3						140.21m										
60		139.36	141.94	2.57				SST	MDST	CG	LGY					As above	
		141.94	142.19	0.25				MDST		VFG	DGY	5mm spacing	90			5cm CARB coaly band w. fault gouge & sheared fracture surfaces @ top of interval w/ mm scale quartz veinlets	
																End box 42	
																End Pg 22	
							Box 43										
		142.19	142.47	0.28				MDST		VFG	DGY	5mm spacing	90				
	2.49/3						143.26m										
60°		142.47	143.10	0.63				MDST	SLT	FG	MGY					mm scale SLT lamiations throughout Few sandy laminations <1cm	
60°		143.10	144.52	1.42				SST	MDST	CG	LGY					mm-cm scale laminations of MDST throughout Few mm scale vuggy quartz veinlets	
		144.52	145.32	0.80				SST		CG	LGY					Few cm scale MDST clasts & laminations	
							Box 44										
		145.32	145.56	0.24				SST		CG	LGY					As above	
	2.2/3						146.30										
		145.56	146.93	1.36				SST		CG	LGY					As above	

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70°		146.93	148.49	1.57				SST	MDST	CG	LGY					mm-cm scale MDST laminations throughout 7cm band @ top of interval w/ rounded mudstone clasts, mm-cm scale, in CG SST	
																End box 44	
																END PG 23	
																BOX 45	
75	0.14	148.49	148.63	0.14				MDST	SLTST	VF-MED	BLK-GREY					Mostly Mdst, 30% Slst. Both Mdst & Slst beds are 1 to 2 mm thick.	
																149.35	
75	1.21	148.63	150.24	1.61				MDST	SLST							As above Mdst/Slst, except for becoming more carbonaceous towards the base.	
		150.24	150.44	0.20		35822		MDST	SLST							ROOF SAMPLE, Carbonaceous Mdst/Slst	0
	0	150.44	150.75	0.31		35823		COAL	C3							Broken, crushed, compact bits of bright & dull coal, some shearing on some the chunks of coal, towards the base almost powder.	50
		150.75	150.88	0.13				COAL LOSS								COAL LOSS	
	0	150.88	151.54	0.66		35824		MDST	CARB	VFG	BLK	21	45			PARTING SAMPLE, Very Soft, very thin coal beds & coal spars	0
																152.40	
	0	151.54	151.69	0.15		35824		MDST	CARB	VFG	BLK					PARTING SAMPLE, As above Mdst/Slst, except it broken into small bits	0
																END BOX 44	
																BOX 46	
	0	151.69	151.88	0.19		35825		MDST	CARB	VFG	BLK					PARTING SAMPLE, As above broken Mdst/Slst	0
		151.88	152.07	0.19				COAL LOSS								COAL LOSS	
	0	152.07	152.40	0.33		35826		COAL	C3							As above Coal	50
		152.40	152.60	0.20		35827		MDST	SLTST	VFS-MED	BLK-GREY	17	75			FLOOR SAMPLE, As above solid Mdst/Slst	0
80	1.59	152.60	154.43	1.83		35827		MDST	SLTST	VFS-MED	BLK-GREY	17	75			As above solid Mdst/Slst	0
80	0.34	154.43	154.85	0.42				MDST	SLTST	VFG-MED	BLK-GREY	3	75			As above solid Mdst/Slst	
																END PG 23A	
																Box 47	
		154.85	154.94	0.09				SLT	MDST	FG	MGY					mm scale MDST laminations	
																Few mm scale MDST clasts @ bottom of interval	
		154.94	157.47	2.53				SST		CG	LGY					V. few mm scale mudstone laminations	
	1.89/3															158.5m	
		157.47	157.86	0.39				SST		CG	LGY					As above	

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		157.86	158.08	0.22				SLT	SST	MG	MGY					cm scale SST laminations are mm-cm scale decreasing presence of SST down interval	
																Few MDST laminations	
																Few mm scale quartz laminations	
							Box 48										
70		158.08	160.40	2.32				SLT	SST	MG	MGY					As above	
																Few SLT clasts in SST	
		160.40	160.48	0.08				MDST		FG	DGY	<1cm spacing				Few SLTY laminations fractured	
							161.54m										
		160.48	161.31	0.83				MDST		FG	DGY					End Pg 24	
																As above	
																Sheared fracture surfaces	
																End box 48	
							Box 49										
65	0	161.31	161.76	0.45				MDST		VFG	BLK	25	75			Thinly bedded (1mm), quartz veining near base, veining follows bedding.	
	0	161.76	161.95	0.19		35828		COAL	C4		BLK					Broken crushed coal bits with fragments of Mdst	49
		161.95	162	0.05				COAL LOSS								COAL LOSS	
		162	162.18	0.18				ROCK LOSS								ROCK LOSS	
	0	162.18	162.29	0.11				MDST			BLK					As above Mdst	
		162.29	162.36	0.07				COAL LOSS								COAL LOSS	
	0	162.36	162.56	0.20		35829		COAL	C4							As above Coal	49
	1.14	162.56	163.87	1.31				MDST			BLK	7	75			As above Mdst	
							162.00										
85	0.43	163.87	164.90	1.04				MDST			BLK	8	70			2 Slickenslides @ 45° Slickenslides filled with quartz veining. Several 1cm thick coal beds, several small veins filled with pyrite, pyrite blebs.	
							END BOX 49									End Pg 25	
	1.8/3						164.59										
65		164.90	166.33	1.43				SLT	SST	FG	MGY	1cm spacing	65			SST laminations mm-cm scale throughout One mm scale quartz veinlet	
		166.33	166.65	0.32				SST		CG	LGY					Few MDST laminations (mm-cm scale) mm scale quartz veinlet	
		166.65	166.90	0.25				SLT	MDST	FG	MGY					Few SST laminations (mm-cm scale) 2cm quartz band w/ angular SLT fragments	
	2.44/3						167.64m										
70		166.90	168.19	1.29				SST		CG	LGY					Few MDST laminations (mm-cm scale) Few rounded MDST clasts (mm-cm scale)	
							Box 51										
		168.19	169.43	1.24				SST		CG	LGY					As above	

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	BCD	FCA	Notes	Seam
		From	To	Drilled	True												
		169.43	170.02	0.59				SST	SLT	CG	MGY					mm-cm scale SLT laminations throughout Few MDST laminations mm scale quartz veinlet	
																End Pg 26	
	1.88/3						170.69m										
		170.02	170.48	0.46				SST	SLT	CG	MGY					As above	
		170.48	171.29	0.80				SST		CG	LGY					Few mm scale MDST laminations & clasts	
		171.29	171.53	0.24				SST	SLT	CG	LGY					mm-cm scale SLT laminations throughout	
																Few MDST laminations	
							Box 52										
65		171.53	172.48	0.96				SST	SLT	CG	LGY					As above, (grades into SLTY interval below)	
		172.48	173.07	0.58				SLT	SST	MG		3cm spacing	90			mm-cm scale SST laminations throughout	
	0.54						173.74m										
		173.07	174.75	1.69				SLT	SST	MG	MGY					As above	
		174.75	174.81	0.05				MDST		FG	DGY					Few SLT laminations	
							Box 53										
		174.81	175.23	0.42				MDST		FG	DGY	1cm spacing	90			As above	
		175.23	175.45	0.22				COAL	MDST	FG	BLK					Hard coal w/ CARB MDST bands, quartz veinlets, py bands (mm scale)	
																End Pg 27	
		175.45	176.06	0.61				MDST	CARB	FG	DGY					cm scale CG SST bands x-cutting the MDST Few mm scale SLT laminations w/in MDST @ bottom of interval Few MDST clasts on coarse SST	
	2.85/3						176.78m										
		176.06	178.05	1.99				SST		CG	LGY					Few mm scale SLT laminations & clasts	
							Box 54										
		178.05	179.10	1.05				SST		CG	LGY					As above	
	2.4/3						179.83m										
		179.10	179.37	0.27				SST		CG	LGY					As above	
70		179.37	181.09	1.72				SLT	SST	MG	MGY					mm-cm scale SST & SLT laminations throughout Few MDST laminations (mm scale) Few cm scale MDST clasts in CG SST band	
		181.09	181.38	0.29				SST		MG	LGY					Few mm scale SLT laminations, few MDST laminations	
							Box 55									End Pg 28	
70		181.38	182.16	0.78				SST		MG	LGY					as above, SLT decreasing w/ depth & SST coarsening w/ depth	
	0.88/3						182.88m										
		182.16	182.56	0.39				SST		MG	LGY					As above	
70		182.56	184.75	2.19				SST	SLT	CG	LGY					mm-cm scale SLT laminations throughout Few MDST laminations throughout	
				0.00			Box 56										
		184.75	185.18	0.43				SST	SLT	CG	MGY	2cm spacing	90			mm-cm scale SLT laminations throughout	
	0.53/3						185.93										
		185.18	185.99	0.81				SST	SLT	CG	MGY					As above	
																Few mm scale quartz veinlets	

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		185.99	186.05	0.06				COAL	SST	MG	BLK					mm scale SST laminations mm scale quartz veinlets & bands	
																Bright, hard coal	
																mm scale py blebs	
		186.05	186.21	0.15				SST		CG	LGY					Few SLT & MDST laminations (mm scale), up to 5cm py-rich SST	
																Eng Pg 29	
		186.21	186.43	0.22				COAL		FG	BLK					Hard, bright sheared fracture surface mm scale quartz veinlets & py bands Few mm scale SLT laminations Few mm scale CARB MDST bands	
		186.43	187.53	1.11				MDST	CARB	FG	DGY	1cm spacing	90			Few mm scale SLT laminations	
																Few cm scale by blebs	
70		187.53	188.04	0.50				SST	SLT	CG	LGY					mm scale SLT laminations	
		188.04	188.14	0.10				SST	SLT	CG	LGY					As above	
							188.98										
		188.14	189.00	0.86				SST		VCG	LGY					Few mm scale SLT+MDST laminations + clasts lower 15cm of interval has cm scale SLT+MDST clasts (rounded) Few mm scale coaly fragments + bands	
		189.00	189.84	0.84				SST	SLT	CG	LGY					mm scale SLT laminations	
																End Pg 30	
		189.84	191.21	1.37				SST		VCG	LGY					Few mm to cm scale SLT + MDST laminations + clasts. Cm scale quartz band @ base of interval	
	1.95/3						192.02m										
							Box 58										
70		191.21	194.34	3.13				SST		CG	LGY		70			Some VCG sections few SLT + MDST laminations + clasts (mm-cm scale)	
	1.05/3						195.07m										
		194.34	194.56	0.22				SST		CG	LGY					As above	
							Box 59										
		194.56	197.40	2.84				SST	SLT	CG	LGY					mm-cm scale SLT laminations throughout density of SLT laminations increasing towards base of the interval Few mm- scale quartz veinlets	
	0.21/3						198.12m										
70		197.40	197.86	0.46				SST	SLT	CG	LGY		70			As above	
																End Pg 31	
							BOX 60										
90	0.52	197.86	200.00	2.14				SLTST	MDST	VFG-MED	BLK-GREY	50	90			Interbedded Mdst& Slst. 50% Mdst, 50% Slst. Slst: 1 to 3cm thick beds, Mdst:1 mm to 3cm thick beds	
		200.00	200.20	0.20		35830		SLTST	MDST	VFG-MED	BLK-GREY	50	90			ROOF SAMPLE, as above Slst/Mdst	0
	0.16	200.20	200.45	0.25		35831		COAL	C4		BLK					Hard, high % of Mdst	45
	0	200.45	200.68	0.23		35832		MDST	CARB		BLK					PARTING SAMPLE, Broken chunks of a Carb. Mdst very friable, numerous chunks with sheared faces	0
							201.17										
		200.68	200.74	0.06				COAL LOSS								COAL LOSS	
	0.1	200.74	201.04	0.30		35833		COAL	C4		BLK					Sheared in places, but solid, heavy for coal	45
	0	201.04	201.34	0.30		35834		MDST		VFG	BLK	1	45			PARTING SAMPLE, Massive, One Slickenslide filled with quartz, irregular fractures all over. END BOX 60	0

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 61										
90	0.24	201.34	201.64	0.30		35835		MDST	SLTSR	VFG-MED	BLK-GREY	5	75			PARTING SAMPLE, Mostly Mdst, several Sltst beds, quartz veining @ 90°	0
	0.12	201.64	202.28	0.64		35836		COAL	C4		BLK	4	70			Cleats folded into a "synform" structure, quartz veins follow bedding.	45
	0.78	202.28	202.48	0.20		35837		MDST	CARB	VFG		3	75			FLOOR SAMPLE, Massive, soft, quartz veins forming an "S" structure	0
		202.48	203.44	0.96				MDST	CARB	VFG		3	75			As above Carb. Mdst	
							204.22										
	0	203.44	204.36	0.92				MDST	CARB	VFG		1	0			As above Carb Mdst, one large fracture running the length of core @ 0°	
																END PG 31A	
0							Box 62										
		204.36	206.42	2.06				SLT	SST	FG	MGY	cm spacing	10	cm spacing	90	mm-cm scale SST laminations throughout Few mm scale quartz veinlets	
	0.92/3						207.26m										
40		206.42	207.46	1.04				SST	SLT	MG	LGY					mm-cm scale SLT laminations mm scale quartz veinlets CG SST in middle of interval	
							Box 63										
		207.46	209.48	2.02				SST	SLT	MG	LGY	5cm spacing	40			As above Increasing SLT w/ depth	
	0.85/3						210.31m										
		209.48	209.62	0.14				SST	SLT	MG	LGY					As above	
		209.62	210.71	1.09				SLT	SST	FG	MGY					mm-cm scale SST laminations throughout mm-scale quartz veinlets w/ angular SLT+SST fragments	
							Box 64										
		210.71	212.15	1.44				SLT	SST	FG	MGY					As above	
																End Pg 32	
		212.15	212.56	0.41				SST	SLT	CG	LGY					mm-cm scale SLT laminations throughout mm scale quartz veinlets	
	0.62/3						213.36										
60		212.56	213.99	1.43				SST	SLT	CG	LGY					As above	
							Box 65										
		213.99	214.60	0.61				SST	SLT	CG	LGY	1cm spacing	60			As above	
		214.60	214.80	0.20		35838		SST	SLT	CG	LGY	1cm spacing	60			ROOF SAMPLE, As above	0
	0	214.80	215.06	0.26		35839		COAL	C5		BLK	4	80			Heavy for coal, odd pyrite bleb, quartz veins & quartz blebs	99
		215.06	215.16	0.10		35839		COAL LOSS								COAL LOSS	99
	0	215.16	215.24	0.08		35840		MDST		VFG	BLK	4	85			PARTING SAMPLE, Massive, one Slickenslide minor amount of quartz veining	0
	0.14	215.24	215.44	0.20		35841		COAL	C5		BLK	1	90			Solid, heavy for coal, quartz veins & blebs	99
		215.44	215.60	0.16		35841		COAL LOSS								COAL LOSS	99
							216.41										
		215.60	215.80	0.20		35842		SLTST	MDST	VFG-MED	BLK-GREY	8	60			FLOOR SAMPLE, Interbedded Mdst & Sltst, becoming very silty near base. &0% Sltst, 30% mdst, minor amount of quartz veing	0
60	1.46	215.80	217.12	1.32				SLTST	MDST	VFG-MED	BLK-GREY	8	60				

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
																end pg 33	
	1.52/3						216.41										
		217.12	217.80	0.68				SLT	MDST	FG	DGY					mm-cm scale laminations of SST SST increases twd bottom of interval	
60		217.80	218.64	0.84				SST		CG	LGY					Few SLT laminations mm-scale, few cm scale, mm scale quartz veinlets, few mm scale MDST clasts	
							Box 66										
		218.64	219.80	1.16				SST		CG	LGY					As above	
	0.88/3						219.46m										
		219.80	220.11	0.30				SST		CG	LGY					As above	
		220.11	221.26	1.15				SST	SLT	CG	MGY	cm spacing	60			mm-scale SLT lamination mm-scale vuggy quartz veinlet	
		221.26	221.54	0.28				SLT	SST	MG	MGY					mm-scale SST laminations, mm scale quartz veinlets	
		221.54	222.46	0.92				SLT	SST	MG	MGY					As above	
	0.7/3						222.50										
		222.46	222.52	0.06				SLT	SST	MG	MGY					As above	
																End Pg. 34	
		222.52	222.86	0.34				MDST	CARB	FG	DGY	1cm spacing	90			Few SLT laminations mm scale, mm scale quartz veinlet coaly shear surfaces	
		222.86	222.89	0.03				COAL			BLK					Bright, sheared	
65		222.89	223.64	0.75				SLT	SST	MG	MGY					mm-cm scale SST laminations, SST increases twd bottm of interval, few mm-scale MDST laminations mm-scale quartz veinlet	
		223.64	224.37	0.73				SST		CG	LGY					Few SLT-MDST laminations mm0cm scale, incr. in size twd bottom of interval	
		224.37	224.46	0.09				MDST	CARB	FG	DGY	<1cm spacing	90			mm scale quartz veinlet, coaly shear surface	
																End Pg 35	
		224.46	224.89	0.43				MDST	CARB	FG	DGY					Sheared fracture surface, mm scale quartz veinlet	
	1.06/3						225.55										
		224.89	225.29	0.40				MDST	CARB	FG	DGY					As above + mm scale coaly band, cm scale py band @ base of interval @ contact brwn MDST + coal	
85	0	225.29	225.58	0.29		35843		COAL	C4		BLK	6	75			Fairly Solid, fairly hard, minor amount of quartz	99
		225.58	225.76	0.18				COAL LOSS								COAL LOSS	
												3	90				
																End Pg. 36	
		225.76	226.0254	0.27				MDST	CARB	FG	DGY					mm scale coaly laminations + py bands, mm scale quartz veinlet	
65		226.0254	227.6175	1.59				SLT	SST	MG	MGY					SST+MDST laminations throughout (mm-cm Scale), cm scale CG SST band @ base of interval	
							Box 69										
		227.6175	227.7452	0.13				SLT	SST	MG	MGY					As above + mm scale quartz veinlets + cm scale fault gouge band @ base of interval	
	1.9/3						228.6m										
		227.7452	228.5609	0.82				SLT	SST	MG	MGY					As above	
65		228.5609	230.6837	2.12				SST		CG	LGY					Few mm-cm scale SLT=MDST laminations, mm scale quartz veinlets x-cut bedding + indicate movement/faulting, few mm-scale SLT clasts	
																Eng Pg 37	



BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
		230.6837	230.7722	0.09				SST		CG	LGY					As above	
	1.44/3						231.65m										
		230.7722	232.4527	1.68				SST		CG	LGY					As above	
65		232.4527	233.5731	1.12				SLT	SST	MG	MGY					mm-cm scale SST laminations throughout, few mm-scale quartz veinlets, decreasing SST content w/ depth	
	0.11/3						234.7										
		233.5731	233.809	0.24				MDST	SLT	FG	DGY					mm scale SLT laminations sheared fracture surfaces	
							Box 71										
		233.809	234.32	0.51				MDST	SLT	FG	DGY					As above	
																Few mm scale quartz veinlets 15cm band of rip-up clasts (MDST+SLT) in LGY and FG matrix	
	0	234.32	234.57	0.25		35844		COAL	C6		BLK					Stoney boney coal	99
		234.57	234.76	0.19				COAL LOSS								COAL LOSS	
																End Pg 38	
		234.76	235.12	0.36				MDST	CARB	FG	DGY					Few SLT bands, mm scale quartz veinlets throughout	
																mm-cm scale MDST laminations throughout, increasing MDST content w/ depth, mm scale quartz veinlets. 30 cm fractured one in middle of interval w/ cm scale quartz veinlets +fragments +CG SST	
	0.7/3						237.74										
							Box 72										
		236.85	237.07	0.22				SST	MDST	MG	LGY					As above	
																mm-scale SST laminations throughout, mm scale quartz veinlets, mm scale MDST + SST, ri up clasts in quartz + LGY, FG matrix	
		237.07	237.76	0.69				MDST	SST	FG	DGY						
		237.76	237.86	0.10		35845		MDST	SST	FG	DGY					ROOF SAMPLE, As above Mdst/Sst	0
		237.86	237.96	0.10		35845		MDST	CARB	FG	DGY					ROOF SAMPLE, Few mm scale quartz veinlets	0
		237.96	238.29	0.33		35846		COAL								Sheared to bits numerous bright chunks of coal End Pg 39	40
		238.29	238.4	0.11		35846		COAL LOSS								COAL LOSS	40
		238.4	238.41	0.01		35847		ROCK LOSS								ROCK LOSS	0
	0	238.41	238.48	0.07		35847		MDST								PARTING SAMPLE, massive, thin coal beds, irregular quartz veins	0
		238.48	238.52	0.04		35848		COAL LOSS								COAL LOSS	40
		238.52	238.96	0.44		35848		COAL	C3							Semi-solid, numerous bright chunks of coal, sheared in places, minor amount of quartz veining, END PG 39A	40
		238.96	239.16	0.20		35849		MDST	CARB	FG	DGY					FLOOR SAMPLE, As below Mdst/Carb	0
		239.16	239.59	0.43				MDST	CARB	FG	DGY					Few mm-scale coaly bands @ top of interval	
		239.59	239.91	0.32				SST		CG	LGY					Few mm scale MDST clasts & bands	
							Box 73										
	2.49/3						240.79m										
		239.91	242.92	3.01				SST		LGY	CG					As above, 1cm scale quartz veinlet @ top of interval	
	2.5/3						243.84m										
							Box 74										
		242.92	243.41	0.49				SST		LGY	CG					Few mm-scale MDST laminations, few mm-cm scale clasts of quartz + MDST + SLT	
		243.41	243.73	0.32				CNGL		GRANULE	LGY					Oligomict granule +pebble CNGL, feldspar + quartz+ MDST+SST clasts	

BCA	RQD	Unit		Thickness (m)		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To	Drilled	True										
		243.73	245.10	1.37				SST		VCG	LGY			Few mm-cm scale clasts, few cm scale quartz bands, few mm scale MDST laminations, 5cm py-rich band, few mm scale coaly bands	
														End Pg 40	
		245.10	245.26	0.17				CNGL	SST	GRANULE	LGY			Feltspar + quartz +SST + MDST clasts	
		245.26	245.97	0.71				MDST	CARB	FG	DGY			Few mm scale coaly bands +quartz veinlets, few SLT laminations	
	2.05						246.89m								
		245.97	246.14	0.17				MDST	CARB	FG	DGY			As above	
							Box 75								
		246.14	246.36	0.22				MDST	CARB	FG	DGY			As above	
		246.36	247.21	0.86				MDST	SLT	FG	DGY			mm-cm scale SLT laminations throughout, few mm-scale quartz veinlets, few mm scale py bands, few mm-scale SST bands	
60		247.21	249.00	1.78				SST		CG	LGY			Few mm scale, MDST laminations and clasts	
														End Pg 41	
	2.6/3						249.94m								
		249.00	249.40	0.40				SST		CG	LGY			As above	
							Box 76								
		249.40	250.29	0.89				SST		CG	LGY			As above	
		250.29	252.01	1.72				SST	CNGL	VCG	LGY			V. coarse SST to granule CNGL, few pebble size clasts, few mm cm scale quartz veinlets	
	1.87/3			0.00			252.98m								
		252.01	252.67	0.66				SST	CNGL	VCG	LGY			As above	
							Box 77								
		252.67	252.80	0.13				SST	CNGL	VCG	LGY			As above	
		252.80	253.78	0.98				SST	MDST	MG	LGY			mm to cm scale laminations throughout, few mm scale quartz veinlets, sheared fracture surface	
		253.78	254.94	1.16				MDST	SST	FG	DGY			mm-cm scale SST laminations throughout	
														End Pg. 42	
85		254.94	255.09	0.15				SST	MDST	MG	LGY			mm-cm scale MDST laminations throughout	
	0.42/3			0.00			256.03m								
90		255.09	255.90	0.81				SST	MDST	MG	LGY			As above, mm scale quartz veinlets (few) sheared fracture surfaces	
		255.90	255.98	0.08				MDST	SST	FG	DGY			mm-cm scale SST laminations, few mm-cm scale quartz veinlets	
		255.98	256.80	0.83				MDST	SST	FG	LGY			As above	
		256.80	257.00	0.20		35850		MDST	SST	FG	LGY			ROOF SAMPLE, As above	0
	0.5	257.00	257.69	0.69		35851		COAL	C3		BLK	3	90	Solid	99
		257.69	257.89	0.20		35852		MDST	CARB	FG	DGY			FLOOR SAMPLE, As below Carb. Mdstnd Pg. 43	0
		257.89	258.11	0.22				MDST	CARB	FG	DGY			mm scale coaly bands + quartz veinlets	
	2.17/3						259.08m								
		258.11	258.87	0.76				MDST	CARB	FG	DGY			As above, few SST laminations twd bottom of interval	
		258.87	259.26	0.39				SST		CG	LGY			Few MDST laminations, mm-cm scale	
							Box 79								
		259.26	261.25	1.99				SST		CG	LGY			As above + few mm quartz veinlets mm scale	
	1.22m/10 ft						262.13								

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
		261.25	262.51	1.25				SST		CG	LGY					As above	
							Box 80										
		262.51	264.30	1.79				SST		CG	LGY					As above	
	2.17m/10ft						265.18m										
		264.30	264.91	0.62				SST		CG	LGY					As above, few MDST clasts @ base of interval	
		264.91	265.78	0.87				SST	MDST	CG	LGY					mm-cm scale MDST laminations throughout 0.5cm py band	
																End Pg 44	
							Box 81										
		265.78	266.67	0.89				SST	MDST	CG	LGY					As above	
		266.67	267.42	0.75				MDST	SST	FG	DGY					mm-cm scale SST laminations, few mm scale SST clasts	
	2.44m/10ft						268.22m										
		267.42	267.60	0.18				MDST	SST	FG	DGY					As above	
		267.60	269.02	1.42				SST	MDST	CG	LGY					mm-cm scale MDST laminations throughout few mm-scale MDST clasts, mm scale quartz veinlet	
		269.02	269.10	0.07				MDST	SST	FG	DGY					mm- cm scale SST laminations	
							Box 82										
		269.10	270.28	1.18				MDST	SST	FG	DGY					As above	
	0.58m/10ft						271.27										
		270.28	270.93	0.66				MDST	SST	FG	LGY					As above cm scale quartz veinlet	
																End Pg 45	
		270.93	271.76	0.83				SLT	QTZ	FG	LGY					Pyrite rich sediments, mm scale quartz veinlet, some vuggy, decreasing quartz content twds bottom of interval	
		271.76	272.35	0.59				MDST	CARB	FG	DGY					Few mm-scale py blebs + laminations	
							Box 83										
		272.35	272.48	0.13	0	35853		MDST	CARB	FG	DGY					ROOF SAMPLE, As above	0
		0	272.48	272.65	0.17	35854		COAL	C3		BLK					Several 3 or 4cm thick pieces with irregular quartz veins. The rest broken/crushed chunks of dull & bright coal,	35
			272.65	273.34	0.69	35854		COAL LOSS								COAL LOSS	35
		0	273.34	274.04	0.70	35854		COAL	C3							As above coal	35
	0.63m/10ft						274.32m										
		274.04	274.24	0.20		35855		MDST	CARB	FG	DGY					FLOOR SAMPLE, mm- scale py blebs + laminations, few mm-cm scale SST laminations twds bottom of interval	0
																End Pg. 46	
		274.24	274.74	0.50				MDST	CARB	FG	DGY					mm- scale py blebs + laminations, few mm-cm scale SST laminations twds bottom of interval	
		274.74	276.04	1.30				SST		CG	LGY					Few mm-cm scale MDST laminations + clasts	
				0.00			Box 84										
	1.03m/10ft						277.37m										
		276.04	276.18	0.14				COAL								Seems to be from previons interval (lost in previous run picked up @ top of this run)	
																End Pg. 47	

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
		276.18	277.40	1.22				SST	MDST	MG	LGY					mm-cm scale MDST laminations, mm scale quartz veinlets, soft SST	
		277.40	279.11	1.71				SST		CG	LGY					Few mm-cm scale MDST laminations, mm-scale quartz veinlets	
							Box 85										
	1.43m/10ft						280.42m										
		279.11	282.17	3.05				SST		CG	LGY					As above, few mm-cm scale MDST clasts	
	0.87m/10ft						283.96m										
		282.17	282.22	0.05				SST		CG	LGY					As above	
		282.22	282.46	0.24				SST	MDST	MG	LGY					mm-scale MDST laminations throughout	
							Box 86										
		282.46	282.87	0.40				SST	MDST	MG	LGY					As above, mm scale quartz veinlets	
85		282.87	285.32	2.46				MDST	SST	FG	DGY					mm-cm scale SST laminations, mm-scale quartz veinlets, sheared fracture surface, py rich laminations (mm scale)	
																End Pg. 48	
	0/10ft						286.51m										
		285.32	285.93	0.61				MDST	SST	FG	DGY					As above	
							Box 87										
		285.93	287.88	1.95				MDST	CARB	FG	DGY					Few mm-scale SST laminations, py rich, few mm-scale coaly bands, twd bottom of interval. 4cm py band near base of interval, sheared fracture surfaces	
		287.88	288.06	0.18				COAL	MDST	FG	BLK					Bright, hard, py bands + quartz veinlets (mm-scale) 2 cm MDST band in lwr half of interval	
		288.06	288.47	0.40				MDST	CARB	FG	DGY	1cm spacing	90			Sheared fracture surfaces, mm scale quartz veinlets (few)	
																End Pg. 49	
	1.79m/10ft						289.56m										
		288.47	288.84	0.37				MDST	CARB	FG	DGY					As above	
		288.84	289.21	0.37				SST	MDST	CG	LGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets	
							Box 88										
		289.21	291.54	2.33				SST		CG	LGY					Few MDST laminations + clasts (mm-cm scale) mm-scale quartz veinlets	
	1.88m/10ft						292.61m										
		291.54	292.65	1.11				SST		CG	LGY					As above	
							Box 89										
90		292.65	294.61	1.96				SST		CG	LGY					As above, increasing MDST content twds lwr part of interval	
	1.88m/10ft						295.66										
		294.61	295.63	1.01				SST		CG	LGY					As above	
																End Pg. 50	
		295.63	296.09	0.47				SST	MDST	MG	MGY					mm scale MDST laminations throughout	
							Box 90										
		296.09	296.92	0.83				SST	MDST	MG	MGY					As above	
		296.92	297.53	0.61				SST		CG	LGY					cm scale MDST clasts	

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
		297.53	297.75	0.22				MDST	CARB	FG	DGY	cm spacing	90			Sheared fracture surfaces	
	0.48m/10ft						298.7m										
		297.75	298.38	0.63				MDST	CARB	FG	BLK					As above mm scale coal, quartz bands, mm scale py blebs	
		298.38	298.57	0.19				SST		CG	LGY					cm scale quartz bands @ top of interval, lwr quartz band= brecciated quartz fragments w/ muddy gouge	
		298.57	298.93	0.36				SST	MDST	MG	MG					mm-scale MDST laminations throughout, mm-scale quartz veinlets	
																End Pg. 51	
		298.93	299.06	0.13				COAL		FG	BLK					Bright, sheared	
		299.06	299.11	0.05				SLT		FG	MGY					mm scale quartz veinlets + coaly laminations	
		299.11	299.15	0.04				COAL	MDST	FG	BLKL					carb mudstone + coaly fragments, mm scale quartz veinlets	
							Box 91										
60 70		299.15	300.66	1.51				SST		CG	LGY					few mm scale MDST laminations, mm-cm scale quartz veinlets throughout, some vuggy quartz, coaly fragments @ top of box	
	0.76m/10ft						301.75m										
		300.66	301.75	1.09				SST		CG	LGY					As above, few SST fragments in quartz	
		301.75	302.44	0.69				SST	MDST	MG	MGY					mm-scale MDST laminations and flocks throughout, mm- scale quartz veinlets	
																End pg. 52	
							Box 92										
		302.44	303.71	1.27				SLT	MDST	FG	MGY					mm scale MDST laminations throughout, mm-scale quartz veinlets, few SST laminations	
	0.76m/10ft						304.8m										
15 30		303.71	305.69	1.97				SST	MDST	CG	LGY					mm-scale MDST laminations throughout, mm-cm scale quartz veinlets	
							Box 93										
		305.69	306.83	1.14				SST		CG	LGY					few mm scale MDST laminations, mm-cm scale quartz veinlets	
	1m/10ft						307.85m										
		306.83	308.52	1.69				SST		CG	LGY					As above	
30		308.52	309.11	0.60				SST	MDST	LG	LGY					mm-scale MDST laminations throughout, mm-cm scale quartz veinlets	
							Box 94										
		309.11	309.88	0.77				SST	MDST	CG	MGY					As above 6cm quartz band w/ sst + MDST fragments	
																End Pg. 53	
	0.83m/10ft						310.9m										
		309.88	310.01	0.13				SST	MDST	CG	MGY					As above fractured zone	
20		310.01	312.47	2.46				SST		CG	LGY					Few mm scale MDST laminations + clasts, few mm-scale quartz veinlets	
							Box 95										
		312.47	312.83	0.35				SST		CG	LGY					As above, sheared fracture surfaces	

BCA	RQD	Unit		Thicknes s (m)		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes				Seam
	/3.05m	From	To	Drilled	True							ft		m	FCD	FCA	BCD	
	0.48m/10ft						313.94m											
40		312.83	315.15	2.33				SST		CG	LGY							As above, up to cm scale quartz veinlets, some vuggy soft, sandy fault gouge bands (cm scale)
50		315.15	315.73	0.58				MDST	SST	FG	DGY	cm spacing	50					cm scale SST bands, mm scale quartz veinlets
							Box 96											
		315.73	315.94	0.21				MDST	SST	FG	DGY							As above
																		End Pg 54
	0.98m/10ft						316.99m											
		315.94	316.46	0.52				MDST		FG	DGY							carbonaceous shear surface, few mm-cm scale quartz, few SST laminations at base of interval
		316.46	318.94	2.49				SST		CG	LGY							few MDST laminations (mm-cm scale) few MDST clasts (sm scale), few mm-scale quartz veinlets, soft gouge sand at some fractures
	1.29m/10ft						320.04											
							Box 97											
55		318.94	320.50	1.56				SST		CG	LGY							few mm scale MDST laminations few mm-scale quartz veinlets
		320.50	322.02	1.52				SST	MDST	MG	MGY							fractured zone w/ quartz veining in top 10cm of interval, mm-cm scale MDST laminations throughout + mm scale quartz veinlets
	0.75/10ft						323.09											
		322.02	322.32	0.30				SST	MDST	MG	MGY							As above
																		End Pg. 55
							Box 98											
		322.32	322.69	0.37				SST	MDST	MG	MGY							mm-scale MDST laminations throughout, mm scale quartz veinlets (as above intervals)
65		322.69	325.17	2.48				SST		CG	LGY							few mm-scale MDST lamination mm-scale, up to 8cm quartz veining, some vuggy quartz, few SST clasts in quartz, soft sand in fractured areas (cm scale bands)
	0.41m/10ft						326.14											
		325.17	325.71	0.54				SST		CG	LGY							As above, (but only mm-scale quartz veinlets) cm scale MDST clasts in SST
							Box 99											
		325.71	326.21	0.51				SST		CG	LGY							As above
85		326.21	328.29	2.07				SST	MDST	CG	LGY							mm-cm scale MDST laminations throughout, mm-cm scale quartz veinlets fractured zone perpendicular quartz infill. (con-t)
65																		eng pg 56
																		sheared fracture surfaces, cm scale muddy gouge bands
		328.29	328.33	0.04				SST		CG	LGY							mm-scale quartz veinlets, upp contact w/ gouge
	0.77m/10ft						329.18m											
		328.33	328.93	0.61				SST		CG	LGY							mm-cm scale quartz veinlets (infilling fractured zone) w/ fragments of SST, few mm scale MDST laminations
							Box 100											
		328.93	330.64	1.71				SST		CG	LGY							As above, cm scale gouge bands, increasing quartz content twds bottom of interval

BCA	RQD	Unit		Thickness (m)		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To	Drilled	True										
		330.64	331.27	0.63				SST	MDST	MG	MGY			mm-cm scale MDST laminations, mm-scale quartz veinlets	
	0.2m/10ft						332.23m								
		331.27	331.96	0.69				SST	MDST	MG	MGY			As above	
35		331.96	332.08	0.12				MDST	SLT	FG	DGY			mm scale SLT bands	
							Box 101								
		332.08	332.40	0.32				MDST	SLT	FG	DGY			As above, CARB shear surfaces, mm scale quartz veinlets	
		332.40	334.32	1.92				SST		CG	LGY			thoroughly fractured- fault zone, quartz infilling fractures, soft, sandy gouge bnds, few MDST clasts (sm scale)	
	0.6m/10ft			0.00			335.28m								
		334.32	335.35	1.03				SST		CG	LGY			As above, up to 10cm gouge zone, 5cm CARB band in lower half of interval	
														End Pg. 58	
		335.35	337.37	2.01				SST		CG	LGY			As above	
	0/10ft						338.33m								
		337.37	338.54	1.17				SST		CG	LGY			As above	
		338.54	338.62	0.08				SST	MDST	MG	MGY			as above	
		338.62	339.37	0.75										Fractured fault zone, quartz infilling fractures mm scale MDST laminations	
		0	339.37	339.60	0.23			MDST	CARB	VFG	BLK			Sheared chunks of a massive mdst. Very light, full of organic material. From the top of this interval down to the base of SHC is a fault zone.	
		0	339.60	340.04	0.44	35856		SHC	C6	VFG	BLK			Stoney coal (65% rock, 35% coal)	0
		0	340.04	340.78	0.74			MDST	CARB	VFG	BLK			As above Carb Mdst.	
		0	340.78	340.92	0.14			MDST	CARB	VFG	BLK			As above Carb Mdst.	
		0	340.92	341.32	0.40	35857		SHC	C6					70% rock 30% coal	0
		0	341.32	342.12	0.80			MDST	CARB	VFG	BLK			As above Carb Mdst.	
		0	342.12	342.44	0.32	35858		SHC	C6					As above SHC.	0
														Eng Pg. 59	
		342.44	343.36	0.92				SST	MDST	MG	MGY			fault zone-quartz infilling fractures (cm scale) cm scale MDST laminations- up to 20cm bands, cm scale gouge bands- soft SST + MDST, mm-scale CARB MDST laminations	
	0						344.42m								
		343.36	344.48	1.12				MDST	SST	MG	MGY			fault zone- quartz infilling fractures (cm scale) mm-scale quartz veinlets, cm-scale gouge bands, mm-cm scale SST laminations	
							Box 105								
		344.48	346.40	1.92				MDST	SST	MG	MGY			As above, up to 20 cm SST- dominant bands	
	0.98						347.47m								
		346.40	346.62	0.22				MDST	SST	MG	MGY			As above (SST is cm-scale)	
75		346.62	347.39	0.77				MDST	SLT	FG	DGY			mm-scale SLT laminations throughout, few mm-scale quartz laminations	
														End Pg. 60	
80		347.39	347.69	0.30				SST	MDST	MG	MGY			mm-cm scale MDST laminations throughout, few mm-scale quartz veinlets	
							Box 103								

BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
90		347.69	349.42	1.73				SST	MDST	MG	MGY					As above	
	2.05						350.52m										
		349.42	349.55	0.13				SST	MDST	MG	LGY					As above	
		349.55	350.94	1.39				SST		CG	LGY	0.5m spacing	70			Few cm-scale MDST laminations + clasts, few mm-scale quartz veinlets	
							Box 107										
		350.94	352.49	1.55				SST		CG	LGY					As above + mm-scale MDST laminations	
	1.73						353.87										
		352.49	353.85	1.36				SST		CG	LGY					As above + soft, unconsolidated sandy zones- gouge sand-cm scale- zones	
																End Pg. 61	
		353.85	354.31	0.46				SST	MDST	CG	MGY					mm-cm scale MDST laminations	
							Box 108										
80		354.31	355.57	1.26				SST	MDST	CG	MGY					As above	
	1.47						356.62										
		355.57	356.38	0.81				SST	MDST	CG	MGY					As above, mm scale quartz veinlets	
		356.38	357.00	0.62				SST		CG	MGY					few mm-scale MDST laminations + clasts, mm scale quartz veinlets	
		357.00	357.68	0.68				MDST	SST	MG	MGY					mm-cm scale SST lamiations throughout, mm-scale quartz veinlets- vuggy quartz	
							Box 109										
85		357.68	358.64	0.96				MDST	SST	MG	MGY					As above	
	1						359.66										
		358.64	359.41	0.77				MDST	SST	MG	MGY					As above	
																End pg. 62	
90		359.41	360.99	1.58				MDST	SLT	FG	DGY	cm spacing	90			mm-scale SLT laminations few mm-scale CG SST laminations @base of interval	
							Box 110										
90		360.99	361.67	0.68				SST		CG	LGY					few mm-cm scale MDST laminations + clasts vugs in SST in upper 10cm of interval	
	1.81						362.71m										
		361.67	363.67	2.00				SST		CG	LGY					As above	
		363.67	364.26	0.59				MDST	SST	FG	DGY	cm spacing	90			mm-cm scale CG, LGY, SST laminations throughout, mm-scale quartz veinlet	
							Box 111										
		364.26	364.79	0.53				MDST	SST	FG	DGY					As above	
	1.6						365.76										
		364.79	365.55	0.76				MDST	SST	FG	DGY					As above	
90		365.55	367.58	2.03				SST		CG	LGY					Few mm-cm scale MDST laminations + clasts, mm-scale quartz blebs	
																End pg. 63	
							Box 112										
		367.58	367.75	0.17				SST		CG	LGY					As above, but no quartz	
	2.63						368.81										
		367.75	370.85	3.10				SST		CG	LGY					As above, 368.81-368.95 muddy zone	
	1.91						371.86										
							Box 113										
		370.85	371.26	0.41				SST		CG	LGY					As above	



BCA	RQD /3.05m	Unit		Thickness (m)		Samp #	Marker ft m	Lith.	Mod.	Gr Size	Color	J1 FCD	J2 FCA	J2 BCD	J2 FCA	Notes	Seam
		From	To	Drilled	True												
90		371.26	373.89	2.63				SST	MDST	CG	LGY					mm-cm scale MDST laminations +clasts throughout, mm scale quartz veinlets (few) 10cm zone of quartz lenses twds bottom of interval (possibly organic in origin)	
	0.36						374.9										
90		373.89	374.08	0.19				MDST	SST	FG	DGY					mm-cm scale SST laminations throughout	
							Box 114										
		374.08	376.46	2.38				MDST	SST	FG	DGY					As above, SST in MG	
																End Pg. 64	
		376.46	377.03	0.57				SST		CG	LGY					30cm zone @ top of interval-calcite-rich laminations, few mm-cm scale MDST laminations + clasts	
	1.45						377.95										
		377.03	377.38	0.35				SST		CG	LGY					As above, except for calcite rich zone	
							Box 115										
		377.38	378.39	1.01				SST		CG	LGY					As above, +5cm sandy gouge band in middle of interval	
		378.39	380.02	1.63				MDST	SST	FG	DGY	cm spacing	90			MG SST laminations throughout (mm-cm scale) 0.25m SST band @ base of interval	
	0.26						381										
		380.02	380.75	0.73				MDST	SST	FG	DGY					As above, 10 gouge band in middle of interval	
							Box 116									End Pg. 65	
		380.75	383.20	2.45				MDST		FG	DGY					Few mm-scale SST laminations (MG)	
	0						384.05										
		383.20	384.32	1.12				MDST		FG	DGY					as above	
		384.32	384.72	0.40				MDST		FG	DGY					As above MDST	
		384.72	384.92	0.20		35859		MDST		FG	DGY					ROOF SAMPLE, As above, w/ bands of pyrite near contact w/ coal	0
	0.24	384.92	385.56	0.64		35860		COAL	C3		BLK	12	0			Light for coal, irregular quartz veining	30
	0.1	385.56	385.76	0.20		35861		MDST	CARB	VFG	BLK	8	0			PARTING SAMPLE, Massive, coal spars, quartz veining	0
	0.11	385.76	386.26	0.50		35862		COAL	C3		BLK	6	0			As above Coal	30
		386.26	386.40	0.14		35862		COAL LOSS								COAL LOSS	30
							387.10										
		386.40	386.60	0.20		35863		MDST		FG	DGY					FLOOR SAMPLE, End Pg. 66, Pg.67 starts with" few mm scale SST laminations"	0
		386.60	387.53	0.93				MDST		FG	DGY					few mm scale SST laminations	
				0			Box 118										
		387.53	389.38	1.85				SST	MDST	CG	LGY					mm-cm scale MDST laminations, cm-scale quartz veinlet slickensides on fracture surface	
	0.95						390.14										
		389.38	390.90	1.52				SST		CG	LGY					few mm-cm scale MDST laminations + clasts, few 3cm wide gouge bands	
							Box 119										
		390.90	391.08	0.18				MDST	SST	FG	DGY					w/ 15cm band of CARB shale, mm-cm shale SST laminations	
		391.08	391.28	0.20		35864		MDST	SST	FG	DGY					ROOF SAMPLEw/ 15cm band of CARB shale, mm-cm shale SST laminations	0
	0	391.28	391.88	0.60		35865		COAL	C3		BLK					Irregular quartz veining, a few pyrite beds	30

BCA	RQD /3.05m	Unit		Thicknes s (m)		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							ft	m	FCD	FCA		
		391.88	392.08	0.20		35866		MDST	CARB	VFG	BLK					FLOOR SAMPLE, Massive, a few coal beds, quartz veins follow bedding	0
85	0.41	392.08	392.41	0.33	0.00			MDST	CARB	VFG	BLK					Massive, a few coal beds, quartz veins follow bedding	
				0.00	0.00		393.19										
	0	392.41	393.03	0.61	0.00			MDST	CARB	VFG	BLK					As above Carb Mdst	
85	0.66	393.03	394.15	1.12				MDST	SLTST			7	0			Interbedded Slst (50%) & Mdst(50%). Becoming Sandier towards base, End pg. 67	
		394.15	394.86	0.71				MDST	SST	FG	DGY					cm-scale SST bands, mm scale coaly bands	
		394.86	395.62	0.76				SST		MG	LGY					mm-scale MDST laminations	
							Box 120										
		395.62	396.31	0.69				MDST		FG	DGY					3cm band of coal in middle of interval	
		396.31	396.99	0.68				SST		CG	LGY					few mm-cm scale MDST laminations	
	1.72						396.24										
		396.99	398.90	1.91				SST		CG	LGY					As above	
				0.00			Box 121										
		398.90	399.19	0.29				SST		CG	LGY					As above, 5-10cm bands highly sheared w/ MDST	
		399.19	399.83	0.63				SST		VCG	LGY					few cm-scale MDST bands and clasts	
	2.5						399.29										
		399.83	402.02	2.19				SST		VCG	LGY					As above	
							Box 122										
		402.02	402.34	0.32				SST		VCG	LGY					As above	
																402.34m EOH GPL-400.23 End pg. 68	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-02
Drilling Start Date	22-Sep-12
Drilling Finish Date	24-Sep-12
Confirmed Easting	545929.8824
Confirmed Northing	6300633.4408
Elevation	896.6577
Azimuth	
Dip	-90
Depth	288.44
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	545925
PreCollar Northing	6300633
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG & RP
Lith and Geotech Logging Dates	29-Sep-12
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam					
		From	To	Drilled	True							FCD	FCA	BCD	FCA											
							Box 1																			
	0	0.00	7.83	7.8			7.83																			
			7.83	9.28	1.45			SST		CG	LGY															
			9.28	9.40	0.12			MDST	SLT	FG	DGY															
	0						8.23																			
			9.40	9.77	0.37			MDST	SLT	FG	DGY															
							Box 2																			
			9.77	11.97	2.20			MDST	SLT	FG	DGY															
	0						11.28																			
			11.97	12.20	0.23	35867		MDST	SLT	FG	DGY															0
							Box 3																			
	0	12.20	12.45	0.25	35868			COAL	C5		BLK															85
			12.45	12.90	0.45	35868		COAL LOSS																		85
			12.90	13.10	0.20	35869		MDST		FG	DGY															0
			13.10	13.64	0.54			MDST		FG	DGY															
	0.52				0.00		14.33																			
			13.64	15.53	1.89			MDST		FG	DGY															
							Box 4																			
			15.53	16.88	1.35			MDST		FG	DGY															
	0.66						17.37																			
			16.88	19.00	2.12			MDST		FG	DGY															
							Box 5																			
			19.00	20.12	1.12			MDST		FG	DGY															
	0.76						20.42																			
			20.12	22.10	1.97			MDST		FG	DGY															
							Box 3																			
			22.10	22.96	0.86			MDST		FG	DGY															
	1.05						23.47																			
90°			22.96	24.90	1.94			MDST		FG	DGY															
	0	24.90	25.20	0.30	35870			COAL	C3		BLK															99
			25.20	25.30	0.10	35870		COAL LOSS																		99
			25.30	25.71	0.41			MDST		FG	DGY															
							Box 7																			
			25.71	26.32	0.61			MDST		FG	DGY															
	2.5						26.52																			
			26.32	27.70	1.38			MDST		FG	DGY															
85°			27.70	28.58	0.89			SST	MDST	FG	LGY															
			28.58	28.91	0.33			SST		MG	LGY															
							Box 8																			
			28.91	29.42	0.51			SST		MG	LGY															
	1.3						29.57																			
			29.42	32.04	2.62			SST		MG	LGY															

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							Box 9											
		32.04	32.40	0.36				SST	MDST	MG	LGY						mm-scale MDST laminations	
	2.1						32.61											
		32.40	34.07	1.67				SST	MDST	MG	LGY						As above	
90°		34.07	35.35	1.28				MDST	SST	FG	DGY						mm-cm scale MG SST laminations, cm-scale gouge band @ base of interval	
	1.8						35.66											
							Box 10											
		35.35	36.37	1.02				SST		FG	LGY						5cm MDST band, mm scale coaly laminations @ top of interval, parasitic folds	
		36.37	38.36	1.99				MDST		VFG	DGY	cm spacing	90°				mm-scale coaly laminations, v. fine cracks, cm spacing, pyrite bands (mm scale)	
	0.7						38.71											
		38.36	38.65	0.30				MDST		VFG	DGY						As above End Pg. 5	
							Box 11											
90°		38.65	40.90	2.24				MDST		VFG	DGY						SST laminations decreasing w/ depth (cm scale) 10 cm band SST-MG in middle of interval, cm-scale local gouge, 30cm gouge zone @ base of interval	
	0	40.90	41.15	0.25		35871		COAL	C4		BLK						Quartz veins @ 0°, thinly lamiated (less than 1mm)	80
		41.15	41.30	0.15		35871		COAL LOSS									COAL LOSS End Pg. 6	80
		41.30	41.74	0.44				MDST		VFG	DGY						mm-scale coaly lenses, fine porous cracks	
	1.7						41.76											
		41.74	42.05	0.31				MDST		VFG	DGY						As above	
		42.05	42.26	0.21				MDST		VFG	DGY						As above	
		42.26	44.60	2.34				SST	MDST	MG	LGY						mm-cm scale MDST layers (irregular) 10-15cm bands of MDST, mm-scale quartz veinlets infilling fractures	
	0.91						44.81											
		44.60	45.05	0.46				SST		MG	LGY						3cm band of MDST, few mm-scale quartz veinlets	
							Box 13											
		45.05	46.56	1.51				SST		MG	LGY						As above	
		46.56	47.65	1.09				SST	MDST	MG	LGY						mm-cm scale MDST laminations End pg 7	
	1.9						47.85											
90°		47.65	48.34	0.69				SST	MDST	MG	LGY		10°				As above, @47.85-48.15 fault zone w/ gouge, slickenlines and quartz infilling fractures	
							Box 14											
		48.34	50.76	2.42				SST	MDST	MG	LGY						As above, gouge band cm scale near top of interval	
	0.9	50.76	51.64	0.88				SST	MDST	MG	LGY						As above, many low angle fractures (steep) filled in w/ quartz	
							Box 15											
		51.64	53.36	1.72				SST		FG	LGY						Few cm scale MDST bands, mm-scale quartz veinlets	
		53.36	53.78	0.42				MDST	SST	FG	MGY						heavily broken	
	0.38						53.95											
		53.78	54.60	0.82				MDST	SST	FG	MGY						moderately broken, cm-scale gouge, quartz in fractures End pg. 8	
		54.60	55.34	0.75				MDST		FG	DGY						few mm-scale SST bands, quartz w/ MDST fragments, brecciated moderately broken, alterations on fracture surface	
		55.34	56.54	1.20				SST		MG	LGY		~0°				mm-cm scale MDST layers, 6cm gouge band, low angle fractures (steep) mm scale quartz veinlets, cm-scale VFG MDST clasts	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1						57.00											
		56.54	57.42	0.88				SST		MG	LGY						As above, 25cm gouge	
		57.42	58.98	1.56				SST		MG	LGY						As above two 10cm gouge zone, heavily brecciated w/ angular MDST clasts (cm scale-mm scale) near the contact	
		58.98	59.50	0.52				SST	MDST	FG	MGY						20cm gouge band possible fault zone 57-60m End Pg. 9	
		59.50	60.39	0.88				SST	MDST	FG	MGY						As above, slickenlines on fracture surface	
							box 18											
80°		60.39	62.67	2.29				SST	MDST	MG	LGY						some FG SST, mm-cm scale MDST laminations	
							63.09											
		62.67	63.84	1.16				SST	MDST	MG	LGY						As above	
							box 19											
		63.84	65.74	1.90				SST	MDST	MG	LGY						As above, cm-scale gouge bands	
							66.14											
		65.74	67.13	1.39				SST	MDST	MG	LGY						As above, 35cm of MDST at base of interval	
							box 20											
		67.13	68.88	1.75				SST	MDST	FG	LGY						mm-scale MDST laminations, some fracture surfaces w/ slickenlines, very polished + smooth fracture surfaces End pg. 10	
	0.84						69.19											
		68.88	69.40	0.52				SST	MDST	FG	LGY						As above	
		69.40	69.60	0.20		35872		SST	MDST	FG	LGY						ROOF SAMPLE, As above	0
	0	69.60	69.85	0.25		35873		COAL	C3								Alternating bands of bright and dull coal, mostly broken crushed bits of dull & bright coal.	70
		69.85	71.10	1.25		35873		COAL LOSS									COAL LOSS	70
							box 21											
	0	71.10	71.35	0.25		35873		COAL	C3								As above Coal end pg. 11	70
		71.35	71.55	0.20		35874		MDST		VFG	DGY						FLOOR SAMPLE, few cm-scale SST layers, fine porous cracks cm spacing few mm-scale coalified lenses	0
		71.55	71.97	0.42				MDST		VFG	DGY						few cm-scale SST layers, fine porous cracks cm spacing few mm-scale coalified lenses	
	2.65						72.24											
		71.97	72.16	0.19				MDST		VFG	DGY						As above	
65°		72.16	73.99	1.82				SST		CG	LGY						few mm scale SLT laminations	
		73.99	74.60	0.61				SST		CG	LGY						As above	
	0.62						75.29											
		74.60	76.90	2.30				SST		CG	LGY		0°				As above	
							box 23											
		76.90	77.48	0.58				SST	MDST	FG	MGY						mm-cm scale MDST laminations, few SLT laminations	
	1.2						78.33											
85°		77.48	78.63	1.15				SST	MDST	FG	MGY						As above, End pg. 12	
		78.63	79.69	1.06				SST		MG	LGY		0°				few mm scale MDST laminations	
		79.69	80.09	0.40				SST	MDST	FG	MGY						mm-scale MDST laminations	
							box 24											
		80.09	80.44	0.35				SST	MDST	FG	MGY						AS above	
	1.19						81.38											



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		98.15	98.75	0.60				MDST		VFG	DGY									quite broken fine porous fractures, mm-scale quartz veinlets End pg. 16	
		98.75	100.16	1.41				MDST	SST	VFG	DGY									mm-scale SST laminations, mm scale quartz veinlets, alterations on fracture surfaces	
							BOX 31														
55°		100.16	100.56	0.40				MDST	SST	VFG	DGY									as above, some SLT	
	1.7						102.72														
		100.56	102.07	1.51				SST	MDST	FG	MGY									MDST+SLT lminations mm-cm scale	
		102.07	103.07	1.00				SST		FG	MGY									few mm-cm scale MDST layers, long steep fractures w/ quartz infill	
							BOX 32														
		103.07	103.51	0.44				SST		FG	MGY									as above	
	2						105.77														
		103.51	104.45	0.93				SST		FG	MGY									as above	
		104.45	105.88	1.44				SST	MDST	FG	MGY									mm-cm scale MDST laminations, cm scale rounded MDST clasts, mm scale quartz veinlets End Pg. 17	
		105.88	106.32	0.44				SST		MG	LGY									few cm scale MDST bands	
							BOX 33														
		106.32	106.45	0.12				SST	MDST	MG	MGY									mm-cm scale MDST laminations	
	1.84						108.81														
		106.45	107.48	1.03				SST	MDST	MG	MGY									as above, gouge possible fault zone 109.6-109.8m, mm-scale quartz veinlets	
		107.48	109.53	2.05				SST		MG	LGY									few mm-scale MDST laminations, mm-cm scale quartz veins cm scale rounded MDST clasts	
	2						111.86														
							BOX 34														
		109.53	112.38	2.85				SST		MG	LGY									as above, up to cm scale MDST layers, vuggy quartz veinlets	
	1.78						114.91														
		112.38	112.78	0.40				SST		MG	LGY									as above End Pg. 18	
		112.78	115.11	2.33				SST		MG	LGY									as above	
		115.11	115.19	0.08				MDST		VFG	DGY									few fine porous cracks, few SLT laminations	
	2.4						117.96														
		115.19	115.83	0.63				MDST		VFG	DGY									as above, quartz infilling, mm-scale fracture @ base of interval	
							BOX 36														
70°		115.83	118.24	2.41				MDST	SST	VFG	DGY									mm-cm scale SST laminations, mm-scale quartz veinlets	
		118.24	120.85	2.61			121.01														
		120.85	121.68	0.83				MDST	SST	VFG	DGY									as above	
							BOX 37														
		121.68	123.04	1.36				SST		FG	MGY									few mm scale MDST laminations	
		123.04	123.60	0.56				SST	MDST	FG	MGY									mm-cm scale MDST laminations, cm-scale quartz vein	
		123.60	123.99	0.39				SST		FG	LGY									mm scale quartz veins (o° to CA) End Pg. 19	
	2.2						124.05													as above	
		123.99	124.30	0.30				SST		FG	LGY										
75°		124.30	125.10	0.80				MDST	SST	VFG	DGY									mm-cm scale MDST laminations, mm-scale quartz veinlets	
							BOX 38														



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		125.10	125.67	0.57				SST		FG	LGY					few mm scale MDST laminations, cm scale clasts, mm scale quartz veinlets(few)	
		125.67	126.58	0.90				SST	MDST	FG	LGY					mm-scale MDST laminations	
		126.58	127.03	0.45				SST		FG	LGY					few mm scale MDST laminations, cm scale quartz veinlet	
	0.63						127.1										
		127.03	128.03	1.00				SST		FG	LGY					as above, quartz infilling fractures	
		128.03	128.31	0.28				MDST	SST	VFG	DGY					cm scale SST laminations, mm scale quartz mm scale quartz veinlets End pg. 20	
								BOX 39									
		128.31	129.98	1.67				SST	MDST	FG	MGY					mm-scale MDST laminations, local gouge bands, cm scale fault zone 128.5m-129m, quartz veins infilling fractures, brecciated	
	1.27						130.15										
35°		129.98	131.44	1.46				SST	MDST	FG	MGY					mm-cm scale MDST laminations, cm-scale quartz veinlets infilling fractures	
								Box 40									
		131.44	132.72	1.29				SST	MDST	FG	MGY					As above, quartz+dolomite veinlets, cm scale, fold closures, 10cm band of MDST @ base of interval	
	1.1						133.2										
		132.72	133.78	1.05				MDST		VFG	DGY					mm-scale quartz veins	
		133.78	134.58	0.80				MDST	SLT	VFG	DGY					mm-cm scale laminations End pg. 21	
								Box 41									
		134.58	134.83	0.25				MDST	SLT	VFG	DGY					As above	
		134.83	135.94	1.11				SST	SLT	FG	MGY					SLT+MDST laminations, mm scale, cm scale MDST clasts, mm-scale quartz veinlets	
	2.2						136.25										
70°		135.94	137.87	1.93				SST	SLT	FG	MGY					As above, up to cm-scale quartz veinlets, some brecciation + gouge	
								Box 42									
		137.87	138.40	0.53				SST		MG	LGY					few mm-scale MDST laminations, few mm scale, steep (low angle) fractures infilled w/ quartz	
		138.40	138.60	0.20		35887		SST		MG	LGY					ROOF SAMPLE, few mm-scale MDST laminations, few mm scale, steep (low angle) fractures infilled w/ quartz	0
		138.60	138.97	0.37		35888		COAL	C5		BLK					First 20cm are semi-solid, then broken chunks of coal. Sheared to bits. The coal has a "graphite" type texture. Polished shiny finish to whole interval	60
		138.97	139.00	0.03		35888		COAL LOSS								COAL LOSS	60
		139.00	139.10	0.10		35889		MDST	SLTST	VFG	GY					PARTING SAMPLE, broken up into "disks" of rock mostly mdst.	0
							139.29										
		139.10	139.45	0.35		35890		COAL	C4		BLK					Broken chunks & bits of coal, shearing on most pieces	60
		139.45	139.55	0.10		35891		MDST		VFG	GY					PARTING SAMPLE, contact with coal @ 75°	0
		139.55	139.60	0.05		35891		ROCK LOSS								ROCK LOSS	0
		139.60	140.00	0.40		35892		COAL	C4		BLK					As above Coal	60
		140.00	140.20	0.20		35894		MDST		VFG	BLK	1	45			FLOOR SAMPLE, Massive, quartz veins @ 0°	0
		140.20	140.75	0.55				MDST		VFG	BLK	1	45			Massive, quartz veins @ 0°	
		140.75	140.85	0.10		35893		COAL	C4		BLK					As above Coal	60
		140.85	141.10	0.25		35893		COAL LOSS								COAL LOSS	60

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							Box 43									END OF BOX 42 NB: The core in the box was out place & was moved to the correct depth by the geo, E.PopyK Oct.7/1012	
		141.10	141.30	0.20				MDST		VFG	BLK	4	45			FLOOR SAMPLE (NOT TAKEN), as above Mdst	
		141.30	141.50	0.20				MDST		VFG	BLK	4	45			As above Mdst	
		141.50	141.70	0.20		35895		MDST		VFG	BLK	4	45			ROOF SAMPLE, As above Mdst	0
		141.70	142.22	0.52		35896		COAL	C4		BLK					As above Coal	60
							142.34										
		142.22	142.37	0.15		35896		COAL	C4							As above Coal	60
		142.37	142.55	0.18		35896		COAL LOSS								COAL LOSS	60
		142.55	142.75	0.20		35897		MDST	SLTST	VFG-MED	BLK-GY					ROOF SAMPLE, Thinnly interbedded Slst & Mdst, 30% Slst & 70% Mdst, Sandier @ the top.	0
		142.75	143.70	0.95				MDST	SLTST	VFG-MED	BLK-GY					AS above Mdst	
		143.70	143.90	0.20		35898		MDST	SLTST	VFG-MED	BLK-GY					FLOOR SAMPLE, as above MDST	0
		143.90	144.00	0.10		35899		COAL	C4		BLK					As above Coal, END OF BOX 43	60
							BOX 44										
		144.00	144.09	0.09		35899		COAL	C4		BLK					As above coal	60
		144.09	144.30	0.21		35899		COAL LOSS								COAL LOSS END PG 24A	60
		144.30	144.50	0.20		35900		MDST	SLTST	VFG-MED	BLK-GRET	1	0			FLOOR SAMPLE, As above Mdst/Slst, except for one large fracture @0° BCA, filled with quartz	0
40		144.50	145.33	0.83				MDST	SLTST	VFG-MED	BLK-GRET	1	0			As above Mdst/Slst, except for one large fracture @0° BCA, filled with quartz	
												3	80				
							149.39										
		145.33	145.88	0.56				MDST		VFG	DGY					quartz + dolomite infilling fractures (mm scale)	
40°		145.88	146.33	0.45				SST	MDST	FG	LGY					steepening of foliation, mm-scale SLT+MDST laminations, mm-cm scale quartz+dolomite infilling fractures	
		146.33	146.94	0.61				SST		FG	LGY					mm-scale quartz veinlets, some quartz breccia	
							Box 45										
		146.94	148.17	1.23				SST		FG	LGY					As above, vuggy cavities w/ dolomite (mm-scale) few low angle-steep MDST layers	
	1.1						148.44										
		148.17	150.00	1.83				SST		FG	LGY					As above	
		150.00	150.20	0.20		35901		SST		FG	LGY					ROOF SAMPLE, As above	0
		150.20	150.29	0.09		35902		COAL	C4		BLK					Broken crushed small bits of coal. END OF BOX 46	60
							BOX 47										
		150.29	150.9	0.61		35902		COAL	C4		BLK					Broken, crushed, sheared, one 4cm parting included in sample, hard, heavy for coal	60
		150.9	151	0.10		35903		MDST	CARB	VFG	BLK					PARTING SAMPLE, numerous coal beds & coal spars	0
		151	151.05	0.05		35903		ROCK LOSS								ROCK LOSS	0
		151.05	151.23	0.18		35904		COAL	C4		BLK					As above coal, except no partings	60
							151.49										
	1.3	151.23	151.35	0.12		35904		COAL	C4		BLK					As above Coal END PG 26	60
		151.35	151.55	0.20		35905		MDST		VFG	DGY					FLOOR SAMPLE, As below MDST	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		151.55	152.93	1.38				MDST		VFG	DGY									8cm band of coal, 4cm band of coal, mm scale coalified lenses, moderatley broken, mm scale quartz infilling fractures in coal, mm scale quartz veinlet displaying fold closure w/ S&Z folds, pyrite mineralization in the coal	
		152.93	153.54	0.61				SST	MDST	FG	MGY									mm-cm scale MDST laminations, mm scale quartz veinlets	
							box 47														
		153.54	154.24	0.70				SLT	MDST	FG	DGY-D.BRN									few mm scale quartz veinlets, cm scale MDST laminations	
	0.48						154.53														
		154.24	155.57	1.33				SLT	MDST	FG	DGY-D.BRN									as above	
65°		155.57	156.74	1.17				MDST		VFG	DGY				65°					fine fractures throughout End pg. 27	
							box 48														
		156.74	157.36	0.61				MDST		VFG	DGY									as above, gouge + quartz brecciation cm scale quartz veinlets, 2cm muddy LGY band	
	2.1						157.58														
		157.36	158.58	1.22				MDST		VFG	DGY									as above, 5 cm band of coal	
		158.58	160.11	1.53				MDST	SST	FG	MGY									gradational unit btwn MDST+SST, mm scale quartz veinlets (few)	
							box 49														
		160.11	160.50	0.39				MDST	SST	FG	MGY									as above	
	1.6						160.63														
75°		160.50	163.26	2.77				SST		MG	LGY									cm scale quartz veinlets ~0° to CA w/ vuggy cavities, few mm-scale MDST laminations	
							box 50														
		163.26	163.50	0.23				SST	MDST	FG	MGY									mm-cm scale laminations cm scale quartz veinlet end pg. 28	
	2.01						163.68														
		163.50	165.44	1.94				SST		MG	LGY									mm-cm scale MDST layers, cm scale MDST clasts up to 5cm quartz vein w/ vuggy cavities, 5cm gouge	
80°		165.44	166.54	1.10				SST	MDST	FG	LGY									mm-cm scale MDST laminations throughout, cm scale quartz vein/intrusion w/ vuggy cavities 0° to CA	
	2.33						166.73														
							box 51														
75°		166.54	169.63	3.09				SST	MDST	FG	LGY									as above+ fold closure in quartz, 20cm SST band	
	2.02						169.77														
							box 52														
75°		169.63	171.48	1.85				MDST	SST	FG	DGY									mm-cm scale SST laminations, mm scale quartz veinlets	
		171.48	172.60	1.12				SST		MG	LGY									gradational contact w/ unit above, mm-cm scalw MDST clasts, concentrated @ contact end pg. 29	
	2.4						172.82														
							box 53														
		172.60	173.45	0.85				SST	MDST	MG	LGY									as above, few mm-scale, cm scale MDST bands	
60°		173.45	175.61	2.16				SST	MDST	MG	LGY									mm-cm scale MDST laminations and bands, few mm-scale quartz veinlets, cm scale gouge band near base of interval	
	2.15						175.87														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA							
		175.61	175.93	0.32				MDST	SST	FG	DGY									mm-cm scale SST laminations		
							box 54															
		175.93	178.41	2.48				SST	MDST	MG	MGY										mm-cm scale MDST laminations throughout, cm-scale quartz infilling fractures	
		178.41	178.68	0.28				SST		CG	LGY										few mm-scale MDST laminations & quartz veinlets	
	2.29						178.92															
		178.68	179.37	0.69				SST		CG	LGY										as above end pg 30	
							box 55															
75°		179.37	181.72	2.35				SST		CG	LGY										as above, few cm scale MDST laminations and rounded clasts	
	1.81						181.97															
		181.72	182.73	1.01				SST		CG	LGY										as above	
							box 56															
		182.73	182.96	0.22				SST		CG	LGY										as above	
		182.96	184.65	1.69				SST		FG	MGY										few cm-scale MDST bands, cm scale quartz veinlets w/ vuggy cavities-steep, low angle quartz intrusions	
	2.05						185.01															
		184.65	185.93	1.28				SST		FG	MGY										as above,(mm scale quartz veinlets)	
							box 57															
55°		185.93	186.77	0.85				SST	MDST	FG	MGY										mm-cm scale MDST bands, some SLT, mm scale quartz vienlet end pg 31	
		186.77	187.79	1.02				MDST		VFG	DGY										few cm scale SLTY bands, v. fine fractures throughout the unit	
	2.6						188.06															
		187.79	188.10	0.31				MDST		VFG	DGY											
65°		188.10	189.32	1.22				SST	MDST	FG	MGY										mm-scale MDST laminations	
							box 58															
		189.32	190.92	1.60				MDST	SST	FG	DGY										mm-cm scale SST laminations, some SLT	
	2.53						191.11															
		190.92	192.59	1.66				MDST	SST	FG	DGY										as above	
		192.59	192.74	0.15				SST		FG	LGY										v. few mm-scale MDST laminations	
							box 59															
		192.74	194.03	1.29				MDST	SST	FG	DGY										mm-cm scale SST laminations	
	0.74						194.16															
		194.03	194.20	0.17				MDST	SST	FG	DGY										as above some Py	
		194.20	194.40	0.20		35906		MDST	SST	FG	DGY										ROOF SAMPLE, as above some Py. End pg. 32	0
		194.40	194.73	0.33		35907		COAL	C3												Solid, thinly laminated (less than 1mm) mirco-cleating in places, quartz veining	55
		194.73	194.83	0.10		35908		SLTST		MED	GREY										PARTING SAMPLE, Very Coally @ the top, numerous quartz veins	0
		194.83	195.10	0.27		35909		COAL	C3		BLK										As above Coal	55
		195.10	195.45	0.35		35910		MDST	CARB		BLK										PARTING SAMPLE, very carb. Lots of coal beds & plant material	0
		195.45	196.23	0.78		35911	BOX 60	COAL	C3		BLK										As above Coal	55
		196.23	196.35	0.12		35911		COAL LOSS													COAL LOSS END PG. 33	55
		196.35	196.55	0.20		35912		MDST		VFG	DGY										FLOOR SAMPLE, as below Mdst	0
		196.55	197.02	0.47				MDST		VFG	DGY										mm-scale SLT laminations, v. fine porous cracks	
	2.2						197.21															
		197.02	197.61	0.59				MDST		VFG	DGY										as above	
		197.61	198.59	0.98				SST	MDST	FG	MGY										mm-scale MDST laminations	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		198.59	199.46	0.87				SST		FG	LGY					few mm-scale MDST laminations, cm scale clasts of MDST	
							box 61										
		199.46	200.24	0.78				SST		MG	LGY					few cm scale MDST laminations	
	3.01						200.75										
		200.24	202.73	2.50				SST		MG	LGY					as above	
							box 62										
		202.73	203.26	0.53				SST		MG	LGY					as above	
	1.11						203.30										
		203.26	203.40	0.14				SST		MG	LGY					as above	
		203.40	203.60	0.20		35913		SST		MG	LGY					ROOF SAMPLE. As above, end pg. 34	0
		203.60	204.22	0.62		35914		COAL	C3		BLK				Pyrite along 3 beds, one 3cm thick Mdst Parting, large amount of quartz veining	55	
		204.22	204.40	0.18		35914		COAL LOSS							COAL LOSS END PG. 35	55	
		204.40	204.60	0.20		35915		MDST		FG	DGY				FLOOR SAMPLE, As below MDST	0	
		204.60	205.02	0.42				MDST		FG	DGY				15cm band of dirty coal		
		205.02	205.64	0.62				SST		FG	MGY				few mm-scale MDST laminations		
							box 63										
		205.64	206.20	0.56				SST	MDST	FG	MGY				mm-scale laminations of MDST throughout		
	0.43						206.35										
		206.20	207.24	1.04				SST	MDST	FG	MGY				as above		
		207.24	207.97	0.73				MDST	SST	FG	DGY				mm-cm scale SST laminations		
		207.97	208.36	0.39				SST	MDST	FG	MGY				mm-scale MDST laminations		
50°		208.36	208.78	0.42				MDST		VFG	DGY				mm-scale coaly lenses, quartz + dolomite veinlets w/ vuggy cavities		
							box 64										
		208.78	209.19	0.42				MDST		VFG	DGY				as above, gouge end pg. 36		
	1.65						209.4										
		209.19	211.89	2.70				MDST		VFG	DGY				as above, two 15cm bands of muddy SST, fine porous fractures		
							box 65										
		211.89	212.22	0.33				MDST		VFG	DGY				fine porous cracks		
	0						212.45										
		212.22	215.34	3.12				MDST		VFG	DGY				as above, v. few mm-scale SLT laminations 2 cm band of coal		
							box 66										
		215.34	215.42	0.08				MDST		VFG	DGY				as above (no coal)		
	0						215.49										
		215.42	218.54	3.12				MDST		VFG	DGY				as above		
				0.00			box 67										
	0						218.54										
70°		218.54	219.60	1.06				MDST		VFG	DGY				SLT laminations (mm scale), mm scale coaly bands, fine fractures		
		219.60	219.80	0.20		35916		MDST		VFG	DGY				ROOF SAMPLE, as above Mdst, end pg. 37	0	
		219.80	220.55	0.75		35917		COAL	C4		BLK				4 cm Mdst parting in sample, minor amount of quartz veining, light for coal	50	
		220.55	221.20	0.65		35918		COAL	C4		BLK				As above sample . Except for one 8 cm parting added to the sample	50	
		221.20	221.23	0.03		35919		MDST	CARB	VFG	BLK				PARTING SAMPLE, massive, thin coal beds, plant material	0	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam		
		From	To	Drilled	True							FCD	FCA	BCD	FCA								
	1.28						221.59																
		221.23	221.4	0.17		35919		MDST	CARB	VFG	BLK										PARTING SAMPLE, as above Mdst	0	
		221.4	221.56	0.16		35920		COAL														As above coal	50
							box 68																
		221.56	222.25	0.69				COAL														As above coal, end pg. 38	
		222.25	222.45	0.20		35921		MDST	SST	VFG	DGY											FLOOR SAMPLE, as below Mdst	0
		222.45	223.84	1.39				MDST	SST	VFG	DGY											mm scale SST laminations, micro fractures	
		223.84	224.44	0.60				SST		MG	LGY											2cm band of MDST	
	2.73						224.64																
		224.44	224.84	0.40				SST		MG	LGY											as above	
							box 69																
		224.84	227.46	2.61				SST		MG	LGY											as above, mm-cm scale MDST laminations	
	2.97						227.69																
		227.46	227.86	0.40				SST		CG	LGY												
		227.86	228.16	0.30				SST		MG	LGY											few mm-scale MDST laminations	
							BOX 70																
		228.16	230.47	2.31				SST		MG	LGY											cm-scale MDST laminations, few cm scale MDSt clasts	
	2.8						230.73																
		230.47	231.40	0.92				SST		MG	LGY											as above,END PG 39	
							box 71																
		231.40	233.48	2.08				SST		MG	LGY											as above	
	1.99						233.78																
		233.48	234.66	1.19				SST		MG	LGY											as above	
							box 72																
		234.66	236.48	1.82				SST		MG	LGY											as above	
	2.1						236.83																
65°		236.48	237.92	1.44				SST		MG	LGY											as above	
							box 73																
		237.92	238.10	0.18				SST	SLTST	MG-CG	GY											Interbedded Slst & Mdst	
		238.10	238.20	0.10		35922		COAL	C3													Bright chunks of coal	99
		238.20	238.60	0.40				COAL LOSS														COAL LOSS END PG 40	
		238.60	239.75	1.15				MDST		VFG	DGY											mm-scale coalified lenses	
	2.6						239.88																
		239.75	240.10	0.35				MDST		VFG	DGY											micro=fractures	
		240.10	241.45	1.36				SST		MG	LGY											mm-cm scale MDST laminations, some mm-scale coalified lenses	
							box 74																
		241.45	242.82	1.37				SST		MG	LGY											mm-cm scale clasts + few laminations of MDST	
	2.9						242.93																
		242.82	244.77	1.95				SST		MG	LGY											as above	
							box 75																
		244.77	245.47	0.70				SST		MG	LGY											as above	
		245.47	245.83	0.36				MDST	SST	FG	DGY											cm-scale SST laminations	
	3						245.97																
70°		245.83	248.04	2.21				SST		MG	LGY											mm-cm scale MDST laminations	
							box 76																
		248.04	248.92	0.87				SST		MG	LGY											as above	
	1.86						249.02																
		248.92	250.00	1.08				SST		MG	LGY												



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		250.00	250.20	0.20		35878		SST		MG	LGY								ROOF SAMPLE, as above Sst	0	
		250.20	251.20	1.00		35879		COAL	C3		BLK								A few thin Mdst beds, Pyrite blebs and wispy quartz veins scattered throughout, END PG. 42	45	
		251.20	251.36	0.16		35880		MDST		VFG	DGY								FLOOR SAMPLE, few mm-scale coalified lenses	0	
							box 77														
		251.36	251.91	0.55				SST	MDST	FG	MGY								mm-scale laminations some SLT		
	1.8						252.07														
		251.91	254.66	2.74				MDST		VFG	DGY								mm-scale coalified lenses, py mineralization gouge-cm scale		
		254.66	255.01	0.35				MDST		VFG	DGY								as above		
	2.8						255.12														
		255.01	258.03	3.02				SST		FG	LGY								MDST+SLT laminations, mm-cm scale (concentration of laminations decreases w/ depth)		
							box 79														
	2.9						258.17														
		258.03	261.01	2.99				SST		FG	LGY								as above end pg. 43		
	2.5						261.21														
		261.01	261.26	0.25				SST		FG	LGY								as above		
							box 80														
75°		261.26	263.98	2.71				SST	MDST	FG	LGY								mm-cm scale MDST laminations throughout, mm-cm scale quartz veinlets, cm-scale, MDST clasts, low angle fractures		
	2.4						264.26														
		263.98	264.18	0.20				SST	MDST	FG	LGY								as above		
		264.18	264.56	0.38				SST		FG	LGY								few MDST clasts		
							box 81														
		264.56	267.01	2.45				SST		FG	LGY								as above, mm-scale quartz veinlet, 15cm conc. Area		
	1.33						267.31														
		267.01	267.52	0.50				SST	MDST	FG	MGY								mm-cm scale MDST laminations		
		267.52	267.77	0.25				MDST		VFG	DGY								2cm py band, few mm scale coalified lenses end pg. 44		
							box 82														
		267.77	268.10	0.33				MDST		VFG	DGY								as above		
		268.10	268.30	0.20		35881		MDST		VFG	DGY								ROOF SAMPLE, as above MDST	0	
		268.30	269.22	0.92		35882		COAL	C3		BLK								Solid, a few Mdst stringers, two pyrite veins, 3/4 cm squared pyrite blebs, irregular quartz veining.	40	
		269.22	269.30	0.08		35882		COAL LOSS											COAL LOSS, end pg. 45	40	
		269.30	269.50	0.20		35883		SST		FG	LGY								FLOOR SAMPLE, few MDST laminations (mm-cm scale)	0	
		269.50	270.30	0.80				SST		FG	LGY								few MDST laminations (mm-cm scale)		
	2.5						270.36														
		270.30	271.31	1.01				SST		FG	LGY								as above (inr. Presnece of MDST laminations)		
							box 83													0	
		271.31	273.34	2.03				SST		FG	LGY								v. few MDST laminations (mm scale)		
	2.66						273.41														
		273.34	274.65	1.31				SST		FG	LGY								as above		
							box 84														
		274.65	276.45	1.80				SST		FG	LGY								few MDST laminations (mm scale)		
	2.5						276.45														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA							
		276.45	277.97	1.52				SST		FG	LGY									as above		
							box 85															
		277.97	278.58	0.61				SST		FG	LGY										as above	
		278.58	279.46	0.88				MDST		VFG	DGY										micro fractures, few SST laminations, quite compact END PG. 46	
	1.65						279.05															
		279.46	279.80	0.34				MDST		VFG	DGY										as above	
		279.80	280.00	0.20		35884		MDST		VFG	DGY										ROOF SAMPLE, as above	0
		280.00	280.60	0.60		35885		COAL	C4												Broken, crushed bits of coal, manu of the chunks have polished surfaces, END PG. 47	99
		280.60	280.75	0.15		35886		MDST		VFG	DGY										FLOOR SAMPLE	0
							box 86															
		280.75	281.23	0.48				MDST	VFG	DGY											as above	
		281.23	282.51	1.28				SST	MDST	FG	MGY										mm-cm scale MDST laminations, few SLT laminations	
	1.7						282.55															
75°		282.51	283.96	1.45				SST	MDST	FG	MGY										as above, few mm-scale quartz veinlets	
		283.96	285.58	1.62				SST	MDST	FG	MGY										As above, a few mm-scale Mdst clasts	
	2.38						285.60															
		285.58	287.29	1.71				SST	MDST	MG	LGY										15cm band of MDST, few cm scale MDST clasts	
							Box 87															
		287.29	288.65	1.36				SST	MDST	MG	LGY										as above, some what broken, low angle steep fractures infilled w/ quartz End Pg.48 EOH 288.65	



### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-03
Drilling Start Date	23-Sep-12
Drilling Finish Date	24-Sep-12
Confirmed Easting	544019.8821
Confirmed Northing	6302449.1687
Elevation	1052.5372
Azimuth	
Dip	-90
Depth	282.54
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	544021
PreCollar Northing	6302447
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG & RP
Lith and Geotech Logging Dates	30-Sep-12
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		0.00	7.57	7.57												OVB	
	0						BOX 1										
		7.57	8.23	0.66				SST		MG	LGY					cm-scale clasts of MDST, rubble @ top, v. soft gouge in lower half of interval	
								ROCK LOSS								ROCK LOSS	
	0						8.23										
		8.23	9.03	0.80				SST		MG	LGY					broken rubble, gouge (as above)	
		9.03	11.28	2.25				ROCK LOSS								ROCK LOSS	
	0.36						11.28										
		11.28	12.53	1.25				SST		MG	LGY					few mm-scale MDST laminations, soft gouge sand, broken/rubble section	
							Box 2										
		12.53	14.07	1.54				SST		MG	LGY					as above, few CG SST bands (10cm scale)	
		14.07	14.33	0.26				ROCK LOSS								ROCK LOSS	
	0.25						14.33										
		14.33	15.30	0.97				SST		MG	LGY					as above	
		15.30	17.37	2.07				ROCK LOSS								ROCK LOSS	
	0.51						17.37										
		17.37	17.49	0.12				SST		MG	LGY					as above	
																END PG. 01	
							Box 3										
		17.49	18.87	1.38				SST	MDST	MG	MGY					mm-cm scale MDST laminations, mm-cm scale quartz veinlet	
		18.87	19.47	0.60				SST	MDST	FG	MGY					mm-cm scale MDST laminations	
		19.47	20.07	0.60				MDST		VFG	DGY					few mm-scale SST laminations, porous micro cracks gouge	
		20.07	20.42	0.35				ROCK LOSS								ROCK LOSS	
	1.63						20.42										
		20.42	20.72	0.30				MDST		VFG	DGY					as above, few mm-scale quartz veinlets, mm scale coaly laminations, cm-scale coaly band w/ py mineralization	
							Box 4										
		20.72	21.56	0.84				MDST		VFG	DGY					as above	
		21.56	23.28	1.72				SST	MDST	FG	MGY					mm-cm scale MDST laminations END PG 02	
		23.28	23.47	0.19				ROCK LOSS								ROCK LOSS	
	1.6						23.47										
		23.47	23.87	0.40				SST	MDST	FG	MGY					as above	
							box 5										
		23.87	24.27	0.40				ROCK LOSS								ROCK LOSS	
		24.27	25.07	0.80				SST	MDST	FG	MGY					as above, band of MG SST ~15cm	
		25.07	25.68	0.61													
		25.68	25.88	0.20	40501			MSDT		VFG	DGY					ROOF SAMPLE, few mm-scale SST laminations	0
		25.88	26.16	0.28	40502			COAL	C5								85
		26.16	26.36	0.20	40502			COAL LOSS								COAL LOSS	85
		26.36	26.51	0.15	40502			COAL	C2								85
		26.51	26.52	0.01				COAL LOSS								COAL LOSS	
							26.52										
		26.51	26.61	0.10	40502			COAL	C5								85

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		26.61	27.01	0.40		40503		MDST	CARB							PARTING SAMPLE	0
		27.01	27.20	0.19		40503		ROCK LOSS								ROCK LOSS	0
		27.20	27.35	0.15		40504		COAL	C1							Loss at base	85
		27.35	27.71	0.36		40504		COAL LOSS								COAL LOSS END PG 03	85
		27.71	27.91	0.20				ROCK LOSS								ROCK LOSS	
		27.91	28.12	0.21		40505		MDST		VFG	DGY					FLOOR SAMPLE, porous micro-fractures, few SST laminations (mm scale)	0
							box 6										
		28.12	29.51	1.39				SST	MDST	FG	MGY					gouge, SLT laminations + MDST laminations, mm-cm scale, porous scale, porous micro-fractures	
		29.51	29.57	0.06				COAL LOSS								COAL LOSS	
	1.47						29.57										
		29.57	29.62	0.05				COAL			BLK					broken up	
		29.62	31.25	1.63				SST	MDST	FG	MGY					mm-cm scale MDST laminations, porous micro-fractures	
							box 7										
		31.25	32.53	1.28				SST	MDST	FG	MGY					as above	
		32.53	32.61	0.08				ROCK LOSS								ROCK LOSS	
	0.36						32.61										
		32.61	33.26	0.65				MDST		VFG	DGY					few mm-scale coalified lenses, quartz infill fractures, py mineralization END PG. 04	
		33.26	33.56	0.30				COAL								END PG. 05	
		33.56	34.16	0.60				MDST		VFG	DGY					porous micro-fractures, some mm-scale coalified lenses	
		34.16	34.38	0.22				SST	MDST	FG	MGY					mm-cm scale laminations of MDST	
							box 8										
85°		34.38	35.33	0.95				SST	MDST	FG	MGY					as above, 3cm band of MDST @ base of unit	
		35.33	35.66	0.33				ROCK LOSS								ROCK LOSS	
	0.93						35.66										
		35.66	36.41	0.75				SST	MDST	FG	MGY					as above, steep, low angle fractures	
		36.41	37.11	0.70				MDST		VFG	DGY					slickenlines on fractured surface	
		37.11	37.86	0.75				SST		MG	LGY					contact w/ MDST above is gradational (mm scale MDST laminations @ top of interval) low angle fractures infilled w/ quartz, no signs of shearing on fracture surfaces END PG. 06	
							box 9										
		37.86	38.65	0.79				SST		CG	LGY					few mm-scale MDST laminations, near top of interval, quartz infill fractures (mm scale)	
		38.65	38.71	0.06				ROCK LOSS								ROCK LOSS	
	2.1						38.71										
80°		38.71	40.46	1.75				SST		CG	LGY					as above, few cm scale laminations of MDST	
							box 10										
		40.46	41.18	0.72				SST	MDST	FG	MGY					as above	
		41.18	41.76	0.58				ROCK LOSS								ROCK LOSS	
	0.85						41.76										
90°		41.76	43.86	2.10				SST	MDST	FG	MGY					as above, gouge quartz infill fractures (mm-cm scale) brecciation	
		43.86	43.90	0.04		40506		COAL LOSS								COAL LOSS	99
		43.90	44.15	0.25		40506		COAL	C4								99

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		44.15	44.25	0.10		40506		COAL LOSS								COAL LOSS END PG 07	99
		44.25	44.48	0.23				MDST		VFG	DGY					few mm scale SST laminations	
							box 11										
		44.48	44.76	0.28				MDST		VFG	DGY					as above	
		44.76	44.81	0.05				ROCK LOSS								ROCK LOSS	
	2.4						44.81										
		44.81	45.97	1.16				MDST		VFG	DGY					as above, mm scale quartz veinlets, fractures infilled w/ quartz+dolomite very polished fractured surfaces w/ slickenlines	
		45.97	47.07	1.10				SST		FG	LGY					quartz infill fractures +breccia, gouge, low angle fractures	
		47.07	47.85	0.78				ROCK LOSS								ROCK LOSS	
							box 12										
	2.05						47.85									fault zone from 44.81-47.85m	
		47.85	49.30	1.45				SST		FG	LGY					quartz infill fractures, cm scale MDST clasts, few mm-scale MDST laminations END PG 08	
45°		49.30	50.65	1.35				SST	MDST	FG	MGY					mm-cm scale MDST laminations, MDST content decreases w/ depth, few mm- scale quartz veinlets	
							box 13										
45°		50.65	52.17	1.52				SST	MDST							quartz infill fractures, mm-cm scale MDST laminations, some fracture surfaces have slickenlines	
		52.17	52.30	0.13		40507		COAL LOSS								COAL LOSS	80
		52.30	52.69	0.39		40507		COAL	C4							Sheared END PG. 09	80
		52.69	53.84	1.15				MDST		VFG	DGY					gouge, fine porous cracks	
		53.84	53.95	0.11				ROCK LOSS								ROCK LOSS	
	2.41						53.95										
							box 14										
		53.95	54.15	0.20				MDST		VFG	DGY					as above	
		54.15	57.00	2.85				SST		MG	LGY					few mm scale MDST laminations, quartz fold closure w/ vuggy cavities, center of fold closure is SST	
	0.62						57.00										
		57.00	57.26	0.26				SST		MG	LGY					as above	
							box 15										
		57.26	58.42	1.16				SST		MG	LGY					few mm scale MDST laminations, low angle fractures, infilled w/ quartz + have slickenlines, 15cm zone of gouge +cm scale SST clasts, quartz veins up to cm scale, 8cm zone of varied clast sizes in SST matrix END PG 10	
		58.42	59.42	1.00				MDST		VFG	DGY					fine porous cracks, coalified lenses (mm scale) some py mineralization	
																possible hinge zone near57.00 marker, fold closure, gouge, slickenlines on fracture surface, repetition of units	
		59.42	59.87	0.45				SST	MDST	FG	MGY					mm-cm scale MDST laminations, porous cracks	
		59.87	60.05	0.18				ROCK LOSS								ROCK LOSS	
	1.63						60.05										
		60.05	60.35	0.30				SST		MG	LGY					few mm-cm scale MDST laminations + clasts	
							box 16										
		60.35	60.85	0.50				SST		MG	LGY					few mm-cm scale MDST laminations -as above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		60.85	61.30	0.45				MDST		VFG	DGY					few mm-scale SST laminations, slickenlines on fractures surfaces END PG 11	
		61.30	62.20	0.90				SST		FG	LGY					few mm-cm scale MDST laminations, gouge w/ v. crumbled zpne, some fold closures, cm scale MDST clasts	
		62.20	62.24	0.04				ROCK LOSS								ROCK LOSS	
		62.24	63.09	0.85				SST		MG	LGY					few MDST lenses, 2cm MDST band	
	2.82						63.09										
		63.09	63.41	0.32				SST		MG	LGY					as above	
							box 17										
		63.41	66.11	2.70				SST		MG-CG	LGY					varies from MG to CG, cm scale quartz+dolomite infilling fractures, some vuggy cavities, 5cm MDST clasts, bands of CG sand, mm-scale quartz veinlets	
		66.11	66.14	0.03				ROCK LOSS								ROCK LOSS	
	1.94						66.14										
		66.14	66.72	0.58				SST		MG-CG	LGY					as above	
							box 18										
		66.72	68.48	1.76				SST		FG	LGY					mm scale quartz veinlets infilling fractures w/ vuggy...cont>>>END PG 12<<<cavities 20cm MDST band, mm-cm scale MDST clasts	
		68.48	69.19	0.71				SST	MDST	FG	MGY					cm-scale quartz+ dolomite vein infilling fractures, mm-cm scale MDST laminations	
	2.39						69.19										
		69.19	69.97	0.78				SST	MDST	FG	MGY					as above, but no quartz or dolomite	
							box 19										
		69.97	72.17	2.20				MDST	SST	FG	DGY					mm-cm scale laminations of SST, few coalified lenses, few quartz lenses, cracks, few MG SST bands, SLT laminations	
		72.17	72.24	0.07				ROCK LOSS								ROCK LOSS	
	1.85						72.24										
		72.24	73.32	1.08				MDST	SST	FG	DGY					as above	
							box 20										
70°		73.32	75.02	1.70				MDST	SST	FG	DGY					as above	
		75.02	75.22	0.20		40508		MDST	SST	FG	DGY					ROOF SAMPLE, as above END PG. 13	0
		75.22	75.25	0.03		40508		ROCK LOSS								ROCK LOSS	0
	1.05						75.29										
		75.25	75.30	0.05		40509		COAL	C2								70
		75.30	75.36	0.06		40509		MDST	CARB							Coaly	0
		75.36	75.41	0.05		40509		COAL	C4								70
		75.41	75.79	0.38		40509		COAL	C2							Solid bright	70
		75.79	76.04	0.25		40509		COAL	C4							Dull, dirty bands	70
		76.04	76.35	0.31		40509		COAL	C2								70
							box 21										
		76.35	76.45	0.10		40509		COAL								END PG. 14	70
		76.45	76.65	0.20		40510		MDST		VFG	DGY					FLOOR SAMPLE, mm-cm scale bands of coal + coalified lenses, coal is surrounded by quartz, low angle fractures	0
		76.65	78.05	1.40				MDST		VFG	DGY					mm-cm scale bands of coal + coalified lenses, coal is surrounded by quartz, low angle fractures	
		78.05	78.33	0.28				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	2.38						78.33											
		78.33	79.65	1.32				SST	MDST	MG	MGY							mm-scale MDST laminations, mm-scale quartz veinlets
							box 22											
		79.65	81.39	1.74				SST	MDST	MG	MGY							as above, mm-scale gouge band, some fold closures, 2cm quartz vein w/ vuggy cavities, MDST laminations are irregular, seem like they could have been folded
	1.29						81.38											
		81.39	82.62	1.23				SST	MDST	MG	LGY							mm-cm scale laminations of MDST, mm-scale quartz veinlets, pressure shadows in quartz vein END PG 15
							box 23											
		82.62	84.36	1.74				SST	MDST	FG	MGY							mm-cm scale quartz veinlets w/ vuggy cavities, fold closures, parasitic folds, fold axis angles: 50°, 45°, 45°
		84.36	84.43	0.07				ROCK LOSS										ROCK LOSS
	0.4						84.43											
		84.43	85.68	1.25				SST		MG	LGY							few mm-scale MDST laminations, 30cm SLT band near middle of interval, mm-scale quartz veinlets w/ vuggy cavities
							box 24											
		85.68	87.39	1.71				SST		MG	LGY							few mm-cm scale MDST bands, mm-cm scale quartz veinlets infilling fractures, some w/ brecciations on quartz + dolomite, steep, low angle fractures, cm-scale gouge band few mm-cm scale MDST clasts END PG. 16
		87.39	87.48	0.09				ROCK LOSS										ROCK LOSS
	2.43						87.48											
		87.48	88.65	1.17				SST		MG	LGY							few mm-scale MDST laminations, few mm-scale quartz veinlets, low angle fractures
							box 25											
		88.65	90.53	1.88				SST		MG	LGY							v.few mm-scale quartz veinlets, MDST laminations
	2.73						90.53											
		90.53	91.89	1.36				SST		MG	LGY							as above, increasing # of MDST laminations (up to cm scale) few irregular MDST laminations
							box 26											
		91.89	92.72	0.83				SST		MG	LGY							as above
		92.72	93.57	0.85				SST	MDST	FG	MGY							mm-cm scale MDST laminations, few SLT laminations
	2						93.57											
		93.57	95.03	1.46				SST	MDST	FG	MGY							as above, few-mm scale quartz veinlets END PG 17
							box 27											
		95.03	96.62	1.59				MDST		VFG	DGY							20cm band of fine SST, laminations of SLT (mm-cm scale) mm scale quartz veinlets
	0						96.62											
		96.62	97.97	1.35				MDST	SLT	FG	DGY							mm-cm scale laminations, gouge py mineralization, quartz veins (mm scale) 1cm broken coal @ end of interval, 3cm band of LGY FG SSTw/ many mm scale quartz veinlets infilling fractures w/ vuggy cavities
							box 28											
		97.97	98.97	1.00				SST		MG	LGY							5cm broken coal @ top of interval, gouge quartz veinlets (mm scale)
		98.97	99.67	0.70				ROCK LOSS										ROCK LOSS
																		fault zone possible 99-100m

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	0.94						99.67											
		99.67	100.09	0.42				ROCK LOSS									ROCK LOSS	
		100.09	100.99	0.90				SST		MG	LGY						as above (no coal)	
		100.99	101.24	0.25				MDST		VFG	DGY						mm scale SST bands, quartz breccia	
		101.24	101.84	0.60				SST		FG	LGY						mm-scale quartz veinlets	
							box 29											
		101.84	102.34	0.50				SST		FG	LGY						few mm-cm scale MDST laminations, few mm-scale quartz veinlets	
		102.34	102.72	0.38				MDST		VFG	DGY						gouge, py mineralization, few quartz veinlets (mm scale)	
	2.11						102.72											
		102.72	104.92	2.20				MDST		VFG	DGY						few mm-scale SST + SLT laminations, local gouge, mm-scale quartz veinlets (few) fine porous fractures, mm-scale coalified lenses, quartz infilling fractures END PG 19	
							box 30											
		104.92	105.72	0.80				SST		CG	LGY						few mm scale MDST laminations, few mm-quartz veinlets infilling fractures	
		105.72	105.77	0.05				ROCK LOSS									ROCK LOSS	
	2.85						105.77											
		105.77	108.16	2.39				SST		CG	LGY						as above, 5cm MDST band, vuggy cavities in quartz cm-scale MDST clasts	
							box 31											
		108.16	108.78	0.62				SST		CG	LGY						as above, (no MDST) quartz brecciation	
		108.78	108.81	0.03				ROCK LOSS									ROCK LOSS	
	1.79						108.81											
		108.81	108.97	0.16				SST		CG	LGY						as above	
		108.97	109.73	0.76				MDST		VFG	DGY						fine porous fractures, few SLT laminations, coalified bands w/ quartz, mm scale quartz veinlets (few)	
		109.73	110.57	0.85				MDST	SST	FG	DGY						few coalified lenses + quartz veinlets (mm scale) END PG 20	
		110.57	111.10	0.53				MDST		VFG	DGY						gouge, very broken up	
		111.10	111.49	0.39				SST		CG	LGY						angular MDST clasts, quartz breccia, few mm-scale quartz veinlets	
							box 32											
		111.49	111.86	0.37				MDST		VFG	DGY						quartz infill fractures, fine porous fractures	
	2.4						111.86											
		111.86	111.96	0.10				MDST		VFG	DGY						as above	
		111.96	114.06	2.10				SST		MG	LGY						up to cm-scale quartz veinlets infilling fractures	
		114.06	114.54	0.48				MDST		VFG	DGY						few coalified lenses (mm scale) few mm-scale quartz veinlets	
							box 33											
		114.54	114.84	0.30				MDST		VFG	DGY						as above	
		114.84	114.91	0.07														
	0.4						114.91											
		114.91	115.21	0.30				MDST		VFG	DGY						as above	
		115.21	115.41	0.20		40511		MDST		VFG	DGY						ROOF SAMPLE, as above END PG 21	0
		115.41	115.42	0.01		40512		COAL LOSS									COAL LOSS	60
		115.42	116.42	1.00		40512		COAL	C3								Broken, sheared, powered in sections END PG 22	60

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		116.42	116.62	0.20		40513		MDST	SST	FG	MGY					FLOOR SAMPLE, low angle fractures w/ quartz infilling, fine porous fractures throughout unit	0
		116.62	117.46	0.84				MDST	SST	FG	MGY					low angle fractures w/ quartz infilling, fine porous fractures throughout unit	
							box 34										
		117.46	117.96	0.50				MDST	SST	FG	MGY					as above	
	1.15						117.96										
		117.96	119.66	1.70				SST		FG	LGY					few mm-scale MDST laminations	
		119.66	119.99	0.33				MDST	SST	FG	MGY					some py mineralization, fine porous fractures, mm-scale SST + SLT laminations	
		119.99	120.19	0.20		40514		MDST	SST	FG	MGY					ROOF SAMPLE, As above Mdst	0
		120.19	120.31	0.12		40515		COAL LOSS								COAL LOSS	60
		120.31	120.44	0.13		40515		COAL	C2							Bright, Cleated	60
		120.44	120.56	0.12		40515		COAL	C4							Banded, abundant qtz veining + pyrite	60
							box 35										
		120.56	120.61	0.05		40515		COAL	C2							Bright, Cleated	60
		120.61	120.66	0.05		40515		MDST	CARB							PARTING SAMPLE, Coal Stringers	0
	2.3						121.01										
		120.66	120.96	0.30		40515		COAL	C2							Bright, Cleated, abundant qtz veining + pyrite END PG. 23	60
		120.96	121.16	0.20		40516		MDST		VFG	DGY					FLOOR SAMPLE, few coalified lenses, quartz veinlets (mm scale) fine porous fractures	0
		121.16	121.68	0.52				MDST		VFG	DGY					few coalified lenses, quartz veinlets (mm scale) fine porous fractures	
		121.68	122.31	0.63				SST	MDST	MG	LGY					few SLT laminations, mm scale MDST laminations throughout	
		122.31	123.35	1.04				SST		MG	LGY					few mm scale quartz veinlets + MDST clasts	
								LGY									
							box 36										
		123.35	123.83	0.48				SST		MG	LGY					as above, quartz infill fractures have dolomite + vuggy cavities cm gouge band @ base of interval	
		123.83	124.05	0.22				ROCK LOSS								ROCK LOSS	
	0.68						124.05										
		124.05	124.29	0.24				SST		MG	LGY					as above, 2cm gouge @ top of interval	
		124.29	126.60	2.31				SST		FG	LGY					cm-scale MDST laminations, two gouge bands 20cm each, 15cm highly brecciated quartz infilling, some py>>>con't	
																END PG 24	
																mm scale quartz infilling fractures throughout, 124-125m possible fault zone	
							box 37										
		126.60	127.10	0.50				SST		FG	LGY					mm-scale MDST laminations, lots of quartz infill fractures w/ vuggy cavities	
	0.7						127.10										
		127.10	129.70	2.60				SST	MDST	FG	MGY					mm-cm scale MDST laminations throughout, lots of quartz infill fractures	
							box 38										
		129.70	130.15	0.45				SST	MDST	FG	MGY					mm-cm scale laminations of MDST	
	0.45						130.15										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		130.15	132.93	2.78				MDST		VFG	DGY					mm-cm scale quartz veinlets infilling fractures, gouge moderately broken, mm-cm scale SST laminations possible fault zone 131-132m END PG 25	
							box 39										
		132.93	133.23	0.30				MDST		VFG	DGY					fine porous fractures	
	0						133.20										
		133.23	136.15	2.92				MDST		VFG	DGY					as above, gouge near middle	
		136.15	136.25	0.10				ROCK LOSS								ROCK LOSS	
	1.7						136.25										
							box 40										
		136.25	137.03	0.78				MDST		VFG	DGY					as above (no gouge)	
45°		137.03	137.66	0.63				SLT		FG	BRN					many mm-scale quartz lenses + mm-cm scale quartz clasts	
		137.66	139.28	1.62				MDST	SLT	FG	DGY					mm-cm scale laminations of SLT, very polished fracture surfaces w/ slickenlines	
	2.85						139.29										
		139.28	139.47	0.19				MDST	SLT	FG	DGY					as above	
							box 41										
		139.47	142.16	2.69				MDST	SLT	FG	DGY					as above	
																END PG 26	
		142.16	142.34	0.18				SST		MG	LGY					few mm scale MDST laminations	
	2.43						142.34										
		142.34	142.77	0.43				SST	MDST	MG	MGY					mm-cm scale laminations of MDST, few mm-scale quartz veinlets, coalified lense on fracture surface	
		142.77	145.39	2.62				ROCK LOSS								ROCK LOSS	
	1.15						145.39										
		145.39	145.79	0.40				SST	MDST	MG	MGY					as above	
							box 43										
		145.79	148.03	2.24				SST	MDST	MG	MGY					as above, moderately broken	
		148.03	148.44	0.41				ROCK LOSS								ROCK LOSS	
	0.92						148.44										
		148.44	148.94	0.50				SST	MDST	MG	MGY					as above, 10cm quartz + dolomite, bleb w/ vuggy cavities @ base of interval END PG 27	
							box 44										
		148.94	150.34	1.40				MDST	SST	FG	DGY					gouge mm-cm scale SST laminations, polished fracture surfaces w/ slickenlines, moderately to strongly broken, mm-scale quartz veinlets	
		150.34	150.64	0.30				SST		CG	LGY					v. few mm-scale quartz veinlets	
		150.64	151.49	0.85				ROCK LOSS								ROCK LOSS	
	1.8						151.49										
		151.49	152.49	1.00				SST		CG	LGY					as above 5cm MDST band, 18cm zone of quartz infill fractures w/ vuggy cavities + gouge	
							box 45										
		152.49	154.49	2.00				SST		CG	LGY					as above unit (w/o 18cm band) v. few mm-scale MDST laminations, few polished fracture surfaces w/ slickenlines	
		154.49	154.53	0.04													
	1.2						154.53									END PG. 28	
		154.53	155.60	1.07				SST		CG	LGY					as above, few mm-cm scale MDST clasts	
							box 46										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		155.60	156.55	0.95				SST		CG	LGY					as above, 25cm zone w/ many quartz veinlets infilling fractures	
		156.55	157.37	0.82				MDST		VFG	DGY					few cm-scale SST laminations, mm-cm scale quartz veinlets w/ vuggy cavities, infilling fractures, few polished fracture surfaces w/ slickenlines	
		157.37	157.58	0.21													
	0						157.58										
		157.58	158.73	1.15				MDST		VFG	DGY					as above, few cm scale coal bands _ lenses fine porous cracks	
		158.73	158.84	0.11		40517		MDST		VFG	DGY					ROOF SAMPLE, as above, few cm scale coal bands _ lenses fine porous cracks	0
							box 47										
		158.84	158.93	0.09		40517		MDST		VFG	DGY					ROOF SAMPLE, as above unit (no coal in this interval)	0
		158.93	158.95	0.02				ROCK LOSS								ROCK LOSS	
		158.95	159.50	0.55		40518		COAL	C3							Very Broken/Sheared. Remant cleat	55
		159.50	159.65	0.15		40518		COAL LOSS								END PG 29	55
		159.65	159.85	0.20		40519		MDST		VFG	DGY					FLOOR SAMPLE, few mm-cm scale coal laminations, v. few mm-scale quartz veinlets	0
		159.85	160.63	0.78				MDST		VFG	DGY					few mm-cm scale coal laminations, v. few mm-scale quartz veinlets	
	1.98						160.63										
		160.63	161.46	0.83				MDST		VFG	DGY					as above	
		161.46	162.09	0.63				SST		CG	LGY					few mm-cm scale MDST laminations + bands + clasts, few mm-cm scale quartz veinlets + dolomite w/ vuggy cavities, infilling fractures, mm scale gouge bands, parasitic fold in quartz veinlet	
							box 48										
		162.09	163.66	1.57				SST		CG	LGY					as above, up to cm-scale gouge	
	2.4						163.68										
		163.66	165.14	1.48				SST		CG	LGY					as above, 7cm band f quartz w/ clasts of SST + py mineralization END PG 30	
		165.14	165.37	0.23				MDST	SST	FG	DGY					mm-cm scale laminations of SST	
							box 49										
		165.37	165.59	0.22				MDST	SST	FG	DGY					as above	
		165.59	166.51	0.92				SST		MG	LGY					few cm scale MDST clasts, cm-scale quartz infilling fractures, coalified bands (few) 10 cm band of MDST @ base of unit	
		166.51	166.73	0.22				ROCK LOSS								ROCK LOSS	
	2.04						166.73										
		166.73	168.77	2.04				SST	MDST	FG	MGY					mm-cm scale MDST laminations, few porous cracks in MDST layers	
							box 50										
70°		168.77	169.62	0.85				SST	MDST	FG	MGY		20°			AS ABOVE LOW ANGLE FRACTURES THROUGHOUT UNIT	
		169.62	169.77	0.15				ROCK LOSS								ROCK LOSS	
	2.2						169.77										
		169.77	171.84	2.07				SST	MDST	FG	MGY					as above, 20cm band of purely SSTEND PG. 31	
							BOX 51										
70°		171.84	172.73	0.89				SST	MDST	FG	MGY					as above	
		172.73	172.82	0.09				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	2.64						172.82											
		172.82	175.12	2.30				SST	MDST	FG	MGY						as above	
							box 52											
		175.12	175.82	0.70				SST		FG	BRN						10cm bands of MDST @ top + btm of interval, many quartz lenses mm-cm scale-may have organic origin	
		175.82	175.87	0.05														
	0.8						175.87											
		175.87	177.11	1.24				MDST		VFG	DGY						fine porous cracks gouge (cm scale)	
		177.11	177.59	0.48		40520		COAL	C2								Bright Banded, Well cleated, face cleat .5/cm END PG 32	50
		177.59	178.45	0.86				MDST		VFG	DGY						mm scale coal lenses, fine porous cracks cm scale py blebs	
							box 53											
		178.45	178.95	0.50				MDST		VFG	DGY						as above, few mm-scale SST laminations	
	1.9						178.95											
		178.95	178.97	0.02				COAL									could be misplaced? Solid band, semi bright coal	
		178.97	179.60	0.63				SST	MDST	FG	MGY						mm-cm scale MDST laminations, mm-scale quartz veinlet	
		179.60	180.90	1.30				SST		MG	LGY						few cm scale MDST bands, few cm scale gouge bands, mm-cm scale MDST clasts in 10cm zone @ base of interval	
		180.90	181.73	0.83				SST	MDST	FG	MGY						mm-cm scale MDST laminations END PG 33	
							BOX 54											
		181.73	181.97	0.24				SST	MDST	FG	MGY						as above	
	2.85						181.97											
		181.97	184.91	2.94				SST		MG	LGY						few mm-cm scale MDST laminations	
							box 55											
80°		184.91	185.01	0.10				SST		MG	LGY						as above, few cm-scale MDST clasts	
	1.66						185.01											
		185.01	186.12	1.11				SST		MG	LGY						few mm-cm scale MDST laminations	
		186.12	187.01	0.89				SST		FG	LGY						few mm-cm scale MDST laminations	
		187.01	188.06	1.05				MDST	SST	FG	MGY						fine porous cracks, mm-cm scale SST laminations	
	1.9						188.06											
							box 56											
80°		188.06	191.09	3.03				MDST		FG	DGY						few SST/SLT laminations (mm-cm scale) con't>>> END PG 34	
																	porous micro-fractures py mineralization	
	1.85						191.11											
		191.09	191.34	0.25		40521		MDST		FG	DGY						ROOF SAMPLE, as above, mm-scale coaly laminations, 3cm py rich band	0
							box 57											
		191.34	191.60	0.26		40522		COAL	C3								banded, good cleat, on bright bands, calcite	50
		191.60	191.69	0.09		40522		COAL	C4								Dull with cleated bright bands	50
		191.69	191.84	0.15		40522		COAL	C3								Bright bands, calcite stringers	50
		191.84	191.97	0.13		40522		COAL LOSS									COAL LOSS END PG. 35	50
		191.97	192.17	0.20		40523		MDST		FG	DGY						FLOOR SAMPLE, few SST/SLT laminations (mm-cm scale) coalified lenses (mm scale)	0
		192.17	193.57	1.40				MDST		FG	DGY						few SST/SLT laminations (mm-cm scale) coalified lenses (mm scale)	
		193.57	194.16	0.59				SST	MDST	FG	MGY						mm-cm scale laminations of MDST	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	2.94						194.16											
		194.16	194.61	0.45				SST	MDST	FG	MGY						as above	
							box 58											
		194.61	195.76	1.15				SST	MDST	FG	MGY						as above	
		195.76	197.16	1.40				SST	MDST	MG	LGY						mm-cm scale MDST laminations throughout	
		197.16	197.21	0.05				ROCK LOSS									ROCK LOSS	
	2.85						197.21											
80°		197.21	197.87	0.66				SST	MDST	MG	LGY						as above	
							box 59											
70°		197.87	200.25	2.38				SST	MDST	MG	LGY						as above	
	1.9						200.25										END PG 36	
		200.25	201.13	0.88				SST	MDST	MG	LGY						as above	
							box 60											
		201.13	203.19	2.06				MDST		VFG	DGY						porous micro fractures, many mm, 6cm coal bands, cm-scale py bleb	
		203.19	203.30	0.11														
	1.2						203.30											
		203.30	203.59	0.29				MDST	SST	FG	DGY						mm-cm scale SST laminations	
		203.59	204.27	0.68				SST	MDST	MG	LGY						mm-cm scale MDST clasts + laminations	
		204.27	204.47	0.20				MDST		VFG	DGY						few mm-scale laminations SST fine porous cracks	
							box 61											
		204.47	206.35	1.88				MDST		VFG	DGY						fine porous cracks, gouge 10cm band of coal +py +sand	
	2.65						206.35											
		206.35	207.79	1.44				SST	MDST	FG	MGY						mm-cm scale MDST laminations END PG 37	
							box 62											
		207.79	209.40	1.61				SST		FG	LGY						v. few mm-scale MDST laminations	
	2.11						209.40											
		209.40	211.01	1.61				SST		FG	LGY						few mm-cm scale MDST laminations, quartz infilled fractures (mm scale)	
							box 63											
80°		211.01	212.26	1.25				SST		FG	LGY						as above (no quartz infilled fractures)	
		212.26	212.45	0.19														
	2.25						212.45											
		212.45	214.34	1.89				SST		FG	LGY						as above	
							box 64											
		214.34	214.51	0.17				SST		FG	LGY						as above, mm-scale quartz infilling fractures	
		214.51	215.45	0.94				SST	MDST	FG	MGY						few mm-cm scale quartz infill fractures, mm-cm scale MDST clasts and laminations	
		215.45	215.49	0.04				ROCK LOSS									ROCK LOSS END PG 38	
	2.82						215.49											
		215.49	217.54	2.05				SST	MDST	FG	MGY						mm-cm scale MDST layers	
							box 65											
		217.54	218.47	0.93				SST	MDST	FG	MGY						as above	
		218.47	218.54	0.07				ROCK LOSS									ROCK LOSS	
	2.59						218.54											
		218.54	220.73	2.19				MDST	SST	FG	DGY						mm-cm scale SST laminations	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		220.73	220.88	0.15				SST		FG	LGY					as above mm-cm scale laminations + clasts (MDST)	
		220.88	221.59	0.71				ROCK LOSS								ROCK LOSS	
	2.64						221.59										
		221.59	223.99	2.40				SST		FG	LGY					as above	
							box 67										
		223.99	224.64	0.65				SST		FG	LGY					as above END PG 39	
	1.91						224.64										
		224.64	227.18	2.54				SST		FG	LGY					as above, few quartz infill fractures	
							box 68										
		227.18	227.60	0.42				SST		MG	LGY					few mm-cm scale MDST laminations + clasts	
		227.60	227.69	0.09				ROCK LOSS								ROCK LOSS	
	2.9						227.69										
		227.69	230.44	2.75				SST	MG	LGY						as above	
							box 69										
		230.44	230.73	0.29				SST		MG	LGY					as above	
	2.57						230.73										
		230.73	232.12	1.39				SST		MG	LGY					as above, 10-15cm zone where MDST clasts are concentrated	
80		232.12	233.68	1.56				SST	MDST	FG	MGY					mm-cm scale laminations mm scale quartz veinlets (few) 5cm band of many mm-scale quartz lenses - possible organic origin	
							box 70										
		233.68	233.78	0.10				SST	MDST	FG	MG					as above END PG 40	
	2.52						233.78										
		233.78	234.38	0.60				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
		234.38	236.83	2.45				SST	MDST	FG	MGY					mm-cm scale MDST laminations 2cm band of many mm-scale quartz lenses of possible organic origin	
	2.64						236.83										
							box 71										
		236.83	237.92	1.09				MDST	SST	FG	DGY					mm scale SST laminations	
		237.92	239.05	1.13				SST		MG	LGY					few mm-cm scale MDST laminations	
85		239.05	239.86	0.81				SST	MDST	MG	MGY					mm-cm scale MDST laminations throughout	
		239.86	239.88	0.02				ROCK LOSS								ROCK LOSS	
	2.8						239.88										
		239.88	240.16	0.28				SST	MDST	MG	MGY					as above	
							box 72										
		240.16	242.93	2.77				SST		MG	LGY					few mm-cm scale MDST laminations	
	1.6						242.93										
		242.93	243.47	0.54				SST		MG	LGY					as above, few mm scale quartz veinlets infilling fractures	
							box 73										
		243.47	243.67	0.20				SST		MG	LGY					as above	
		243.67	244.65	0.98				MDST	SST	FG	DGY					many fractures infilled w/ quartz mm-cm scale, gouge fault zone possible 245-246m	
		244.65	245.85	1.20				SST	MDST	FG	MGY					many fractures infilled w/ quartz + dolomite mm-cm scale	
		245.85	245.97	0.12				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.66						245.97											
		245.97	246.64	0.67				SST		MG	LGY						few mm-cm scale MDST laminations, many cm scale quartz veinlets infill fractures, polished fracture surface w/ slickenlines	
							box 72											
		246.64	247.54	0.90				SST		MG	LGY						as above END PG 42	
		247.54	248.24	0.70				MDST		VFG	DGY						few mm-cm scale coal lenses, v. polished fracture surfaces w/ slickenlines, few mm-scale quartz veinlets	
		248.24	248.44	0.20		40524		MDST		VFG	DGY						ROOF SAMPLE, few mm-cm scale coal lenses, v. polished fracture surfaces w/ slickenlines, few mm-scale quartz veinlets	0
		248.44	248.90	0.46				ROCK LOSS									ROCK LOSS	
		248.90	248.95	0.05		40525		COAL	C4								Bright thin bands, solid	45
		248.95	249.01	0.06		40525		COAL	C2								bright bands, cleated qtz veinlets	45
		249.01	249.05	0.04		40525		MDST	CARB								PARTING SAMPLE, coaly lenses+plant fragments	0
		249.05	249.26	0.21		40525		COAL	C2								bright solid, well cleated calcite veinlets	45
							249.02											
		249.26	249.77	0.51		40525		COAL	C2								as above with well altered calcite veinlets END PG 43	45
		249.77	249.97	0.20		40526		MDST		VFG	DGY						FLOOR SAMPLE, mm-cm scale quartz veinlets infilling fractures	0
		249.97	250.17	0.20				MDST		VFG	DGY						mm-cm scale quartz veinlets infilling fractures	
							box 75											
		250.17	252.07	1.90				MDST	SST	FG	MGY						low angle fractures w/ quartz infill, gouge in fractures, mm-cm scale SST laminations. Fine, porous fractures, quartz + dolomite, in viens few cm-scale	
							252.07											
	1.05																	
		252.07	253.34	1.27				SST	MDST	FG	MGY						mm-cm scale MDSt laminations, few SLT laminations	
							box 76											
		253.34	254.40	1.06				SST	MDST	FG	MGY						as above	
		254.40	255.12	0.72				SST		MG	LGY						few mm-scale MDST laminations	
	1.32						255.12										END PG 44	
		255.12	256.52	1.40				SST		MG	LGY						as above, 5cm quartz veinlets w/ vuggy cavities, 5cm gouge band	
							box 77											
		256.52	257.00	0.48				SST		CG	LGY						cm scale quartz + dolomite veinlets infill fractures, gouge fold closure in quartz	
		257.00	257.35	0.35				MDST		VFG	DGY						fine porous fractures, few mm-scale SST laminations	
		257.35	258.17	0.82				SST		VCG	LGY						mm-cm scale MDST vlasts in 5cm band @ top of interval	
	1.83						258.17											
		258.17	258.91	0.74				SST		VCG	LGY						as above cm scale quartz dolomite veinlet	
		258.91	259.51	0.60				SST		MG	LGY						few mm-scale MDST laminations	
																	END PG 45	
		259.51	259.95	0.44				MDST		VFG	DGY						few mm-cm scale SST laminations gradational contact w/ SST unit above fine porous fractures	
							box 78											
		259.95	260.23	0.28				MDST		VFG	LGY						as above	
		260.23	260.92	0.69				SST		VCG	LGY						few cm scale MDST laminations, mm-cm scale quartz veinlets (few)	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		260.92	261.22	0.30				SST	MDST	FG	MGY					mm-cm scale MDST laminations	
	1						261.22										
		261.22	262.87	1.65				MDST		VFG	DGY					few mm-cm scale SST laminations, few mm-cm scale quartz veinlets infilling fractures, fine porous cracks	
		262.87	263.22	0.35				SST		CG	LGY					cm scale quartz + dolomite veinlets, few cm scale gouge bands, few mm-scale MDST laminations	
							box 79										
		263.22	264.16	0.94				SST		CG	LGY					as above	
		264.16	264.26	0.10				ROCK LOSS								ROCK LOSS	
	0						264.26										
		264.26	266.48	2.22				MDST	SST	FG	MGY					mm-cm scale SST laminations, few mm-scale quartz veinlets infilling fractures, few mm-cm scale coalified bands moderately broken	
							box 80										
		266.48	267.23	0.75				SST	MDST	FG	MGY					mm-scale MDST laminations	
		267.23	267.31	0.08													
	0.8						267.31										
		267.31	267.75	0.44				SST	MDST	FG	MGY					as above, pack marks in 5cm band near base of interval fine porous cracks in MDST areas	
		267.75	268.45	0.70				SST		MG	LGY					v. few mm-scale MDST laminations	
		268.45	268.80	0.35				ROCK LOSS								ROCK LOSS	
		268.80	269.30	0.50				MDST		VFG	DGY					fine porous fractures, strongly broken, few mm-scale quartz veinlets END PG 47	
		269.30	269.50	0.20		40527		MDST		VFG	DGY					ROOF SAMPLE, fine porous fractures, strongly broken, few mm-scale quartz veinlets END PG 47	0
		269.50	270.08	0.58		40528		COAL	C2							Bright Banded, well cleated sheared + broken in places	40
							box 81										
		270.08	270.22	0.14		40528		COAL	C2							As above coal, but solid qtz veinlets at base. ENG PG. 48	40
		270.22	270.42	0.20		40529		MDST		VFG	DGY					FLOOR SAMPLE, cm scale quartz + dolomite infilling fractures-vuggy cavities in quartz + dolomite, few mm-scale SLT laminations	0
		270.42	270.74	0.32				MDST		VFG	DGY					cm scale quartz + dolomite infilling fractures-vuggy cavities in quartz + dolomite, few mm-scale SLT laminations	
	2.06						270.36										
55		270.74	272.99	2.25				MDST	SST	VFG	DGY					mm-scale laminations of SST, mm-cm scale quartz veinlets w/ parasitic folds, mm-cm scale quartz infilling fractures. Parasitic fold axes 70° to CA for z-folds, quartz veinlets x-cut bedding	
60							box 82										
		272.99	273.41	0.42				SST		FG	LGY					mm-cm scale quartz veinlet mm scale MDST laminations	
							273.41										
65		273.41	274.14	0.73				MDST	SST	FG	DGY					parasitic folds in mm-scale quartz veinlets, parasitic fold axis 75° to CA	
		274.14	276.04	1.90				SST	MDST	MG	LGY					mm-cm scale MDST laminations, mm scale quartz veinlets w/ parasitic folds END PG 49	
		276.04	276.29	0.25				SST	MDST	MG	LGY					as above	
		276.29	276.45	0.16				ROCK LOSS								ROCK LOSS	

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes		Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA	
	2.1						276.45									
55		276.45	279.35	2.90				SST	MDST	FG	MGY		45° quartz veinlets			quartz veinlets mm-cm scale x-cut bedding few along bedding, mm-cm scale MDST laminations 30cm MDST band @ base of interval
		279.35	279.50	0.15				ROCK LOSS								ROCK LOSS
							box 84									
	2.1						279.50									
		279.50	281.22	1.72				MDST		VFG	SGY		35°			few mm-scale coalified lenses and quartz veinlets
		281.22	282.51	1.29				SST		MG	LGY					mm-cm scale quartz veinlets infilling fractures
		282.51	282.55	0.04				ROCK LOSS								ROCK LOSS
							282.55									EOH 282.55,END PG 50



### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-04
Drilling Start Date	25-Sep-12
Drilling Finish Date	27-Sep-12
Confirmed Easting	539352.6680
Confirmed Northing	6309707.2619
Elevation	1059.1196
Azimuth	
Dip	-90
Depth	309.60
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	539352
PreCollar Northing	6309708
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	2-Oct-12
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
		0.00	4.74	4.74	4.74												OVB	
					0.00		box 1										casing marker @ top of box	
	0				0.00		6.10											
		4.74	4.88	0.14	0.14			MDST		VFG	DGY						rubble	
	1.1				0.00		4.88											
45		4.88	5.46	0.58	0.58			MDST		VFG	DGY						few mm-scale SLT laminations	
		5.46	7.30	1.84	1.84			SLT	MDST	FG	DGY-BRN						mm-cm scale MDST laminations	
					0.00		box 2											
		7.30	7.58	0.28	0.28			SLT	MDST	FG	DGY						as above	
	1.37				0.00		7.92											
45		7.58	10.12	2.54	2.54			SLT	MDST	FG	DGY						as above, few SST laminations 30cm zone of MDST, few mm-cm scale MDST clasts in SLT, few mm-scale quartz veinlets w/ coalified layers	
					0.00		box 3											
		10.12	10.45	0.33	0.33			SLT	MDST	FG							same unit as above (mm-cm scale MDST laminations)	
		10.45	10.97	0.52	0.52			ROCK LOSS									ROCK LOSS END PG 1	
	2.16				0.00		10.97											
45		10.97	13.71	2.74	2.74			SLT	MDST	FG	DGY		60				as above, SLT contact w/ MDST dominant layers 60°	
40					0.00													
35					0.00		box 4											
		13.71	14.01	0.30	0.30			SLT	MDST	FG	DGY						as above	
	1.74				0.00		14.02											
50		14.01	16.84	2.83	2.83			SLT	MDST	FG	DGY-BRN						as above, few mm-scale quartz veinlets	
					0.00		box 5											
		16.84	17.01	0.17	0.17			MDST		VFG	DGY						few mm-scale SLT laminations, mm-scale gouge band	
		17.01	17.07	0.06	0.06			ROCK LOSS									ROCK LOSS	
	0.93				0.00		17.07											
		17.07	19.02	1.95	1.95			SLT	MDST	FG	DGY						mm-cm scale MDST laminations, mm-cm scale quartz veinlets infilling fractures, one 5cm quartz band w/ vuggy cavities, few cm-scale gouge bands END PG. 2	
		19.02	19.36	0.34	0.34			SST		MG	LGY						few mm-scale quartz veinlets infilling fractures	
		19.36	19.87	0.51	0.51			SLT	MDST	FG	DGY						mm-scale MDST laminations, wavy-irregular bedding, mm-scale quartz veinlets infilling fractures, cm-scale gouge band	
		19.87	20.04	0.17	0.17			ROCK LOSS									ROCK LOSS	
		20.04	20.12	0.08	0.08			MDST		VFG	DGY						few mm-scale SLT laminations, mm-cm scale quartz veinlets w/ vuggy cavities infilling fractures	
	1.39						20.12											
		20.12	20.43	0.31				MDST		VFG	DGY						as above, 15cm brecciated zone, MDST clasts in quartz + in LGY VFG matrix, 1cm gouge band @ base of interval, few SST laminations, mm-scale @ base of interval IEND PG 3	
		20.43	22.64	2.21				SST		MG	LGY						mm-cm scale quartz veinlet w/ vuggy cavities-infilling fractures, some dolomite in quartz, cm scale gouge band @ base of interval, few polished fracture surfaces w/ slickenlines, v.few cm scale MDST clasts @ base of interval, abrupt contact w/ FG SST unit below	
		22.64	22.75	0.11				ROCK LOSS									ROCK LOSS	
																	possible fault zone ~17-22m	
		22.75	23.16	0.41				SST		FG	LGY						few mm-scale quartz veinlets	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.72						23.16											
							box 7											
		23.16	23.75	0.59				SST	MDST	MG	MGY							mm-cm scale MDST laminations, MDST content increasing twds base of interval, mm-cm scale quartz + dolomite infilling fractures, few mm-cm MDST clasts, MDST zone @ base of interval=broken
																		END PG 4
		23.75	26.21	2.46				SST		CG	LGY		25°quar ts					few mm-scale MDST laminations, few cm-scale MDST clasts, mm-cm scale quartz veinlets, some w/ vuggy cavities
	1.34						26.21											
							box 8											
		26.21	26.95	0.74				SST		CG	LGY							as above
70		26.95	29.12	2.17				SLT	MDST	FG	DGY							mm-cm scale MDST laminations, few mm-cm scale quartz veinlets, 1 gouge band (cm scale) fine porous cracks in MDST, rich areas, few cm scale SST bands @ top of interval
		29.12	29.26	0.14				ROCK LOSS										ROCK LOSS
	1.1						29.26											
		29.26	29.46	0.20				SLT	MDST	FG	DGY							as above END PG 5
							box 9											
		29.46	30.46	1.00				SLT	MDST	FG	DGY							as above, quartz infilling fractures, few vugs at contact between MDST + SLT layers, few mud drapes(?)
		30.46	31.62	1.16				MDST		VFG	DGY							fine porous fractures, few mm-scale SLT laminations, 25cm brecciated + broken zone @ base of interval-quartz infilling fractures, mm-scale gouge bands
		31.62	31.72	0.10				ROCK LOSS										ROCK LOSS
		31.72	32.31	0.59				SST		CG	LGY							few mm-scale quartz veinlets, mm-scale gouge on fracture surface
	1.54						32.31											
		32.31	32.40	0.09				SST		CG	LGY							as above
							box 10											
		32.40	35.24	2.84				SST		CG	LGY							as above, 5cm band of granule size clasts in sandy matrix, quartz veinlets infilling fractures
		35.24	35.36	0.12				ROCK LOSS										END PG 6
	0.58						35.36											
		35.36	35.40	0.04				SST		CG	LGY							as above
							box 11											
		35.40	35.94	0.54				SST		CG	LGY							as above, moderately broken
50		35.94	37.36	1.42				SST	MDST	FG	MGY							mm-cm scale MDST laminations, few SLT laminations, 10cm MDST band in middle of interval, mm-cm scale quartz veinlets infilling fractures, cm-scale gouge band in middle of interval, few vuggy cavities in quartz, 25cm zone of brecciation w/ quartz _ MDST + SLT fragments
		37.36	38.22	0.86				MDST		VFG	DGY		35° quartz veinlets					few mm-cm scale coalified laminations, some area of CARB MDST, mm-scale quartz veinlets throughout, fine porous fractures
		38.22	38.40	0.18				ROCK LOSS										END PG 7
	0.7						38.40											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To	Drilled	True							FCD	FCA		
		38.40	38.64	0.24				MDST		VFG	DGY			as above, polished fracture surfaces	
55		38.64	40.00	1.36				SST	MDST	FG	MGY		30° quartz veinlet	mm-cm scale MDST laminations, few SLT laminations, 20cm MDST band w/ fine porous cracks in middle of interval, mm-cm scale quartz veinlets w/ vuggy cavities	
		40.00	40.20	0.20		35939		MDST	CAB	VFG	DGY			ROOF SAMPLE 8cm band of coal + MDST + quartz, few mm-scale coalified lenses	0
		40.20	40.63	0.43		35940		COAL	C3			2	40	A few Mdst beds, irregular quartz veins, 1/2cm cleating, light. Mostly solid	70
		40.63	40.70	0.07		35940		COAL LOSS						COAL LOSS	70
		40.70	40.90	0.2		35941		MDST		FG	MGY			FLOOR SAMPLE, cm-scale gouge bands w/ MDST fragments, moderately broken, quartz infilling fractures, CARB MDST bands	0
		40.90	41.21	0.31				MDST		FG	MGY			cm-scale gouge bands w/ MDST fragments, moderately broken, quartz infilling fractures, CARB MDST bands	
	0.25														
							41.25								
							box 13								
		41.21	41.32	0.11				MDST		VFG	DGY			(10cm gouge) few mm-scale coalified laminations	
		41.32	41.52	0.20		35943		MDST		VFG	DGY			ROOF SAMPLE, (10cm gouge) few mm-scale coalified laminations	0
		41.52	42.52	1.00		35942		COAL	C4		BLK			Broken chunks of coal. Towards the base all chunks have been sheared, hard/heavy, irregular quartz veinign, three partings: 7cm thick, 5cm thick & 3cm thick.	70
		42.52	42.79	0.27		35942		COAL LOSS						COAL LOSS END PG 9	70
		42.79	42.99	0.20		35944		MDST	SST	FG	MGY			FLOOR SAMPLE mm-cm scale laminations, mm-cm scale quartz veinlets infilling fractures, vuggy cavities in quartz, 5cm bands of soft CARB MDST, cm-scale gouge band, 15cm SST/SLT dominant bands, 5cm MG SST bands @ base of interval	0
		42.99	44.06	1.07				MDST	SST	FG	MGY			mm-cm scale laminations, mm-cm scale quartz veinlets infilling fractures, vuggy cavities in quartz, 5cm bands of soft CARB MDST, cm-scale gouge band, 15cm SST/SLT dominant bands, 5cm MG SST bands @ base of interval	
							box 14								
		44.06	44.33	0.27				MDST		FG	DGY			5cm CARB MDST band, mm-scale quartz veinlets, cm-scale SST MG band @ top	
		44.33	44.50	0.17				ROCK LOSS						ROCK LOSS	
	0.63						44.50								
		44.50	45.51	1.01				MDST						25cm bands of CARB MDST w/ coaly laminations, quartz infilling fractures	
		45.51	46.99	1.48				SST		MG	LGY			few mm-cm scale MDST bands, few mm-scale coalified lenses + quartz veinlets infilling fractures END PG 10	
							box 15								
		46.99	47.46	0.47				MDST		FG	DGY			few mm-scale SLT bands + mm scale quartz veinlets, fine porous fracture surfaces	
		47.46	47.55	0.09				ROCK LOSS						ROCK LOSS	
	0.48						47.55								
		47.55	47.60	0.05				MDST		FG	DGY			as above, few mm-scale coalified lenses	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		47.60	48.82	1.22				SST	MDST	FG	MGY					mm-cm scale MDST laminations, some broken areas w/ cm scale gouge bands, few mm-scale coalified laminations, MDST bands up to 5cm	
		48.82	49.07	0.25				SST		CG	LGY					few mm-scale quartz veinlets	
		49.07	49.23	0.16				ROCK LOSS								ROCK LOSS	
		49.23	49.97	0.74				MDST		VFG	DGY					gouge + broken core throughout, few mm-cm scale quartz veinlets and coaly bands	
		49.97	50.12	0.15				ROCK LOSS								ROCK LOSS PG 11	
							box 16										
		50.12	50.45	0.33				SST	SLT	FG	LGY					5cm MDST+ gouge band @ top of interval, few MDST + SLT laminations (mm scale) few mm-scale quartz infilling fractures	
		50.45	50.60	0.15				ROCK LOSS								ROCK LOSS	
	0.14						50.60										
		50.45	50.65	0.20				SST	SLT	FG	LGY					as above	
		50.65	53.07	2.42				MDST		VFG	DGY					majority of interval is gouge, quartz infilling fractures throughout, some dolomite w/ quartz, polished fracture surfaces, few mm-scale coalified lenses fault zone ~49.3-53.5m	
							box 17										
		53.07	53.40	0.33				MDST		VFG	DGY					few mm-scale quartz veinlets, few mm-scale SLT laminations	
		53.40	53.64	0.24				ROCK LOSS								ROCK LOSS END PG 12	
	0.34						53.64										
		53.64	54.99	1.35				SLT	MDST	FG	MGY-BRN					mm-cm scale MDST laminations, mm-cm scale quartz veinlets, w/ vuggy cavities, 17cm SST (MG) band	
		54.99	56.34	1.35				MDST		VFG	DGY					cm scale coalified bands w/ quartz, 5cm scale gouge bands w/ broken core, quartz w/ vuggy cavities infilling fractures, fine porous cracks	
							box 18										
		56.34	56.47	0.13				MDST		VFG	DGY					mm-scale quartz veinlets infilling fractures	
		56.47	56.69	0.22				ROCK LOSS								ROCK LOSS	
	0.51						56.69										
		56.47	57.27	0.80				MDST		VFG	DGY					few mm-cm scale SLT laminations, polished fracture surfaces, cm-scale gouge bands w/ broken qtz, mm-scale qtz veinlets infilling fractures END PG 13	
70		57.27	58.89	1.62				SLT	MDST	FG	MGY-BRN					mm-cm scale MDST laminations, few SST laminations, moderately broken, cm scale (up to 5cm) qtz veinlets, some brecciation	
		58.89	59.44	0.55				SST		CG	LGY					few mm scale qtz veinlets, v. few mm scale MDST laminations, two cm scale gouge bands	
							box 19										
		59.44	59.58	0.14				SST		CG	LGY					as above	
		59.58	59.74	0.16				ROCK LOSS								ROCK LOSS	
	1.95						59.74										
		59.74	62.65	2.91				SST		CG	LGY					as above, few mm-scale coalified lenses, two 5cm MDST bands	
		62.65	62.79	0.14				ROCK LOSS								ROCK LOSS	
	1.98						62.79										
							box 20										
		62.79	65.84	3.05				SST		CG	LGY					as above, few vuggy cavities in qtz END PG 14	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.54						65.84											
		65.84	66.10	0.26				SST		CG	LGY							as above
							box 21											
50		66.10	68.77	2.67				SST		CG	LGY		30		10			as above
		68.77	68.88	0.11				ROCK LOSS										ROCK LOSS
	1.26						68.88											
		68.88	69.47	0.59				SST		CG	LGY				20			as above, polished fracture surfae w/ slickenlines
							box 22											
15		69.47	71.86	2.39				SST		CG	LGY							as above, few mm-scale MDST clasts
		71.86	71.93	0.07				ROCK LOSS										ROCK LOSS
	2.41						71.93											
		71.86	72.54	0.68				SST		CG	LGY							as above
							box 23											
32		72.54	74.84	2.30				SST		CG	LGY							as above
		74.84	74.98	0.14				ROCK LOSS										ROCK LOSS
	0.85						74.98											
		74.98	75.89	0.91				SST		CG	LGY							as above
							box 24											
		75.89	77.99	2.10				SST		CG	LGY							as above
		77.99	78.03	0.04				ROCK LOSS										ROCK LOSS
	0.26						78.03											
		77.99	78.82	0.83				SST		CG	LGY							as above
																		possible fault zone 76.5-79.5m, very broken core, some gouge, polished fracture surfaces
							box 25											
		78.82	80.90	2.08				SST		CG	LGY		10					as above unit
		80.90	81.08	0.18				ROCK LOSS										ROCK LOSS
	0.32						81.08											
		81.08	81.76	0.68				SST		CG	LGY							as above
							box 26											
		81.76	81.97	0.21				SST		CG	LGY							as above
																		gouge bands, up to 20cm wide fragmented, 10cm scale SST fragments at top of unit, mm-cm scale qtz veinlets infilling fractures END PG 16
		81.97	84.12	2.15				MDST		VFG	DGY		25					some qtz w/ MDST fragments, few mm-scale coalified lenses, few mm-cm scale SLT laminations @ base of interval
	0.42						84.12											
25		84.12	84.60	0.48				MDST	SLT	FG	MGY		25					mm-cm scale SLT laminations, polished fracture surfaces
							box 27											
		84.60	85.28	0.68				MDST		VFG	DGY							broken + fractured core, gouge bands, cm scale, qtz veinlets infilling fractures (mm scale) polished fracture surfaces, sheared, few SLT fragments (cm scale) possible fault zone 82-85.5m
		85.28	85.48	0.20		35945		MDST		VFG	DGY							ROOF SAMPLE, as above Mdst
		85.48	86.00	0.52		35946		COAL	C6		BLK							Boney'stoney coal look more rock than coal 70% rock & 30% coal heavy for coal END PG 17

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
		86.00	86.20	0.20		35947		SLT	MDST	FG	MGY-BRN					50	FLOOR SAMPLE, mm-cm scale MDST laminations, MDST dominant bands up to 30cm wide, few mm-scale qtz infilling fractures x-cutting bedding	0
35		86.20	87.17	0.97				SLT	MDST	FG	MGY-BRN					50	mm-cm scale MDST laminations, MDST dominant bands up to 30cm wide, few mm-scale qtz infilling fractures x-cutting bedding	
	1.55							87.17										
		87.17	87.55	0.38				SLT	MDST	FG	DGY-BRN			30			as above	
								box 28										
35		87.55	90.22	2.67				SLT	MDST	FG	DGY-BRN						as above	
	0.33							90.22										
		90.22	90.79	0.57				SLT	MDST	FG	DGY-BRN						as above	
								box 29										
30		90.79	92.93	2.14				SLT	MDST	FG	DGY-BRN						as above, polished fracture surfaces	
		92.93	93.27	0.34				ROCK LOSS									ROCK LOSS	
	0.77							93.27										
		93.27	93.65	0.38				SLT	MDST	FG	DGY-BRN						as above END PG 18	
								box 30										
30		93.65	95.70	2.05				SLT	MDST	FG	DGY-BRN						as above increasing MDST content twds base of unit, slickenlines on some fracture surfaces, 40cm zone @ base of unit broken fractured core w/ cm scale coalified laminations, fine porous cracks in MDST-rich zones	
		95.70	96.17	0.47				MDST		VFG	DGY			15			v.few SLT laminations, fine porous cracks	
		96.17	96.32	0.15				ROCK LOSS									ROCK LOSS	
	0.32							96.32										
		96.32	96.80	0.48				MDST		VFG	DGY						as above, polished fracture surfaces w/ slickenlines	
								box 31										
		96.80	99.36	2.56				MDST		VFG	DGY			35			as above, v. few mm scale qtz veinlets, some py mineralization END PG 19	
	1.02							99.36										
		99.36	99.95	0.59				MDST		VFG	DGY						as above	
								box 32										
40		99.95	100.36	0.41				MDST		VFG	DGY						as above, few SST laminations, increasing twds base of unit, gradational contact w/ SST unit below	
20		100.36	102.21	1.85				SST		MG-CG	LGY						mm-cm scale MDST clasts, few cm scale muddy or sandy gouge bands, few mm scale qtz veinlets, some w/ vuggy cavities slickenlines on fracture surfaces	
		102.21	102.41	0.20				ROCK LOSS									ROCK LOSS	
	2.18							102.41										
		102.41	103.24	0.83				SST		M-CG	LGY						as above	
								box 33										
		103.24	105.42	2.18				SST		M-CG							as above, v. few MDST clasts	
		105.42	105.46	0.04				ROCK LOSS									ROCK LOSS END PG 20	
	2.26							105.46										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To	Drilled	True							FCD	FCA		
		105.46	106.56	1.10				SST		M-CG	LGY			as above	
							box 34								
30		106.56	108.47	1.91				SST		M-CG	LGY			as above, few mm-cm scale MDST laminations	
		108.47	108.51	0.04				ROCK LOSS						ROCK LOSS	
	2						108.51								
		108.51	109.79	1.28				SST		M-CG	LGY			as above	
							box 35								
90		109.79	111.56	1.77				SST		M-CG	LGY			as above	
1.54							111.56								
		111.56	113.06	1.50				SST		M-CG	LGY			as above	
							box 36								
		113.06	113.36	0.30				SST		M-CG	LGY			as above, fractured zone w/ many qtz veinlets infilling fractures, mm scale MDST laminations + 5cm MDST clasts END PG 21	
		113.36	114.58	1.22				MDST		VFG	DGY			few mm-cm scale SLT laminations, fine porous cracks, one 10cm SST band, polished fracture surfaces w/ slickenlines	
	0.34						114.60								
70		114.58	116.22	1.64				MDST		VFG	DGY			as above, few mm scale coalified lenses + qtz veinlets, 1cm gouge band	
							box 37								
		116.22	117.65	1.43				MDST		VFG	DGY			as above	
	0.16						117.65								
70		117.65	119.47	1.82				MDST	SLT	FG	DGY		70	mm-cm scale SLT bands	
							box 38								
		119.47	120.30	0.83				MDST		VFG	DGY			few SLT laminations (mm scale) @ top of interval, mm scale qtz veinlets, fine porous cracks, few mm scale coal laminations, grades into CARB MDST twd base END PG 22	
		120.30	120.52	0.22	35923			COAL	C4		BLK			Solid 1/2cm banding 7% of interval is irregular quartz veining, 3cm mdst parting included in sample.	62
		120.52	120.54	0.02	35923			COAL	C4		BLK			As above Coal	62
		120.54	120.60	0.06				COAL LOSS						COAL LOSS	
		120.60	120.70	0.10				ROCK LOSS						ROCK LOSS END PG 23	
	0						120.70								
		120.70	122.85	2.15				MDST	CARB	VFG	DGY		15	30 mm-cm scale coal bands throughout, mm scale qtz veinlets, some py mineralization, slickenlines on fracture surfaces, fine porous cracks	
							box 39								
		122.85	123.75	0.90				MDST	CARB	VFG	DGY			as above	
	0						123.75								
70		123.75	126.18	2.43				MDST		VFG	DGY		65	as above unit, few mm scale SLT laminations, 10cm gouge band in middle of interval, 20cm broken + fractured + gouge zone twds base of interval, cm scale py blebs, few mm scale, slickenlines on fracture surfaces	
							box 40								
		126.18	126.80	0.62				SLT	MDST	FG	BRN			mm-cm scale MDST laminations, few mm scale qtz veinlets, fine porous cracks END PG 24	
	0.6						126.80								



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		126.80	127.83	1.03				SLT	MDST	FG	BRN					as above	
65		127.83	129.40	1.57				MDST		VFG	DGY					few mm scale SLT laminations & qtz veinlets	
							box 41										
		129.40	129.84	0.44				MDST		VFG	DGY					as above one mm scale gouge band	
	0.11						129.84										
60		129.84	132.69	2.85				MDST	SLT	VFG	DGY					as above, up to cm scale SLT laminations	
							box 42										
		132.69	132.89	0.20				MDST	SLT	VFG	DGY					as above	
	0.2						132.89										
70		132.89	134.82	1.93				MDST	SLT	VFG	DGY					as above	
70		134.82	135.94	1.12				SST	MDST	MG	LGY					gradational contact btwn MDST above + SST below, mm-cm scale MDST laminations END PG 25	
	1.97						135.94										
							box 43										
60		135.94	138.36	2.42				SST		MG	LGY					some SLT, few mm- scale MDST laminations, v.few mm scale coaly laminations	
		138.36	138.99	0.63				MDST	SST	FG	MGY					mm-cm scale SST laminations, gradational contact btwn SST above and MDST below, few SLT laminations, v. few mm scale qtz veinlets	
	0.1						138.99										
		138.99	139.23	0.24				MDST	SST	FG	MGY					as above	
							box 44										
70		139.23	140.13	0.90				MDST	SLT	FG	MGY					as above, SLT laminations, dominate over SST laminations	
		140.13	141.96	1.83				MDST		VFG	DGY		60			few mm scale qtz veinlets infilling fractures, 5cm band of gouge + broken core + MDST fragments	
		141.96	142.04	0.08				ROCK LOSS								ROCK LOSS	
	0.17						142.04										
70		142.04	142.56	0.52				MDST		VFG	DGY					as above	
							box 45										
70		142.56	145.05	2.49				MDST	SLT	FG	DGY-BRN					mm-cm scale SLT laminations, mm-cm scale gouge bands, some w/ broken core, v. few mm scale qtz veinlets	
		145.05	145.08	0.03				ROCK LOSS								ROCK LOSS	
	0.34						145.08										
		145.08	145.88	0.80				MDST	SLT	FG	DGY-BRN					as above	
		145.88	146.21	0.33				ROCK LOSS								ROCK LOSS	
							box 46										
		146.21	146.90	0.69		35924		MDST	CARB	VFG	DGY					few mm scale SLT laminations, few mm scale qtz veinlets and coaly laminations END PG 27	0
		146.90	147.10	0.20	ROOF	35924		MDST	CARB	VFG	DGY					ROOF SAMPLE, As above Carb Mdst END PG 27	0
		147.10	147.40	0.30		35925		COAL	C3		BLK				Alternating dull & bright bands, wispy quartz veins throuout, very thin mdst layers throughout the interval.	60	
		147.40	147.68	0.28		35926		MDST	CARB	VFG	BLK				PARTING SAMPLE, Numerous thin coal beds, very soft, very light,	0	
		147.68	148.02	0.34		35927		COAL	C3		BLK				As above coal, except for one 4cm thick mdst parting.	60	
		148.02	148.12	0.10		35928		MDST	CARB	VFG	BLK				As above Mdst	0	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							148.13											
		148.12	148.66	0.54		35929		COAL	C3		BLK					As above coal	60	
		148.66	148.70	0.04		35929		COAL LOSS								COAL LOSS	60	
		148.70	148.84	0.14		35930		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Carb Mdst	0	
		148.84	149.30	0.46		35931		COAL	C3							As above coal, expect for one 3cm parting at the base.	60	
							BOX 46-47											
		149.30	150.35	1.05		35932		MDST		VFG	BLK	6	0			Two coal beds near top, massive with wispy quartz veins. Sharp planar contacts @ 0° BCA with both coal beds.	0	
		150.35	151.03	0.68		35933		COAL	C5		BLK					Very Muddy, very hard & heavy for coal 40-59% rock	60	
							151.18											
		151.03	151.38	0.35		35933		COAL	C5		BLK					AS above coal	60	
		151.38	152.11	0.73		35934		MDST	SLTST	VFG	BLK					PARTING SAMPLE, Interbedded Slst & Mdst, more nuddy near top and base END OF BOX 47	0	
		152.11	152.90	0.79		35934		MDST	SLTST	VFG	BLK					PARTING SAMPLE, As above Mdst	0	
		152.90	153.35	0.45		35935		MDST	CARB							PARTING SAMPLE, Very carbonaceous, with numerous thin coal beds, light for rock, and very heavy for coal. END PG 27A	0	
		153.35	153.95	0.60		35935		MDST	SLTST	VFG-ME	FY-BLK					As above MDST/SLST	0	
		153.95	154.19	0.24		35937		COAL	C5							Very hard, 1/2 cleats, pyrite beds @ base, last 2cm are MDST	60	
		154.19	154.22	0.03		35937		COAL LOSS								COAL LOSS pg 28, 29, 30, were taken out, and 27A & 27B Inserted during sampling. END PG 27B	60	
	0.72						154.23											
		154.22	154.42	0.20		35938		MDST	CARB	VFG	DGY					FLOOF SAMPLE, few mm scale coalified laminations	0	
		154.42	154.61	0.19				MDST	CARB	VFG	DGY					few mm scale coalified laminations		
		154.61	155.44	0.83				SHC LOSS								SHC LOSS		
		155.44	155.53	0.09				COAL								w/ quartz cm scale MDST parting w/ py mineralization, bright coal in lwr half of interval		
		155.53	156.27	0.74				MDST	CARB	VFG	DGY					mm-cm scale bands of coal, cm scale bands of py @ top of interval, mm scale quartz veinlets w/ vuggy cavities		
							box 49											
		156.27	157.28	1.01				MDST	SLT	FG	DGY-BRN					cm scale SLT bands, v. few, mm scale qtz veinlets, few mm scale coalified laminations CARB MDST @ top of interval (20cm)		
	1.03						157.28											
		157.28	158.88	1.60				MDST	CARB	VFG	DGY					few mm cm scale coalified lenses END PG 31		
							box 50											
60		158.88	160.32	1.44				MDST		VFG	DGY					as above, few mm-cm scale SLT laminations		
	2.12						160.32											
60		160.32	161.05	0.73				MDST	SLT	FG	DGY	60				few mm-cm scale SLT laminations		
		161.05	162.21	1.16				SLT	MDST	FG	DGY-BRN					mm-cm scale MDST laminations, few SST laminations @ base of interval, few MDST lenses		
							box 51											
65		162.21	163.37	1.16				SST		FG	LGY					v.few mm-cm scale MDST laminations + mm scale qtz veinlets		
	1.81						163.37											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
65		163.37	164.94	1.57				SST		F-MG	LGY					as above, few cm scale gouge bands, many cm scale MDST clasts (rip up clasts) in lower 30cm of interval	
70		164.94	165.42	0.48				SST	MDST	MG	MGY					cm scale MDST laminations throughtout	
							box 52										
70		165.42	166.42	1.00				SLT	MDST	FG	MGY-BRN					cm scale MDST lamiantions throughout, few MDST lenses, irregular beds	
	1.86						166.42										
65		166.42	168.63	2.21				MDST	SLT	FG	DGY					mm-cm scale SLT laminations, folded/wavy beds, fold hinge in bed or lower interval	
15							box 53										
15		168.63	169.41	0.78				MDST	SLT	FG	DGY					as above, fold hinge/closure in bedding, few mm-scale qtz veinlets w/ parasitic folds (veinlets follow bedding) END PG 33	
	0						169.42										
		169.41	169.90	0.49				MDST	SLT	FG	DGY					As above	
		169.90	170.10	0.20		35948		MDST	SLT	FG	DGY					ROOF SAMPLE, as above	0
		170.10	171.12	1.02		35949		COAL	C4		BLK					Stoney/boney in places, hard, most of the chunks have been sheared. Three partings included in the interval: two partings are 4 cm thick, anf the third is 7cm thick.	55
		171.12	171.60	0.48		35950		MDST		VFG	BLK-GY	3	70			Massive, irregular quartz veins	0
		171.60	171.75	0.15		40551		COAL	C4							Part of above description	55
							box 54										
		171.75	172.27	0.52		40551		COAL								Part of above description	55
		172.37	172.52	0.15		40551		COAL	C4							Part of above description	55
	0.28						172.52										
		172.52	173.02	0.50		40552		MDST		VFG	BLK-GY					As above Mdst	0
		173.02	173.20	0.18		40553		COAL	C6							As above Coal	55
		173.20	173.32	0.12		40553		COAL LOSS								COAL LOSS END PG 34	55
		173.32	173.52	0.20		40554		MDST		VFG	DGY					FLOOR SAMPLE, few mm-cm scale FG SST bands, few mm-scale quartz veinlets infilling fractures, slickenlines on fracture surfaces	0
		173.52	174.54	1.02				MDST		VFG	DGY					few mm-cm scale FG SST bands, few mm-scale quartz veinlets infilling fractures, slickenlines on fracture surfaces	
							box 55										
		174.54	175.54	1.00				MDST		VFG	DGY					as above, 3cm brecciated band of MDST clasts in qtz matrix	
		175.54	175.56	0.02				ROCK LOSS								ROCK LOSS	
	1.91						175.56										
		175.56	176.69	1.13				MDST		VFG	DGY					as above, (no breccia band) few mm scale coalified lenses	
75		176.69	177.83	1.14				SST		MG	LGY					v. few mm-scale MDST bands, few mm-scale qtz veinlets, fold closure in qtz veinlets	
							box 56										
		177.83	178.61	0.78				SST		MG	LGY					as above, v/ few cm scale MDST clasts	
	1.88						178.61										
		178.61	181.22	2.61				SST		MG	LGY	4	30			as above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To	Drilled	True							FCD	FCA		
							box 57								
		181.22	181.52	0.30				SST		MG	LGY			as above	
		181.52	181.66	0.14				ROCK LOSS						ROCK LOSS	
	2.07						181.66								
		181.66	182.00	0.34				SST		MG	LGY			as above, cm scale MDST bands, broken cm scale gouge bands throughout	
80		182.00	184.71	2.71				MDST	SLT	VFG	DGY		80	mm-cm scale SLT laminations, few SST bands, v/ few mm scale qtz veinlets infilling fractures + dolomite	
							box 58								
	1.97						184.71								
80		184.71	187.76	3.05				MDST	SLT	VFG	DGY			as above, polished fracture surfaces	
	2.56						187.76								
		187.76	187.97	0.21				MDST	SLT	VFG	DGY			as above END PG 36	
							box 59								
80		187.97	190.80	2.83				MDST	SLT	VFG	DGY			as above, parasitic folds in qtz veinlet	
	1.4						190.80								
		190.80	191.36	0.56				MDST	SLT	VFG	DGY			as above	
							box 60								
80		191.36	193.75	2.39				MDST	SLT	VFG	DGY			as above	
		193.75	193.85	0.10				ROCK LOSS						ROCK LOSS	
	0.92						193.85								
		193.85	194.04	0.19				ROCK LOSS						ROCK LOSS	
80		194.04	194.76	0.72				MDST	SLT	VFG	DGY			as above	
							box 61								
		194.76	194.96	0.20		40555		MDST	CARB	VFG	DGY			ROOF SAMPLE, few mm scale SLT laminations	0
														Solid core, first 20cm are hard with a "graphite type " texture, Mdst bands all over whole interval. Pnc 8 cm thick parting, positioned 18 cm from top of coal.	54
		194.96	195.07	0.11		40556		COAL	C4		BLK				54
		195.07	195.36	0.29		40556		COAL LOSS						COAL LOSS	54
		195.36	195.44	0.08		40557		MDST						PARTING SAMPLE, Broken chunks of Mdst	0
		195.44	196.00	0.56		40558		COAL						As above Coal END PG 37	54
														FLOOR SAMPLE, mm-cm scale coal bands w/ qtz, mm-cm scale qtz veinlets infilling fractures, few SLT + SST laminations, 15cm SST band polished fracture surfaces	0
		196.00	196.20	0.20		50559		MDST	CARB	VFG	DGY				
		196.00	196.90	0.90				MDST	CARB	VFG	DGY			mm-cm scale coal bands w/ qtz, mm-cm scale qtz veinlets infilling fractures, few SLT + SST laminations, 15cm SST band polished fracture surfaces	
	0.43						196.90								
		196.90	197.94	1.04				MDST	CARB	VFG	DGY			as above, cm scale gouge bands, one 16cm coaly band w/ mm scale MDST laminations w/ a lot of qtz assoc. w/ coal	
							box 62								
40		197.94	199.79	1.85				MDST	CARB	VFG	DGY			as above, 10cm SLT dominant band, 12cm band of qtz w/ brecciated MDST few cm scale bands of qtz + breccia wavy coal laminations	
		199.79	199.95	0.16				ROCK LOSS						ROCK LOSS	
	0.39						199.95								
		199.95	201.31	1.36				MDST	CARB	VFG	DGY			as above	
							box 63								
		201.31	203.00	1.69				MDST	CARB	VFG	DGY			as above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.34						203.00											
		203.00	203.57	0.57				MDST	CARB	VFG	DGY							as above
80		203.57	204.39	0.82				SST	MDST	MG	MGY							few mm scale qtz veinlets, mm-cm scale MDST laminations, some up to 15cm MDST dominant bands, qtz veinlets infilling fractures
							box 64											
90		204.39	206.04	1.65				SST	MDST	MG	MGY							as above, few mm scale coaly laminations
	1.55						206.04											
90		206.04	206.63	0.59				SST	MDST	MG	MGY							as above
90		206.63	207.64	1.01				SST		MG	LGY							few mm scale MDST laminations + qtz veinlets one 5cm MDST clasts (rectangular) @ top of interval, 5cm gouge zone @ base of interval END PG 39
							box 65											
		207.64	209.01	1.37				SST		MG	LGY		0					as above, 25cm qtz band @ top of interval (w/ dolomite) 20cm qtz + dolomite band in lowr 1/2 of interval, cm-10cm scale MDST clasts @ base of interval
		209.01	209.09	0.08				ROCK LOSS										ROCK LOSS
	0.99						209.09											
		209.09	211.04	1.95				SST		MG	LGY		0					as above, cm scale gouge bands, cm scale qtz + dolomite veinlets, few MDST clasts
							box 66											
75		211.04	212.14	1.10				SST		MG	LGY		20					as above
	1.75						212.14											
		212.14	212.78	0.64				SST		MG	LGY							as above, cm scale MDST clasts @ base of unit
75		212.78	214.33	1.55				MDST	SST	FG	DGY							mm-cm scale SST laminations throughout, few mm scale qtz veinlets along bedding, and few SLT laminations END PG 40
65							box 67											
75		214.33	215.19	0.86				MDST	SST	FG	DGY							as above
	1.43						215.19											
75		215.19	217.67	2.48				MDST	SST	FG	DGY							as above
		217.67	218.24	0.57				MDST	SST	FG	DGY							as above
	1.19						218.24											
75		218.24	220.92	2.68				MDST	SST	FG	DGY							as above, up to cm scale qtz + dolomite w/ vuggy cavities infilling fractures
							box 69											
		220.92	221.28	0.36				MDST	SST	FG	DGY							as above, cm scale (no qtz + dolomite)
	0						221.28											
		221.28	221.94	0.66				MDST	ST	FG	DGY							as above, CARB MDST @ base of unit w/ py mineralization, polished fracture surfaces
70		221.94	222.14	0.20		40560		MDST	ST	FG	DGY							ROOF SAMPLE, as above, CARB MDST @ base of unit w/ py mineralization, polished fracture surfaces END PG 41
		222.14	222.26	0.12		40561		COAL	C4									Solid, iregular quartz veins muddy, a little heavy for coal
		222.26	222.53	0.27		40562		MDST	CARB	VFG	BLK							PARTING SAMPLE, lower contact with coal @ 52° BCA, masssive, coal beds soft.



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		222.53	222.70	0.17		40563		COAL	C4							Light 1/2cm laminations (not cleats) "shiny graphite type" texture, vitranite chunks/shearing on about 1/2 of the chunks.	50
		222.70	223.70	1.00		40564		COAL	C4							As above coal	50
		223.70	224.00	0.30		40565		MDST	CARB	VFG	BLK					FLOOR SAMPLE, As above Mdst	0
		224.00	224.04	0.04		40566		SHC	C6							Small stringer, under main seam, sheared into thin disk like chunks	0
							BOX 70										
		224.04	224.24	0.20				MDST	CARB	VFG	BLK					As above Mdst	
							224.33										
		224.24	224.38	0.14		40567		COAL	C5							Small stringer, under main seam, boney muddy, hard & heavy for coal, irregular quartz veining	50
		224.38	224.48	0.10				MDST	CARB							END PG 42, As below, MDST	
80		224.48	227.01	2.53				MDST	SLT	FG	DGY					mm-cm scale SLT laminations increasing SLT content w/ depth, (gradational) few cm scale MDST clasts in SLT near base of interval, few mm scale qtz veinlets, slickenlines on fracture surfaces	
							box 71										
		227.01	227.06	0.05				ROCK LOSS								ROCK LOSS	
		227.06	227.38	0.32				SST		MG	LGY					few cm scale MDST clasts + bands	
	1.68						227.38										
		227.38	227.79	0.41				SST		MG	LGY					as above, cm scale qtz veinlet w/ possible fold closure	
		227.79	227.92	0.13				COAL			BLK					bright w/ dull bands many qtz veinlets (mm scale)	
		227.92	229.52	1.60				MDST	CARB	VFG	DGY					many mm-cm scale coaly laminations, one 8cm coal band w/ qtz, some py mineralization, cm scale brecciated area w/ qtz, few cm scale SST bands twd base of interval END PG 43	
75		229.52	230.34	0.82				SST		MG	LGY					few mm scale MDST laminations, few cm scale bands + MDST @ base of interval, few cm scale qtz infilling fractures + sheared/polished fracture surfaces	
		230.34	230.43	0.09				ROCK LOSS								ROCK LOSS	
	1.03						230.43										
							box 72										
75		230.43	231.20	0.77				SST		MG	LGY					as above	
		231.20	231.32	0.12				ROCK LOSS								ROCK LOSS	
70		231.32	233.48	2.16				MDST		VFG	DGY			65		few 20cm scale CARB MDST bands, few mm-cm scale coaly laminations, few mm scale qtz veinlets + qtz assoc. w/ coal bands, 5cm band of angular MDST clasts in qtz + dolomite matrix	
	0.37						233.48										
		233.48	233.81	0.33				MDST		VFG	DGY					as above unit (MDST w/ few qtz veinlets) END PG 44	
							BOX 73										
		233.81	235.60	1.79				MDST		VFG	DGY					as above, slickenlines on some fracture surfaces	
		235.60	236.26	0.66				COAL	MDST	VFG	DGY					"shaley coal" v. qtz rich, sheared, crumbly gouge in lower half of interval	
		236.26	236.52	0.26				MDST		VFG	DGY					few mm scale SLT laminations, polished fracture surfaces w/ slickenlines, mm-cm scale qtz veinlets infilling fractures	
	0						236.52										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		236.52	236.79	0.27				MDST		VFG	DGY					as above	
							box 74										
65		236.79	239.57	2.78				MDST		VFG	DGY					as above + up to 5cm scale gouge bands, mm-cm scale coaly and qtz laminations, vuggy cavities in qtz veinlets END PG 45	
	0						239.57										
		239.57	239.90	0.33				MDST		VFG	DGY					as above	
							box 75										
		239.90	242.62	2.72				MDST		VFG	DGY					as above, coaly + qtz band up to 5cm	
	0.23						242.62										
		242.62	243.21	0.59				MDST		VFG	DGY					as above	
							box 76										
		243.21	244.03	0.82				MDST		VFG	DGY					as above	
65		244.03	245.67	1.64				SST	MDST	MG	MGY		40qtz			mm-cm scale MDST bands, few mm scale qtz veinlets, one cm scale qtz veinlet, fold closure in SST beds, near middle of interval	
50																	
	0						245.67										
		245.67	246.38	0.71				MDST		VFG	DGY					mm scale qtz veinlets infilling fractures, v/ broken, cm scale gouge band	
							box 77										
65		246.38	248.72	2.34				MDST		VFG	DGY					up to 30cm scale CARB MDST bands, v. fine qtz veinlets, fold closure @ top of interval, few mm-cm scale coaly laminations, w/ qtz, 21cm coaly band, folded laminations and some py mineralization	
	0.66						248.72										
70		248.72	249.68	0.96				MDST		VFG	DGY					as above, fewer coaly bands	
							box 78										
60		249.68	250.12	0.44				MDST		VFG	DGY					mm-scale qtz veinlets, few mm cm scale SLT bands, qtz infilling fractures	
70		250.12	251.76	1.64				SST	MDST	MG	MGY					mm-cm scale MDST laminations, few SLT laminations, mm-cm scale qtz infilling fractures, some vuggy cavities in qtz	
	0.16						251.76										
		251.76	251.99	0.23				SST	MDST	MG	MGY					as above	
		251.99	252.82	0.83				MDST		VFG	DGY		cm spacing	60		v. few mm-scale SLT laminations, few mm-scale qtz infilling fractures, fine porous cracks	
							box 79										
		252.82	253.73	0.91				MDST		VFG	DGY					as above, polished fracture surfaces w/ slickenlines	
		253.73	253.93	0.20		40568		MDST		VFG	DGY					ROOF SAMPLE, as above, polished fracture surfaces w/ slickenlines	0
		253.93	254.60	0.67		40569		COAL	C4		BLK				Several thin mdst partings (all less than 1 cm thick), clean seam no quartz of pyrite.	45	
	0.18						254.81										
		254.60	255.52	0.92		40570		COAL	C4		BLK				As above coal, but lower contact is crushed broken, mush of coal & mdst, hard for coal	45	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		255.52	255.72	0.20		40571		MDST	CARB	VFG	DGY-BLK					FLOOR SAMPLE, cm scale coaly bands w/ qtz soft, sheared MDST come py mineralization	0
		255.72	255.90	0.18				MDST	CARB	VFG	DGY-BLK					cm scale coaly bands w/ qtz soft, sheared MDST come py mineralization	
							box 80										
70		255.90	257.86	1.96				MDST	SLT	FG	DGY					mm-cm scale SLT laminations, few cm scale coaly + qtz bands, cm scale gouge bands, 50cm zone in middle of interval, throughly broken, gouge, crecciated, zone w/ SLT fragments in qtz	
	0.19						257.86										
40		257.86	259.16	1.30				MDST	SLT	FG	DGY			40		same unit as above, (no gouge or becciated zones in this interval) fractures follow bedding	
30														30			
							box 81										
50		259.16	260.27	1.11				SST	MDST	MG	MGY					mm-cm scale MDST laminations, few mm-scale qtz veinlets, following bedding polished fracture surfaces	
																END PG 49	
		260.27	260.83	0.56				SST		CG	LGY					few mm-cm scale MDST laminations + clasts, few cm scale qtz + dolomite veinlets	
		260.83	260.87	0.04				MDST	SLT	VFG	DGY						
		260.87	260.91	0.04				ROCK LOSS								ROCK LOSS	
	0.24						260.91										
45		260.91	262.40	1.49				MDST	SLT	VFG	DGY					mm-cm scale SLT laminations, few mm-cm scale qtz veinlets, 15cm zone of irregular bedding near base of interval	
							box 82										
		262.40	263.96	1.56				MDST	SLT	VFG	DGY					as above	
	0.26						263.96										
25		263.96	265.65	1.69				SLT	MDST	FG	DGY-BRN					mm-cm scale MDST laminations, few mm scale qtz veinlets, some fracture filling, some follow beding polished fracture surfaces END PG 50	
40																	
30		265.65	266.46	0.81				SLT	MDST	FG	DGY-BRN					as above	
		266.46	267.00	0.54				MDST	SST	VFG	DGY					cm scale SST bands, mm scale qtz infilling fractures	
	0.44						267.00										
		267.00	267.63	0.63				SST	MDST	MG	LGY					mm-cm scale MDST laminations, few cm scale MDSt clasts, cm scale qtz veinlets	
80		267.63	268.89	1.26				MDST		VFG	DGY					few mm scale SLT laminations, one 5cm SST band, mm-cm scale qtz infilling fractures	
							box 84										
		268.89	270.00	1.11				MDST		VFG	DGY					as above, some brecciation in qtz, 20cm SLT dominant band @ base of interval	
		270.00	270.05	0.05				ROCK LOSS								ROCK LOSS	
	0						270.05										
		270.05	271.10	1.05				MDST		VFG	DGY					as above, cm scale gouge bands, moderately broken END PG 51	
		271.10	271.76	0.66				SST		MG	LGY					few mm-cm scale MDST laminations, moderately broken, cm scale qtz infilling fractures, w/ some brecciation, few mm scale MDST clasts, polished fracture surfaces	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		271.76	271.84	0.08				ROCK LOSS								ROCK LOSS	
		271.84	272.06	0.22				MDST		VFG	DGY					v. few SLT laminations, (mm scale) mm scale qtz infilling fractures, cm scale gouge band	
							box 85										
		272.06	273.10	1.04				MDST		VFG	DGY					as above, 20cm band of SST + qtz + angular MDST clasts	
	0.58						273.10										
		273.10	273.69	0.59				SST		VCG	MGY					polished fracture surfaces, mm scale qtz veinlets + infilling fractures, 15cm granule CNHL band, some vuggy cavities in qtz END PG 52	
		273.69	274.61	0.92				SLT	MDST	FG	BRN					mm-cm scale MDST laminations, 10cm gouge band @ top of interval, cm scale qtz veinlets	
		274.61	275.31	0.70				MDST		VFG	DGY					v. few mm scale qtz veinlets, fine porous cracks	
							box 86										
		275.31	276.15	0.84				MDST		VFG	DGY					few mm scale qtz veinlets, few mm scale SLT laminations, few polished fracture surfaces	
	0						276.15										
		276.15	278.29	2.14				MDST		VFG	DGY					as above, gouge + broken core, brecciated qtz, wavy bedding, few mm scale coaly laminations	
							box 87										
		278.29	279.15	0.86				MDST		VFG	DGY					as above	
		279.15	279.20	0.05				ROCK LOSS								ROCK LOSS	
	0.22						279.20										
85		279.15	281.54	2.39				MDST		VFG	DGY					as above, lower part of interval not as broken + has regular bedding, few SLT laminations END PG 53	
							box 88									END PG 53	
		281.54	281.64	0.10				ROCK LOSS								ROCK LOSS	
		281.64	282.17	0.53				MDST		VFG	DGY					as above	
	0.32						282.24										
		282.17	282.37	0.20	40572			MDST		VFG	DGY					ROOF SAMPLE, as above	0
		282.37	282.64	0.27	40573			COAL	C6		BLK				SHC, more rock than coal, 70%rock & 30%coal	40	
		282.64	282.96	0.32	40574			MDST							PARTING SAMPLE, as above Mdst	0	
		282.96	283.12	0.16	40575			COAL	C6						As above SHC	40	
		283.12	283.36	0.24	40576			MDST							FLOOR SAMPLE, as above Mdst END PG 54	0	
		283.36	283.71	0.35				MDST	CARB	VFG	DGY				few mm scale qtz infilling fractures, 5cm py bleb rich band		
		283.71	283.84	0.13				ROCK LOSS							ROCK LOSS		
80		283.84	284.89	1.05				SLT	MDST	FG	DGY-BRN				mm-cm scale MDST laminations throughout, cm scale qtz infilling fractures, cm scale gouge bands some brecciations in qtz		
		284.89	284.99	0.10				ROCK LOSS							ROCK LOSS		
							box 89										
		284.99	285.10	0.11				MDST	CARB	VFG	DGY				mm scale coaly bands w/ qtz		
		285.10	285.59	0.49				SST		MG	LGY				mm scale qtz veinlets infilling fractures, few mm scale MDST clasts, cm scale gouge band vuggy cavities in qtz		
	1.51						285.59										
65		285.59	286.47	0.88				SST		MG	LGY				as above		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
60		286.47	287.35	0.88				MDST	SLT	FG	DGY					mm cm scale SLT laminations, mm scale coaly laminations, and qtz veinlets infilling fractures END PG 55	
		287.35	287.96	0.61				SST		CG	LGY					few mm cm scale MDST clasts	
							box 90										
		287.96	288.11	0.15				SST		CG	LGY					as above	
		288.11	288.34	0.23				SST		FG	LGY					few mm scale MDST laminations, 6cm coal + qtz band	
	0.54						288.34										
65		288.34	289.99	1.65				SST		FG	LGY					as above ( no coal + qtz)	
		289.99	291.09	1.10				MDST	SLT	VFG	DGY					mm-cm scale SLT laminations, few mm scale qtz veinlets 9cm coal band @ base of interval	
							box 91										
		291.09	291.39	0.30				MDST	SLT	VFG	DGY					as above, cm scale coal bands	
	0.53						291.39										
		291.39	293.20	1.81				MDST	SLT	VFG	DGY		60			as above	
75		293.20	293.40	0.20		40577		MDST	SLT	VFG	DGY		60			ROOF SAMPLE, as above Mdst, END PG 56	0
		293.40	294.03	0.63		40578		COAL	C4		BLK					One 4xm thick Mdst Parting, One 2cm thick parting, Solid core, 1/2cm cleating, light	40
		294.03	294.18	0.15		40579		MDST		VFG	BLK					PARTING SAMPLE, massive, coal beds, coal spars	0
		294.18	294.64	0.46		40580		COAL	C4							As above Coal, with 4cm & 5cm partings. Becoming muddy towards base.	40
							box 92										
	0.11						294.44										
		294.64	294.88	0.24		40580		COAL	C4		BLK					Part of above coal interval	40
		294.88	295.08	0.20		40581		ROCK LOSS								ROCK LOSS	0
		295.08	295.90	0.82		40581		MDST		VFG	BLK					PARTING SAMPLE, as above Mdst	0
		295.90	295.94	0.04		40582		COAL LOSS								COAL LOSS	40
		295.94	296.59	0.65		40582		COAL	C4		BLK					As above Coal, END PG 57	40
		296.59	296.79	0.20		40583		MDST		VFG	DGY	mm spacing ~90				fine porous cracks	0
		296.79	297.25	0.46				MDST		VFG	DGY	mm spacing ~90				fine porous cracks	
		297.25	297.48	0.23				ROCK LOSS								ROCK LOSS	
	0.61						297.48										
		297.48	297.71	0.23				MDST		VFG	DGY					as above, few mm scale coaly laminations	
							box 93										
		297.71	298.81	1.10				MDST		VFG	DGY					as above, 5cm coal band	
85		298.81	299.89	1.08				SLT	MDST	FG	DGY-BRN					mm-cm scale MDST laminations	
		299.89	300.53	0.64				MDST		VFG	DGY					few cm scale coaly laminations, v. few SLT lenses	
	2.4						300.53										
		300.53	300.93	0.40				MDST		VFG	DGY					few mm-cm scale SLT laminations	
							box 94										
		300.93	301.21	0.28				MDST		VFG	DGY					as above END PG 58	
75		301.21	303.58	2.37				SST		CG	LGY					v. few mm scale MDST laminations + clasts	
	2.1						303.58										
		303.58	304.33	0.75				SST		CG	LGY					as above	
							box 95										
		304.33	304.95	0.62				SST		CG	LGY					as above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70		304.95	306.60	1.65				SLT	MDST	FG	DGY					mm-cm scale MDST laminations	
	2.76					306.63											
70		306.60	307.52	0.92				SLT	MDST	FG	DGY					as above	
						box 96											
70		307.52	309.68	2.16				SLT	MDST	FG	DGY					as above END OF HOLE 309.68m END OF PG 59	

**Cover Sheet**

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-05
Drilling Start Date	25-Sep-12
Drilling Finish Date	28-Sep-12
Confirmed Easting	540607.5956
Confirmed Northing	6307374.8746
Elevation	1151.1289
Azimuth	
Dip	-90
Depth	333.75
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	540609
PreCollar Northing	6307372
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	RP
Lith and Geotech Logging Dates	2-Oct-12
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
		0.00	6.10	6.10			6.1										casing	
							box 1											
		6.10	7.96	1.86				SST		MG	LGY						mod broken, gouge mm-cm scale MDST laminations, few MDST clasts cm-scale	
	1.27						7.62											
		7.96	8.50	0.54				SST		MG	LGY						as above, 10cm band of MDST @ the end of box	
							box 2											
		8.50	9.23	0.73				SST	MDST	FG	DGY						mm scale MDST laminations	
		9.23	10.67	1.44				MDST		VFG	DGY						mm-cm scale SST laminations, very fine porous cracks gouge, 2 main joints: i) 70° ii) 30°	
	2.12						10.67											
70		10.67	11.62	0.95				MDST		VFG	DGY						as above	
							box 3											
		11.62	12.25	0.63				MDST		VFG	DGY						as above, and above gouge	
		12.25	13.85	1.60				SST		MG-CG	LGY						mm-cm scale MDST clast that have elongated shape, few qtz infilled fractures END PG 1	
	2.56						13.72											
		13.85	14.95	1.10				SST		MG-CG	LGY						as above and gouge, 6cm broken zone, few qtz infilled fractures	
							box 4											
60		14.95	16.76	1.81				SST		MG	LGY						few mm-scale MDST laminations, fractions long 60°	
	1.98						16.76											
		16.76	18.15	1.39				SST		MG	LGY						as above	
		18.15	19.81	1.66				ROCK LOSS									ROCK LOSS	
							19.81											
							box 5											
		19.81	20.91	1.10				SST		MG	LGY						as above, few low angle fractures, few cm scale MDST clasts	
							box 6											
		20.91	22.34	1.43				SST		MG	LGY						same as above, low angle (almost zero) fracture	
		22.34	22.86	0.52														
	1.84						22.86											
		22.86	24.13	1.27				SST		MG-CG	LGY		65				cm scale clasts of MDST	
70		24.13	24.72	0.59				MDST		VFG	DGY		70				cm scale qtz, infilled fracture, mm-cm scale silty laminations, v. fine porous cracks END PG 2	
		24.72	24.83	0.11				ROCK LOSS									ROCK LOSS	
							box 7											
		24.83	25.91	1.08				MDST	SST	VFG	DGY		50				v. fine porous cracks, mm-cm scale sandy laminations, qtz infilled fractures, 5cm zone of broken case, possible hinge zone @ approx. 25m	
	1.38						25.91											
		25.91	27.66	1.75				MDST	SST	VFG	DGY						v. fine porous cracks, some silt + sand mixed, qtz infilled fractures, gouge	
		27.66	27.88	0.22				ROCK LOSS									ROCK LOSS	
							box 8											
		27.88	28.68	0.80				SST	MDST	FG	MGY						remnants of clasts mm scale, some porous fractures, few mm-cm scale laminations of MDST	
		28.68	28.96	0.28				MDST		VFG	DGY		60				v/ fine porous cracks, some qtz lenses, some coalified lenses	
							28.96											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70		28.96	30.78	1.82				MDST	SST	VFG	DGY-BRN					qtz infilled fractures w/ some porous folds, mm-cm scale SST laminations, coalified lenses, sand coarsening twds the btm of interval	
							box 9										
		30.78	31.43	0.65				SST		MG	BRN-LGY		60			mm-cm scale MDST clasts, mm scale MDST laminations, light grey brownish END PG 3	
		31.43	32.00	0.57				MDST		VFG	DGY					v. fine porous fractures, mm-cm scale laminations of SST	
	2.20						32.00										
68		32.00	33.95	1.95			box 10	SST	MDST	MG	LBGY-DGY		70			mm to cm scale MDST laminations, mm-cm scale MDST clasts, coalified lenses, MDST layers have fine porous cracks	
		33.95	34.00	0.05				ROCK LOSS								ROCK LOSS	
		34.00	35.10	1.10				SST	VFG	DGY		70		30		mm-to scale SST laminations, some fractures have qtz + slickenlines, coalified lenses, wavy silty laminations, 2 joint sets	
	1.26						35.05										
		35.10	35.30	0.20		40607		MDST	SST	VFG	DGY					ROOF SAMPLE, qtz infilled fractures, gouge, silty laminations, mod-strongly broken possible fault zone 35-35.5m	0
		35.30	35.70	0.40		40608		COAL								Coal	99
		35.70	35.75	0.05				COAL LOSS								COAL LOSS	
		35.75	35.95	0.20		40609		MDST		VFG	DGY					FLOOR SAMPLE, v. fine porous cracks, coalified lenses, some siliatified plant material just at top of interval	0
		35.95	36.63	0.68				MDST		VFG	DGY					v. fine porous cracks, coalified lenses, some siliatified plant material just at top of interval	
							box 11										
		36.63	36.87	0.24				ROCK LOSS								ROCK LOSS	
		36.87	37.62	0.75				MDST		VFG	DGY		70		20	same as above	
		37.62	38.14	0.52				SST		MG	LGY					mm-cm scale MDST laminations END PG 4	
	1.05						38.10										
		38.14	38.55	0.41				SST	MDST	MG	LGY					same as above	
70		38.55	39.82	1.27				MDST		VFG	DGY		70		25	mm-cm scale coal bands, qtz lenses, coalified lenses, coal bands have py, v. fine porous cracks	
							box 12										
		39.82	40.02	0.20				MDST		VFG	DGY					v. fine porous cracks, coalified lenses	
		40.02	40.22	0.20		40596		MDST		VFG	DGY					ROOF SAMPLE, v. fine porous cracks, coalified lenses	0
		40.22	40.41	0.19		40597		COAL	C6		BLK					SHC! 60% rock & 40% coal, coal beds hard and heavy, numerous quartz veins all over.	99
		40.41	40.65	0.24		40597		COAL LOSS								COAL LOSS	99
		40.65	40.77	0.12		40598		MDST		VFG	BLK					PARTING SAMPLE,	0
		40.77	40.92	0.15		40599		COAL	C6		BLK					As above SHC	99
		40.92	41.12	0.20		40600		MDST		VFG	DGY					FLOOR SAMPLE, qtz infilled fractures, v. fine porous cracks, coalified lenses	0
		41.12	41.37	0.25				MDST		VFG	DGY					qtz infilled fractures, v. fine porous cracks, coalified lenses	
	1.21						41.15										
		41.37	43.25	1.88				MDST		VFG	DGY					mm-cm scale coal bands, fractures infilled w/ qtz and coal, v. fine porous cracks, some coalified plant material	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							box 13										
		43.25	44.20	0.95				MDST		VFG	DGY					same as above, slickenlines	
	1.05						44.20										
		44.20	45.55	1.35				MDST	SST	VFG	DGY					v. fine porous cracks, wavy silty lenses, weathered fractured surfaces	
							box 14										
		45.55	45.95	0.40				SST	MDST	FG	MGY					mm scale MDST laminations	
		45.95	46.56	0.61				SST		FG-MG	LGY					mm-cm clasts of MDST, 20cm broken zone, small gouge	
		46.56	47.24	0.68				ROCK LOSS								ROCK LOSS	
	1.52						47.24										
70		47.24	49.11	1.87				SST	MDST	MG	MGY		70		10	silty sandy laminations, MDST layers are porous w/ fine scale fractures, some low angle ~10° fractures	
							box 15										
		49.11	50.19	1.08				MDST		VFG	DGY		90			mm scale sandy laminations, fractured surfaces have qtz and some clay minerals, irregularly shaped silty veinlets, 20cm mod. Broken zone	
	1.24						50.29										
		50.19	52.11	1.92				SST	MDST	FG	MGY					v. fine porous cracks, mm scale MDST laminations END PG 6	
							box 16										
		52.11	53.13	1.02				SST	MDST	FG	LGY		70		20	low angle qtz infilled fracture, mm-cm scale MDST laminations, has some silt, coaly lenses (few)	
		53.13	53.34	0.21				ROCK LOSS								ROCK LOSS	
	2.27						53.34										
		53.34	55.29	1.95				SST	MDST	MG	LGY					mm-cm scale MDST laminations, 10cm of really crumbly MDST, gouge, few coaly lenses	
							box 17										
		55.29	56.39	1.10				SST	MDST	MG	LGY		75		20	as above, qtz infilled fractures (low angle)	
	1.90						56.39										
80		56.39	58.34	1.95				SST	MDST	MG	LGY		80		20	5-10cm MDST layers, as above	
							box 18										
80		58.34	59.44	1.10				SST	MDST	MG	LGY					few parasitic folds in qtz vein, mm to cm scale MDST laminations	
	1.58						59.44										
80		59.44	60.84	1.40				SST	MDST	MG	LGY					as above, gradational contact w/ MDST, get more muddy @ btm	
		60.84	61.04	0.20		40601		SST	MDST	MG	LGY					ROOF SAMPLE, as above, gradational contact w/ MDST, get more muddy @ btm END PG 7	0
		61.04	61.34	0.30		40602		COAL	C3							Light/clean coal, 1/2cm bed thickness, some blocky cleavage, shiny sheen	85
							box 19										
		61.34	61.65	0.31		40602		COAL	C3		BLK					As above Coal	85
		61.65	62.45	0.80		40602		COAL LOSS								COAL LOSS	85
	1.05						62.48										
		62.45	62.75	0.30		40603		MDST		VFG	DGY					mod.- strongly broken, low angle joint or fractures but cannot get a reading, v. fine porous cracks, coaly lenses	0
		62.75	63.96	1.21		40604		MDST		VFG	DGY		70		10	10cm band of coal, as above	0
		63.96	64.06	0.10		40605		COAL	C5		BLK					As above coal, but with a higher percentage Mdst	85
		64.06	64.40	0.34				COAL LOSS								COAL LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		64.40	64.60	0.20		40606		MDST		VFG	DGY		70		10	ROOF SAMPLE, as above Mdst	0
		64.60	65.04	0.44				MDST		VFG	DGY		70		10	As above Mdst	
							box 20										
		65.04	65.40	0.36				MDST		VFG	DGY					as above	
		65.40	65.53	0.13				ROCK LOSS								ROCK LOSS	
	1.48						65.53										
		65.53	65.92	0.39				MDST		VFG	DGY					as above	
90		65.92	67.40	1.48				SST	MDST	FG	MGY		90		5	mm to cm scale MDST laminations, cm scale, coal bands cm scale END PG 8	
75		67.40	68.37	0.97				SST		MG	LGY		75			few mm to cm scale laminations, coaly lenses	
							box 21										
		68.37	68.58	0.21				SST		MG	LGY					as above	
	2.25						68.58										
		68.58	71.03	2.45				SST		MG	LGY					as above, few clasts of MDST	
		71.03	71.63	0.60				MDST		VFG	DGY					fine porous cracks, few silty laminations	
							box 22										
	1.70						71.63										
		71.63	71.88	0.25				ROCK LOSS									
		71.88	72.13	0.25				MDST		VFG	DGY					as above	
		72.13	72.71	0.58				SST	MDST	FG	MGY					fine porous cracks	
		72.71	73.26	0.55				MDST	SST	VFG	DGY					few coal bands	
		73.26	73.46	0.20		40610		MDST	SST	VFG	DGY					ROOF SAMPLE, few coal bands	0
		73.46	73.71	0.25		40611		COAL	C5							Hard, but light, irregular quartz veining	99
		73.71	73.85	0.14		40611		COAL LOSS								COAL LOSS	99
		73.85	74.05	0.20		40612		MDST		VFG	DGY					FLOOR SAMPLE, cm scale bands of coal	0
		74.05	74.68	0.63				MDST		VFG	DGY					cm scale bands of coal END PG 9	
	1.25						74.68										
		74.68	74.93	0.25				MDST		VFG	DGY					as above	
							box 23										
		74.93	77.32	2.39				MDST		VFG	DGY		50		15	fine porous cracks, coaly lenses, plant material, some qtz in fractures, some silty layers (mm scale)	
		77.32	77.72	0.40				SST		MG	LGY					few muddy laminations, coaly lenses, soft sand	
	1.66						77.72										
		77.72	78.10	0.38				SST		MG	LGY					as above	
							box 24										
		78.10	79.25	1.15				SST		MG	LGY					as above	
		79.25	80.77	1.52				MDST	SST	VFG	MGY					fine, porous cracks, few sandy/silty laminations	
	2.64						80.77										
65		80.77	81.42	0.65				MDST	SST	VFG	MGY					as above, 5cm coal + qtz band	
							box 25										
65		81.42	82.49	1.07				SST	MDST	FG	LGY					some silty layers END PG 10	
		82.49	83.82	1.33				MDST	SST	VFG	MGY					fine, porous cracks, coaly lenses, some qtz	
	2.88						83.82										
		83.82	84.65	0.83				MDST	SST	VFG	MGY					as above	
							box 26										
		84.65	86.87	2.22				MDST	SST	VFG	MGY					as above	
	2.47						86.87										
		86.87	87.96	1.09				MDST	SST	VFG	MGY					as above	
							box 27										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70		87.96	89.92	1.96				MDST	SST	VFG	MGY					as above, 15cm band of fine grain SST	
	2.65						89.92										
78		89.92	91.29	1.37				MDST	SST	VFG	MGY					as above, sand content increasing, qtz infilled fractures	
							box 28										
		91.29	92.84	1.55				SST	MDST	FG	LGY					mm-cm scale MDST laminations	
		92.84	92.96	0.12				ROCK LOSS								ROCK LOSS	
	2.00						92.96										
		92.96	94.66	1.70				SST		FG	LGY		80		5	some silt, qtz infilled fractures END PG 11	
							box 29										
75		94.66	96.01	1.35				SST	MDST	FG	MGY					few cm scale MDST clasts, mm scale coaly bands w/in fractures	
	1.93						96.01										
		96.01	96.11	0.10				ROCK LOSS								ROCK LOSS	
		96.11	97.76	1.65				SST	MDST	FG	MGY		80			MDST increases at the btm of interval	
		97.76	97.96	0.20		40588		SST	MDST	FG	MGY		80			ROOF SAMPLE, MDST increases at the btm of interval	0
		97.96	98.09	0.13		40589		COAL	C5		BLK					Clean coal on top, and becoming muddier towards the base. Mdst stringers through out.	80
							BOX 30										
		98.09	98.56	0.47		40589		COAL	C5		BLK					Stoney, numerous mdst beds.	80
		98.56	98.80	0.24		40590		MDST		VFG	BLK					PARTING SAMPLE, massive numerous mdst beds	0
		98.80	99.10	0.30		40591		COAL	C5		BLK					Stoney numerous mdst beds	80
	2.25						99.06										
		99.10	99.30	0.20		40952		MDST		VFG	DGY					FLOOR SAMPLE, cm scale coal bands, few coalified lenses, py mineralization, cm scale py lenses	0
85		99.30	101.31	2.01				MDST		VFG	DGY					cm scale coal bands, few coalified lenses, py mineralization, cm scale py lenses END PG 12	
							box 31										
		101.31	101.98	0.67				MDST		VFG	DGY		90			mm scale silty, mm-cm scale coaly lenses and bands	
		101.98	102.18	0.20		40593		MDST		VFG	DGY		90			ROOF SAMPLE, mm scale silty, mm-cm scale coaly lenses and bands	0
	0.95						102.11										
		102.18	102.90	0.72		40594		COAL	C6							mixed w/ rock and py 50% rock & 50% coal	80
		102.90	103.08	0.18		40594		COAL LOSS								COAL LOSS	80
		103.08	103.28	0.20		40595		MDST		VFG	DGY		60			FLOOR SAMPLE, v. fine porous cracks, coalified lenses, qtz brecciation, qtz infilled fractures	0
		103.28	104.59	1.31				MDST		VFG	DGY		60			v. fine porous cracks, coalified lenses, qtz brecciation, qtz infilled fractures	
							box 32										
		104.59	105.16	0.57				SST	MDST	MG	LGY					10cm band of MDST	
	2.82						105.16										
		105.16	107.81	2.65				SST		MG-CG	LGY		80			few mm-cm scale MDST laminations, cm-scale MDST clasts, coaly lenses	
							box 33										
		107.81	108.14	0.33				SST		MG-CG	LGY					as above END PG 13	
		108.14	108.20	0.06				ROCK LOSS								ROCK LOSS	
	1.54						108.20										
65		108.20	109.13	0.93				SST		MG-CG	LGY		65			as above	
		109.13	111.25	2.12				SST	MDST	MG	MGY		80			cm scale MDST layers, cm scale MDST clasts, rip up clasts, soft/sand layers	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							box 34										
	1.65						111.25										
80		111.25	114.26	3.01				SST	MDST	FG	MGY		80			mm-cm scale MDST laminations, some silty layers	
		114.26	114.30	0.04				ROCK LOSS								ROCK LOSS	
	0.60						114.30										
		114.30	114.53	0.23				SST	MDST	FG	MGY					as above	
							box 35										
		114.53	114.68	0.15				ROCK LOSS								ROCK LOSS	
		114.68	117.10	2.42				MDST	SST	VFG	DGY					fine porous cracks, silty laminations, plant material, coalified lenses	
		117.10	117.30	0.20		40584		MDST	SST	VFG	DGY					ROOF SAMPLE, fine porous cracks, silty laminations, plant material, coalified lenses END PG 14	0
		117.30	117.47	0.17		40585		COAL	C4		BLK					Good clean coal, but broken up into square chunks (1/2 to 3/4cm cleats), light, minor amount of quartz, slight vitrous sheen to whole interval.	70
	1.25						117.35										
		117.47	117.93	0.46		40585		COAL	C4		BLK					As above coal	70
							box 36										
		117.93	118.81	0.88		40586		COAL	C4		BLK					As above coal, except for one 2cm thick parting.	70
		118.81	119.01	0.20		40587		MDST		VFG	DGY					FLOOR SAMPLE, v.fine porous cracks, coalified lenses, plant material remains, mm scale silty laminations, CARB shale near coal	0
		119.01	120.40	1.39				MDST		VFG	DGY					v.fine porous cracks, coalified lenses, plant material remains, mm scale silty laminations, CARB shale near coal	
	2.20						120.40										
75		120.40	121.10	0.70				MDST	SLT	VFG	DGY-BRN		75			silty laminations wavy, v. fine porous cracks	
							box 37										
		121.10	123.40	2.30				MDST	SLT	VFG	DGY-BRN		75			as above END PG 15	
		123.40	123.44	0.04				ROCK LOSS								ROCK LOSS	
	1.05						123.44										
		123.44	124.29	0.85				SST	MDST	FG	MGY					mm-scale MDST layers, silty layers, v. fine fractures	
		124.29	124.48	0.19				SST	SLT	FG	LGY					qtz veinlets	
							box 38										
		124.48	125.10	0.62				SST		FG	LGY					mm scale MDST laminations, soft sand layers	
		125.10	125.24	0.14				ROCK LOSS								ROCK LOSS	
		125.24	126.49	1.25				MDST	SST	VFG	MGY					coaly lenses, mm scale MDST laminations within SDST layers, MDST clasts	
	0.50						126.49										
		126.49	127.79	1.30				MDST		VFG	DGY		68	25		few mm-cm scale SST + SLT laminations, gouge, coalified lenses, qtz veinlets	
		127.79	127.90	0.11				ROCK LOSS								ROCK LOSS	
							box 39										
		127.90	129.54	1.64				MDST	SST	VFG	MGY					few mm scale SST laminations, mod. Broken, qtz veins	
	0.36						129.54										
		129.54	130.35	0.81				MDST	SST	VFG	MGY					as above, gouge, possible fault zone END PG 16	
		130.35	131.09	0.74				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		131.09	131.44	0.35				SST		MG	LGY					gouge, soft sand, qtz veins	
							box 40										
		131.44	132.59	1.15				SST		MG	LGY					as above, few MDST laminations, MDST clasts, qtz breccia	
	0.45						132.59										
		132.59	133.40	0.81				SST		MG	LGY					as above	
		133.40	133.60	0.20		40613		SST		MG	LGY					ROOF SAMPLE, as above	0
		133.60	134.20	0.60		40614		CARB-MDST	C6		BLK				The whole interval is broken & crushed, not much coal, mostly rock.	0	
		134.20	134.45	0.25		40615		MDST		VFG	BLK				FLOOR SAMPLE, massive, beds of coal, coal spars	0	
							box 41										
65		134.45	135.64	1.19				MDST		VFG	DGY				mod. Broken, some carbonaceous MDST, qtz veinlets in fractures, some mm scale SST & SLT laminations, cross bedded zone w/one @ 15° & the other @ 80°, 30cm SST unit at btm		
															END PG 17		
	0.35						135.64										
65		135.64	136.99	1.35				MDST		VFG	DGY				as above		
							box 42										
		136.99	137.46	0.47				ROCK LOSS							ROCK LOSS		
		137.46	138.68	1.22				MDST		VFG	DGY				as above, 5cm band of qtz & coal mixed, gouge, PG 17		
	0.62						138.68										
60		138.68	140.27	1.59				MDST		VFG	DGY				as above		
							box 43										
		140.27	141.73	1.46				MDST		VFG	DGY				as above, coalified lenses, 12cm band of coal, 0.6 of MDST is MGY in color with less porous fractures		
	1.32						141.73										
65		141.73	143.33	1.60				MDST		VFG	DGY		65		as above but no coal bands only lenses, also have some silty laminations, qtz infilled fractures		
							box 44										
		143.33	143.90	0.57				MDST		VFG	DGY				as above		
		143.90	144.78	0.88				SST		MG	LGY				qtz infilled fractures END PG 18		
	1.32						144.78										
		144.78	146.41	1.63				SST		FG-MG	LGY		70		mm scale MDST laminations, qtz infilled fractures, soft sand layers, gouge		
		146.41	146.57	0.16				ROCK LOSS							ROCK LOSS		
							box 45										
		146.57	146.72	0.15				SST		FG-MG	LGY				as above		
		146.72	147.14	0.42				MDST		VFG					coaly lenses, qtz veinlets, fine porous cracks, plant material		
		147.14	147.83	0.69				SST	MDST	FG	LGY				qtz veinlets, coaly lenses, mm scale MDST laminations		
	0.52						147.83										
70		147.83	149.78	1.95				SST	MDST	FG	LGY		70		qtz veinlets, mm to cm scale MDST laminations		
		149.78	150.35	0.57				ROCK LOSS							ROCK LOSS		
		150.35	150.88	0.53				MDST		VFG	DGY				END PG 19		
	1.29						150.88										
		150.88	152.13	1.25				MDST		VFG	DGY				coalified lenses, mm-cm scale, pyrite disseminated, slickenlines on fractured surfaces, qtz veinlets w/in		
		152.13	152.43	0.30				ROCK LOSS							ROCK LOSS		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		152.43	152.57	0.14				COAL								qtz + pyrite in coal, 4cm MDST layers @ btm	
		152.57	152.97	0.40				SST		FG	LGY					qtz veinlets, mm-cm scale MDST	
							box 47										
		152.97	153.63	0.66				SST		FG	LGY					as above	
		153.63	153.92	0.29				MDST		VFG	DGY					gouge, strongly sheared	
	1.35					153.92											
		153.92	154.22	0.30				MDST		VFG	DGY					as above, some pyrite	
		154.22	155.18	0.96				SST		VFG	LGY					same as SST unit above, possible fault zone @ 153-155m END PG 20	
		155.18	155.43	0.25				ROCK LOSS								ROCK LOSS	
		155.43	155.87	0.44				MDST		VFG	DGY					slickenlines on fracture surfaces, coalified lenses, qtz veinlets, mod. Broken, gouge, mm-cm scale SST lenses	
							box 48										
40		155.87	156.97	1.10				MDST		VFG	DGY		85			fine porous cracks, few silty laminations, fractured surfaces are polished and have some slickenlines	
	0.98					156.97											
		156.97	159.07	2.10				MDST		VFG	DGY					15-20cm band of coal mixed w/ qtz and MDST. Coal in low angle, steep fractures or possible fold closure	
							box 49										
		159.07	159.45	0.38				MDST		VFG	DGY					fine porous cracks, qtz veinlets and qtz infilled fractures, coaly bands, contact w/ SST unit below END PG 21	
		159.45	159.95	0.50				SST		FG	LGY					qtz veinlets, qtz infilled fractures, some silty laminations	
		159.95	160.02	0.07				ROCK LOSS								ROCK LOSS	
	1.60					160.02											
		160.02	160.67	0.65				SST		FG	LGY					as above	
		160.67	160.90	0.23				MDST		VFG	MGY-DGY					gouge, pyrite, qtz infilled fractures	
		160.90	160.99	0.09				ROCK LOSS								ROCK LOSS	
		160.99	161.33	0.34				MDST								Massive soft	
		161.33	161.85	0.52				MDST		VFG	DGY					coaly lenses, silty laminations, pyrite, qtz + coal mized within bands (cm scale)	
		161.85	162.24	0.39				MDST								Massive soft	
							box 50										
		162.24	162.59	0.35				MDST		VFG	DGY					5cm band of coal, qtz + coal mixed in fractures END PG 22	
		162.59	163.07	0.48				SST		FG	LGY					qtz veinlets, coal lenses, MDST laminations present	
	1.51					163.07											
		163.07	165.02	1.95				SST		FG	LGY					coal bands and lenses, qtz in fractures, steepening of ( ), fold closure, some silty laminations	
							box 51										
		165.02	165.22	0.20				ROCK LOSS								ROCK LOSS	
40		165.22	166.12	0.90				SST		FG-MG	LGY-MGY					few MDST lamiantions, qtz veinlets, low angle fractures almost along CA	
	0.8					166.12											
		166.12	168.27	2.15				MDST		VFG	DGY					soft broken gouge, lotz of qtz and pyrite in folded ( ), btm part more solid and less broken	
							box 52										
		168.27	169.11	0.84				SST		FG	LGY					5cm coal + qtz mixed band, qtz veinlets, coaly lenses, some silty laminations END PG 23	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
		169.11	169.16	0.05				ROCK LOSS										
	1.68						169.16											
70		169.16	171.57	2.41				MDST	SST	VFG	MGY							mm-cm scale SST layers, mm-cm SLT layers, 5cm coal in band, folded ( ) of coal and fine porous cracks
							box 53											
		171.57	172.15	0.58				SST		FG	MGY							mm-cm scale MDST, plant material, coaly lenses
		172.15	172.21	0.06				ROCK LOSS										ROCK LOSS
	1.35						172.21											
		172.21	172.39	0.18				ROCK LOSS										ROCK LOSS
30		172.39	174.86	2.47				MDST	SST	FG	MGY-DGY		30					mm-cm scale SST layers, coal bands, coal lenses in fractures, fine porous cracks
							box 54											
		174.86	175.26	0.40				SST	MDST	MG	LGY-MGY							SST mized with MDST
	2.56						175.26											
		175.26	177.96	2.70				SST		MG	LGY							mm-scale MDST laminations, coaly lenses END PG 24
							box 55											
		177.96	178.26	0.30				SST		MG	LGY							mm-scale MDST laminations
		178.26	178.31	0.05				ROCK LOSS										ROCK LOSS
	2.86						178.31											
		178.31	181.31	3.00				SST		MG	LGY							as above, qtz + dolomite infilled fractures, mm-cm scale MDST laminations
		181.31	181.36	0.05				ROCK LOSS										ROCK LOSS
							box 56											
	2.46						181.36											
70		181.36	184.40	3.04				SST		MG	LGY							as above, boken @ the bottom of interval, few mm scale MDST laminations
	2.36						184.40											
							box 57											
70		184.40	187.40	3.00				SST		MG	LGY							as above, low angle fractures, 50cm of strongly broken core, cm scale MDST clasts, gouge in broken zone
		187.40	187.45	0.05				ROCK LOSS										ROCK LOSS
	2.93						187.45											
							box 58											
60		187.45	190.45	3.00				SST		MG	LGY							mm-cm MDST laminations, coalified lenses, plant material END PG 25
		190.45	190.50	0.05				ROCK LOSS										ROCK LOSS
	2.8						190.50											
		190.50	190.80	0.30				SST		MG	LGY							as above
							box 59											
70		190.80	193.45	2.65				SST		MG	LGY							as above, qtz infilled fractures
		193.45	193.55	0.10				ROCK LOSS										ROCK LOSS
	2.12						193.55											
		193.55	194.18	0.63				SST		MG	LGY							as above
							box 60											
		194.18	196.52	2.34				SST		FG-MG	LGY							as above, low angle qtz infilled fractures at 20°
		196.52	196.60	0.08				ROCK LOSS										ROCK LOSS
	2.69						196.60											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		196.60	197.18	0.58				SST		FG	LGY					coalified lenses, planter material, mm scale MDST laminations	
							box 61										
		197.18	197.31	0.13				ROCK LOSS								ROCK LOSS	
65		197.31	199.64	2.33				SST		MG	LGY		30			as above, qtz infilled fractures w/ vuggy cavities	
	0.10						199.64										
		199.64	200.24	0.60				SST		MG	LGY					qtz infilled fractures, mod. Strongly broken, low angle fractures, fault zone 199.64-200m END PG 26	
							box 62										
		200.24	200.66	0.42				SST		MG	LGY					as above, mod. Strongly broken	
		200.66	201.20	0.54				ROCK LOSS								ROCK LOSS	
		201.20	201.40	0.20				MDST	SST	VFG	DGY					strongly broken, qtz + coal mixed END PG 27	
		201.40	201.60	0.20		40616		MDST	SST	VFG	DGY					ROOF SAMPLE, strongly broken, qtz + coal mixed END PG 27	0
		201.60	202.18	0.58		40617		COAL	C5		BLK					Broken crushed to bits and pieces of coal & rock, evidence of shearing, some of the chunks have quartz veins on them.	55
	0.20																
		202.18	202.32	0.14		40617		COAL	C5		BLK					Part of above coal unit	55
		202.32	202.44	0.12		40618		MDST	CARB		BLK					PARTING SAMPLE, massive soft, coal beds & spars	0
		202.44	202.80	0.36		40619		COAL	C5		BLK					As above coal	55
							202.69										
		202.80	203.40	0.60		40620		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst, END BOX 62	0
		203.40	203.76	0.36		40621		COAL	C5		BLK					As above coal	55
		203.76	204.12	0.36		40622		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst	0
		204.12	204.18	0.06		40623		COAL	C5		BLK					As above coal	55
		204.18	204.40	0.22		40623		COAL LOSS								COAL LOSS	55
		204.40	204.81	0.41		40624		ROCK LOSS								ROCK LOSS	0
		204.81	205.20	0.39		40624		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst	0
		205.20	205.64	0.44		40625		COAL	C5							As above coal	55
		205.64	205.95	0.31		40530		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst	0
							205.74										
		205.95	206.45	0.50		40531		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst END BOX 63	0
							BOX 64										
		206.45	206.76	0.31		40532		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst	0
		206.76	207.76	1.00		40533		COAL	C4							Broken/sheared to bits, just a mixture of coal & rock	55
		207.76	208.33	0.57		40534		COAL	C4							As above coal	55
		208.33	208.62	0.29		40534		COAL LOSS								COAL LOSS, END PG 27A (PG 28 was taken out during sampling)	55
		208.62	208.82	0.20		40535		SST	MDST	FG	LGY					FLOOR SAMPLE, mm-cm scale MDST laminations, qtz infilled fractures	0
70		208.82	209.47	0.65				SST	MDST	FG	LGY					mm-cm scale MDST laminations, qtz infilled fractures	
							box 65										
		209.47	209.64	0.17				ROCK LOSS								ROCK LOSS	
70		209.64	211.84	2.20				SST		MG	LGY		20			mm-cm scale MDST laminations, qtz infilled fractures, qtz veinlets	
	2.05						211.84										
		211.84	212.92	1.08				SST		MG	LGY					as above	
							box 66										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		212.92	214.81	1.89				SST		MG	MGY					fault zone 215-216.5m, qtz infilled fractures, 15cm zone of MDST mod. Broken	
		214.81	216.22	1.41				ROCK LOSS								ROCK LOSS	
							box 67										
		216.22	217.93	1.71				SST		MG	MGY					mm-cm MDST laminations, gouge, mod broken on top, qtz infille fractures END PG 29	
	0.50						217.93										
		217.93	218.10	0.17				ROCK LOSS								ROCK LOSS	
		218.10	218.35	0.25				SST		FG	MGY					qtz infilled fractures	
		218.35	218.55	0.20		40536		SST		FG	MGY					ROOF SAMPLE, qtz infilled fractures	0
		218.55	219.10	0.55		40537		COAL	C5		BLK					Numerous thin Mdst Partings, mostly rock in the box, dull , hard, coal	50
		219.10	219.30	0.20		40538		MDST	CARB	VFG	BLK					PARTING SAMPLE, massive numerous quartz veins	0
							box 68										
		219.30	219.40	0.10		40538		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Mdst	0
		219.40	220.00	0.60		40539		COAL								As above coal	50
		220.00	220.12	0.12		40539		COAL LOSS								COAL LOSS	50
		220.12	220.32	0.20		40540		MDST	CARB	VFG	DGY					FLOOR SAMPLE, carbonaceous MDST	0
		220.32	220.98	0.66				MDST	CARB	VFG	DGY					carbonaceous MDST END PG 30	
	0.10						220.98										
		220.98	222.15	1.17				MDST		VFG	DGY					fine porous cracks, coalified lenses, qtz infilled fractures, crumbly, bands of coal (cm scale)	
							box 69										
		222.15	223.50	1.35				MDST		VFG	DGY		45			cm scale bands of coal, qtz infilled fractures, strongly broken, mm-cm scale SST, pyrite, gouge, possible fault zone 223-224m	
		223.50	223.70	0.20		40541		MDST		VFG	DGY		45			ROOF SAMPLE, part of above unit	0
		223.70	223.99	0.29		40542		COAL	C6							75% SHC & 25% coal, dull hard coal	50
	0.35	223.99	224.12	0.13		40452		COAL LOSS								COAL LOSS	50
							224.03										
		224.12	224.80	0.68		40543		SST		MG	LGY		25			PARTING SAMPLE, 2-3cm band of coal, qtz and dolomite in fractures, fracture thickens 4cm	0
		224.80	225.25	0.45		40544		COAL	C6							Sheared into chunks, heavy hard, good clean coal towards the base.	50
							box 70										
		225.25	226.40	1.15		40545		COAL								As above coal	50
		226.40	226.56	0.16		40545		COAL LOSS								COAL LOSS	50
		226.56	226.68	0.12		40546		ROCK LOSS								ROCK LOSS	0
		226.68	227.00	0.32		40546		MDST		VFG	DGY					PARTING SAMPLE, qtz veinlets, coal lenses	0
		227.00	227.25	0.25		40547		COAL								As above coal	50
	0.65						227.08										
		227.25	227.92	0.67		40547		COAL	C6		BLK					As above coal	50
		227.92	228.05	0.13		40548		MDST		VFG	BLK					PARTING SAMPLE, as above Mdst	0
							box 71										
		228.05	228.40	0.35		40548		MDST		VFG	DGY					PARTING SAMPLE, coal lenses fine porous fractures, coal mixed w/ qtz in fractures END PG 32	0
		228.40	228.78	0.38		40549		COAL	C6							SHC very hard numerous Mdst beds, lenses, quartz veining.	50
		228.78	228.98	0.20		40550		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		228.98	230.05	1.07				MDST		VFG	DGY					coalified lenses, qtz veinlets, pyrite, fine porous fractures, mm scale silty sandy laminations	
		230.05	230.12	0.07				ROCK LOSS								ROCK LOSS	
	0.45						230.12										
60		230.12	231.15	1.03				MDST		VFG	DGY		60			as above	
							box 72										
60		231.15	233.17	2.02				SST	MDST	FG	MGY		60			mm-cm scale MDST laminations, 10cm band of MDST on top, fine porous fractures, some silty layers	
	0.20						233.17										
60		233.17	234.32	1.15				SST	MDST	FG	MGY		60			as above END PG 33	
							box 73										
		234.32	234.84	0.52				MDST		VFG	DGY					mm-cm scale silty sandy laminations, qtz infilled fractures, coalified lenses	
		234.84	235.17	0.33				ROCK LOSS									
		235.17	235.37	0.20		40626		MDST		VFG	DGY					ROOF SAMPLE, mm-cm scale silty sandy laminations, qtz infilled fractures, coalified lenses	0
		235.37	235.92	0.55		40627		COAL	C4							Light Clean coal, shattered to bits	50
		235.92	235.94	0.02		40628		MDST	CARB	VFG	BLK					massive, coal spars	0
		235.94	236.04	0.10		40628		ROCK LOSS								ROCK LOSS	0
		236.04	236.28	0.24		40628		COAL	C6							Stoney, boney full of Mdst	50
		236.28	236.48	0.20		40629		MDST	CARB	VFG	BLK					FLOOR SAMPLE, as above Mdst.	0
		236.48	236.65	0.17				MDST	CARB	VFG	BLK					As above Mdst	
	0.52						236.22										
		236.65	237.74	1.09				MDST	CARB	VFG	DGY					carbonaceous mudstone, coaly bands, qtz infilled fractures	
		237.74	239.27	1.53				ROCK LOSS								ROCK LOSS END PG 34	
							box 74										
	1.45						239.27										
		239.27	240.45	1.18				MDST		VFG	DGY					coalified lenses, carbonaceous, qtz infilled fractrues	
							box 75										
		240.45	240.73	0.28				ROCK LOSS								ROCK LOSS	
65		240.73	242.32	1.59				MDST		VFG	DGY		65			As above, END PG 35	
	2.92						242.32										
		242.32	243.76	1.44				MDST		VFG	DGY					some qtz w/ vuggy cavities on top, mm-cm scale silty laminations, fine porous cracks	
							box 76										
60		243.76	245.28	1.52				MDST	SST	VFG	DGY		60			mm-cm scale SST + SLT laminations	
		245.28	245.36	0.08				ROCK LOSS								ROCK LOSS	
	2.70						245.36										
60		245.36	246.95	1.59				SST	MDST	FG	MGY		60			increases down, 1cm band of qtz in fracture	
							box 77										
		246.95	248.41	1.46				SLT	SST	FG	LGY-BRN					cm scale bands of SST, mostly brownish silt	
	2.40						248.41										
		248.41	250.15	1.74				SST	MDST	FG	MGY					mm-cm scale MDST, qtz infilled fractures	
							box 78										
		250.15	250.26	0.11				ROCK LOSS								ROCK LOSS	
		250.26	251.46	1.20				SST		FG	LGY					qtz infilled fractures, mm-cm scale clasts of MDST END PG 36	
	1.5						251.46										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
65		251.46	253.56	2.10				SST		FG	LGY					mm-cm scale MDST laminations, MDST clasts, qtz fractures	
							box 79										
		253.56	253.71	0.15				ROCK LOSS								ROCK LOSS	
		253.71	254.51	0.80				SST		FG	LGY					as above	
	2.5						254.51										
		254.51	256.21	1.70				SST		FG	LGY					as above	
		256.21	256.90	0.69				SST		CG	LGY					soft sand, gouge, qtz infilled fractures	
							box 80										
		256.90	257.16	0.26				SST		CG	LGY					as above	
		257.16	257.56	0.40				MDST		VFG	DGY					gouge, broken, qtz infilled fractures	
	0.85						257.56										
		257.56	260.00	2.44				SST	MDST	FG	LGY					gouge, foliation steepends, qtz brecciation	
							box 81										
70		260.00	260.60	0.60				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
	1.9						260.60										
65		260.60	263.34	2.74				SST	MDST	MG	MGY		65			as above, qtz infilled fractures	
							box 82										
		263.34	263.65	0.31				SST	MDST	MG	MGY					as above	
	2.45						263.65										
60		263.65	266.48	2.83				SST	MDST	MG	MGY		60			as above	
		266.48	266.63	0.15				ROCK LOSS								ROCK LOSS	
							box 83										
		266.63	266.70	0.07				SST	MDST	MG	MGY					as above	
	1.98						266.70										
55		266.70	267.69	0.99				SST	MDST	MG	MGY					as above	
		267.69	268.44	0.75				SST		MG	MGY					few MDST laminations	
																END PG 38	
60		268.44	269.59	1.15				MDST		VFG	DGY		60			silty laminations, fine porous fractures	
		269.59	269.79	0.20		40630		MDST		VFG	DGY		60			ROOF SAMPLE, silty laminations, fine porous fractures	0
	0.1						269.75										
		269.79	270.05	0.26				ROCK LOSS								ROCK LOSS	
		270.05	270.15	0.10		40631		COAL	C4		BLK					Solid coal, mdst beds throughout (less than 1mm) thinnly laminated, light, soft	40
							box 84										
		270.15	271.05	0.90		40631		COAL	C4		BLK					As above coal	40
		271.05	272.05	1.00		40632		COAL	C4		BLK					As above coal	40
		272.05	273.05	1.00		40633		COAL	C4		BLK					END PG 39	40
		273.05	273.23	0.18		40634		COAL	C4		BLK					As above coal	40
	0	273.23	273.38	0.15		40634	272.80	COAL	C4		BLK						40
							box 85										
		273.38	274.05	0.67		40634		COAL	C4		BLK					As above coal	40
		274.05	275.05	1.00		40635		COAL	C4		BLK					As above coal	40
		275.05	276.05	1.00		40636		COAL	C4		BLK					As above coal	40
		276.05	276.10	0.05		40637		COAL	C4		BLK					As above coal	40
	1						275.84										
							BOX 86										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		276.10	277.00	0.90		40637		COAL	C4		BLK					As above coal, END PG 40	40
		277.00	277.20	0.20		40638		MDST		VFG	DGY					FLOOR SAMPLE, gouge, cm scale SST laminations, qtz veinlets, coalified lenses	0
		277.20	278.83	1.63				MDST		VFG	DGY					gouge, cm scale SST laminations, qtz veinlets, coalified lenses	
	1.5						278.89										
		278.83	278.93	0.10				SST	MDST	FG	MGY					qtz veinlets	
							box 87										
65		278.93	280.53	1.60				SST	MDST	FG	MGY		65			mm-cm scale MDST laminations, qtz infilled fractures	
		280.53	281.63	1.10				SST		FG-MG	LGY					folded leucosomes of MDST, qtz brecciations, mm-cm scale MDST	
		281.63	281.94	0.31				SST		FG-MG	LGY					mm-cm scale MDST, broken	
	1.36						281.94										
							box 88										
65		281.94	284.64	2.70				SST	MDST	FG-MG	LGY-MGY		65			mm-cm scale MDST laminations, gouge, qtz infilled fractures	
		284.64	284.99	0.35				SST		MG	LGY					soft sand, low angle fractures END PG 41	
	1						284.99										
60		284.99	287.83	2.84				SST		FG	LGY					silty bands, mm-cm scale MDST lamiantions, gouge, qtz infilled fractures, qtz brecciations, MDST clasts, qtz clasts, coalified lenses	
		287.83	288.04	0.21				ROCK LOSS								ROCK LOSS	
							box 90										
	1.76						288.04										
60		288.04	291.08	3.04				SST		FG	LGY		60			as above	
	1.47						291.08										
							box 91										
		291.08	294.00	2.92				SST		FG	LGY					cm scale MDST clasts, qtz infilled fractures, qtz brecciations, gouge	
		294.00	294.13	0.13				ROCK LOSS								ROCK LOSS END PG 42	
	1.03						294.13										
							box 92										
		294.13	297.06	2.93				SST		FG	LGY					as above, fractures at 0° from CA	
	1.8						297.18										
		297.06	297.28	0.22				SST	MDST	FG	LGY					broken up	
		297.28	297.43	0.15				ROCK LOSS								ROCK LOSS	
							box 93										
		297.43	300.23	2.80				MDST	SST	VFG	DGY					top 50cm is heavily fractured and qtz infilled, silty, sandy laminations	
	1.95						300.23										
		300.23	300.63	0.40				MDST	SST	VFG	DGY					as above	
							box 94										
60		300.63	303.28	2.65				MDST	SST	VFG	DGY					qtz infilled fractures w/ vuggy cavities, mm-cm scale SLT laminations	
	1.4						303.28										
		303.28	303.79	0.51				MDST	SST	VFG	DGY					as above END PG 43	
							box 95										
60		303.79	306.32	2.53				MDST		VFG	DGY		60			cm-scale coal band, 20cm carbonaceous shale, v. fine porous cracks, qtz infilled fractures, coal bands of 60-65°	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	0.15						306.32											
		306.32	306.82	0.50				MDST		VFG	DGY						as above	
							box 96											
		306.82	308.52	1.70				ROCK LOSS									ROCK LOSS	
		308.52	309.40	0.88				MDST		VFG	DGY						as above, coalified lenses	
		309.40	309.46	0.06		40639		COAL	C6		BLK						Bone Coal (shc), full of quartz veins	35
		309.46	309.65	0.19		40639		COAL LOSS									COAL LOSS END PG 44	35
	0.43						309.37											
		309.65	309.95	0.30				MDST		VFG	DGY						10cm coal band	
							box 97											
		309.95	310.60	0.65				MDST	CARB	VFG	DGY						coalified lenses	
		310.60	310.80	0.20		40640		MDST	CARB	VFG	DGY						ROOF SAMPLE, coalified lenses	0
		310.80	311.33	0.53		40641		COAL	C6								Solid. Heavy,hard, full of mdst & quartz veins.END PG 45	35
		311.33	311.53	0.20		40642		MDST	CARB	VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		311.53	312.56	1.03				MDST	CARB	VFG	DGY						mm-cm scale SST laminations	
	1.44						312.42											
		312.56	312.96	0.40				MDST	SST	VFG	DGY						4cm coal band	
							box 98											
		312.96	313.16	0.20		40643		MDST	SST	VFG	DGY						ROOF SAMPLE, 4cm coal band	0
		313.16	313.70	0.54		40644		COAL	C6								As above coal	35
		313.70	313.90	0.20		40645		SST		FG	LGY						FLOOR SAMPLE,mm scale MDST layers, coalified lenses	0
70		313.90	315.47	1.57				SST		FG	LGY						mm scale MDST layers, coalified lenses	
	1.82						315.47			FG	LGY						as above END PG 46	
		315.47	316.20	0.73				SST		FG	LGY							
		316.20	316.31	0.11				ROCK LOSS									ROCK LOSS	
							box 99											
70		316.31	318.52	2.21				SST		FG	LGY	70	25				as above, qtz filled fractures	
	2.58						318.52											
		318.52	319.47	0.95				SST		FG	LGY						as above	
							box 100											
		319.47	321.56	2.09				SST		FG	LGY						as above	
	1.6						321.56											
		321.56	322.70	1.14				SST		FG	LGY						as above	
							box 101											
		322.70	323.15	0.45				SST		FG	LGY						MDST laminations	
		323.15	323.27	0.12				ROCK LOSS									ROCK LOSS	
		323.27	324.61	1.34				MDST		VFG	DGY						gouge, qtz infilled fractures, coal lenses, mm scale SST, strongly broken	
	0.15						324.61											
		324.61	325.23	0.62				MDST		VFG	DGY						as above	
		325.23	325.88	0.65				SST		FG	LGY						mm scale MDST laminations, qtz fractures, coalified lenses END PG 47	
							box 102											
		325.88	326.11	0.23				SST		FG	LGY						as above	
		326.11	326.61	0.50				MDST	CARB		BLK							
		326.61	327.80	1.19				MDST		VFG	DGY						coalified lenses, v. fine porous fractures, qtz	
	0.15						327.66											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		327.80	328.00	0.20		40646		MDST		VFG	DGY					ROOF SAMPLE, as above	0
		328.00	328.50	0.50		40647		COAL								Sheared into chunks, full of mdst, heavy, hard, shc, END PG 48	99
		328.50	328.70	0.20		40648		MDST		VFG	DGY					FLOOR SAMPLE, as above	0
		328.70	329.20	0.50													
							box 103										
		329.20	330.71	1.51				MDST	SST	VFG	DGY					coalified lenses, qtz infilled fractures, gouge, pyrite	
	0.75					330.71											
		330.71	332.14	1.43				MDST	SST	VFG	MGY					qtz infilled fractures, coalified lenses, gouge, pyrite	
							box 104										
65		332.14	333.76	1.62				MDST	SST	VFG	DGY					as above, EOH 333.76m, END PG 49	

Cover Sheet	
Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-06
Drilling Start Date	28-Sep-12
Drilling Finish Date	30-Sep-12
Confirmed Easting	538983.6129
Confirmed Northing	6309330.9750
Elevation	1094.4873
Azimuth	
Dip	-90
Depth	315.66
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	538980
PreCollar Northing	6309330
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	RP
Lith and Geotech Logging Dates	
Coal Logger	
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	1.35	0.00	2.65	2.65				SST		FG	LGY					casing, casing, qtz infilled fractures, mod. Broken, gouge, oxide alterations	
		2.65	3.05	0.40				ROCK LOSS								ROCK LOSS	
							3.05										
							box 2										
		3.05	4.50	1.45				ROCK LOSS								ROCK LOSS	
		4.50	4.80	0.30				SST		FG-MG	LGY					qtz infilled fractures, clay minerals on fractured surfaces	
	2.40						4.80										
55		4.80	7.51	2.71				SST		FG	LGY					qtz infilled fractures at 20, mm scale MDST laminations	
							box 3										
		7.51	7.72	0.21													
		7.72	7.92	0.20				SST		FG	LGY					as above	
	1.80						7.92										
68		7.92	10.85	2.93				SST		FG	LGY					qtz infilled fractures, mm scale MDST laminations, gouge	
		10.85	10.97	0.12				ROCK LOSS								ROCK LOSS	
	1.95						10.97										
							box 4										
60		10.97	13.43	2.46				SST		FG	LGY					as above END PG 1	
60		13.43	13.94	0.51				SST	MDST	FG	MGY		60			mm-cm scale MDST laminations, qtz infilled fractures	
		13.94	14.02	0.08													
	1.84						14.02										
		14.02	14.14	0.12				SST	MDST	FG	MGY					as above	
							box 5										
68		14.14	16.93	2.79				SST	MDST	FG	MGY		68			as above	
	1.58	16.93	17.07	0.14			17.07	ROCK LOSS								ROCK LOSS	
80		17.07	17.42	0.35				MDST	SST	VFG	DGY		80			mm-cm scale SST laminations, qtz infilled fractures, some silty laminations	
		17.42	17.47	0.05				ROCK LOSS								ROCK LOSS	
							box 6										
80		17.47	20.12	2.65				MDST	SST	VFG	DGY		80			as above	
	1.20						20.12										
		20.12	20.60	0.48				MDST	SST	VFG	DGY					As above Mdst	
							box 7										
		20.60	20.81	0.21				ROCK LOSS								ROCK LOSS	
		20.81	23.16	2.35				MDST	SST	VFG	DGY					mm to cm scale Sst laminations, 30cm of carb mdst, coalified bands, quartz infilled fractures gouge END PG 2	
	0.90						23.16										
65		23.16	23.71	0.55				SST	MDST	FG	MGY		65			mm to cm mdst laminations, quartz veins	
							box 8										
		23.71	23.84	0.13				ROCK LOSS								ROCK LOSS	
60		23.84	24.84	1.00				SST		FG-MG	LGY					mm to cm scale mdst laminations, mm to cm scale mdst clasts, quartz infilled fractures	
		24.84	26.21	1.37				SST	MDST	FG	MGY					gouge, quartz infilled fractures, mm to cm scale mdst laminations	
	0.63						26.21										
		26.21	26.77	0.56				SST	MDST	FG	MGY					As above Sst/Mdst, but with pyrite	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							box 9											
		26.77	27.27	0.50				MDST		VFG	DGY							
		27.27	27.35	0.08		40649		COAL	C6									85
		27.35	27.68	0.33		40649		COAL LOSS										85
		27.68	27.81	0.13				ROCK LOSS										
		27.81	29.26	1.45				MDST		VFG	DGY							
	0.72						29.26											
		29.26	29.87	0.61				MDST		VFG	DGY							
							box 10											
		29.87	29.96	0.09				ROCK LOSS										
		29.96	31.01	1.05				MDST		VFG	DGY							
		31.01	32.31	1.30				SST		FG	LGY							
	2.30						32.31											
		32.31	32.92	0.61				SST		FG	LGY							
							box 11											
		32.92	35.36	2.44				SST		FG	LGY							
	2.57						35.36											
		35.36	36.19	0.83				SST		FG	LGY		45					
							box 12											
		36.19	36.30	0.11				ROCK LOSS										
		36.30	38.40	2.10				SST		FG	LGY							
	1.27						38.40											
35		38.40	39.32	0.92				SST		FG	LGY							
							box 13											
		39.32	40.72	1.40				SST		FG	LGY							
		40.72	40.92	0.20		40650		SST		FG	LGY							0
		40.92	41.12	0.20		40651		COAL	C4		BLK							80
	1.80						41.45											
		41.12	41.37	0.25		40651		COAL	C4									80
		41.37	41.70	0.33		40651		COAL	C4									80
		41.70	42.40	0.70		40652		COAL	C6									80
		42.40	42.60	0.20		40652		COAL LOSS										80
							box 14											
		42.60	42.67	0.07		40653		MDST										0
		42.67	42.80	0.13		40653		SST		FG	LGY							0
		42.80	44.37	1.57				SST		FG	LGY							
		44.37	44.50	0.13				ROCK LOSS										
	2.48						44.50											
		44.50	45.92	1.42				SST		FG	LGY							
							box 15											
60		45.92	47.55	1.63				SST		FG	LGY		60					
	2.06						47.55											
60		47.55	49.11	1.56				SST		FG	LGY		60					
							box 16											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
45		49.11	50.46	1.35				SST		FG	LGY					As above	
		50.46	50.60	0.14				ROCK LOSS								ROCK LOSS	
	1.40						50.60										
		50.60	50.85	0.25				ROCK LOSS								ROCK LOSS	
		50.85	52.25	1.40				SST		FG	LGY					As above, folded. Leucosomos, mod broken, END PG 7	
							box 17										
45		52.25	53.64	1.39				MDST		VFG	DGY		45			Very fine porous cracks, fold closures	
	0.87						53.64										
40		53.64	55.35	1.71				MDST		VFG	DGY		40			Very fine porous cracks, fold closures, coalified lenses, plant material	
							box 18										
30		55.35	56.59	1.24				MDST	CARB	VFG	DGY-BLK		30			Fine porous cracks, foliation steepening, pyrite mineralization, cm scal bands of pure carb mdst.	
		56.59	56.69	0.10				ROCK LOSS								ROCK LOSS	
	0.43						56.69										
30		56.69	58.38	1.69				MDST	CARB	VFG	DGY-BLK		30			As above, 5 to10cm band of coal mixed with qtz	
							box 19										
30		58.38	58.82	0.44				SST		FG	LGY-MGY					mm to cm scale mdst laminations	
		58.82	59.02	0.20				ROCK LOSS								ROCK LOSS	
		59.02	59.79	0.77				MDST	CARB	VFG	DGY					Coal bands mixed with qtz, pyrite band of 3cm, END PG 8	
	1.34						59.79										
		59.79	61.64	1.85				MDST		VFG	DGY					Silty sandy laminations mm tocm scale coalified bands, some carb mdst	
							box 20										
		61.64	61.74	0.10				ROCK LOSS								ROCK LOSS	
30		61.74	62.79	1.05				MDST		VFG	DGY		30			as above, bedding plane steepening	
	0.83						62.79										
18		62.79	64.65	1.86				MDST		VFG	DGY		18			20 cm band of coal mixed with qtz, pyrite bands, hinge zone	
							box 21										
		64.65	64.79	0.14				ROCK LOSS								ROCK LOSS	
		64.79	65.84	1.05				MDST		VFG	DGY		20			Blebs of silt cm scale, pyrite, coalified bands	
	1.01						65.84										
		65.84	67.70	1.86				SST		MG	LGY		20			mm to cm scale mdst clsts, qtz infilled fr, 5cm band of Carb MDST	
							box 22										
		67.70	67.87	0.17				ROCK LOSS								ROCK LOSS	
30		67.87	68.88	1.01				SST	MDST	FG	MGY		30			mm to cm scale MDST laminations, breaking along bedding planes	
	1.43						68.88										
		68.88	70.95	2.07				SST	MDST	FG	MGY					As above, END PG 9	
							box 23										
30		70.95	71.64	0.69				SST	MDST	FG	MGY		30			As above	
		71.64	71.93	0.29				MDST	CARB	VFG	DGY					very fine porous frac, coaly lenses, plant material, Carbonaceous	
	1.21						71.93										
25		71.93	73.02	1.09				MDST		VFG	DGY		25			Very fine porous frac, coalified bands, qtz veinlets	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		73.02	73.16	0.14				ROCK LOSS								ROCK LOSS	
		73.16	73.54	0.38		40654		COAL	C6							Hard, heavy, shc, full of mdst, irregular quartz veins	70
		73.54	73.60	0.06		40654		COAL LOSS								COAL LOSS	70
		73.60	73.75	0.15				MDST	CARB	VFG	DGY					Coalified bands, pyrite	
		73.75	73.85	0.10				MDST	CARB							As above, END PG 10	
25		73.85	73.98	0.13				MDST	CARB	VFG	DGY-BLK		25			2cm coal band, coalified lences, very fine porous fractures	
							box 24										
		73.98	74.10	0.12		40655		MDST	CARB	VFG	DGY		25			ROOF SAMPLE, as above	0
		74.10	74.67	0.57		40656		COAL	C4		BLK					Sheared in places, thinly laminated, blocky cleavage (almost cleats), quartz veinign. Minor gright bands.	70
		74.67	74.77	0.10		40657		MDST								PARTING SAMPLE, , massive	0
							74.98										
		74.77	75.07	0.30		40658		COAL								As above coal, END PG 11	70
		75.07	75.27	0.20		40659		SST	MDST	FG	MGY					PARTING SAMPLE, coalified lenses, qtz veins	0
		75.27	76.27	1.00		40660		COAL	C5							Light, more bright bands, light for coal, slickenslides in places	70
		76.27	76.77	0.50		40661		COAL	C4							Light, more bright bands, light for coal, slickenslides in places	70
							box 25										
		76.77	77.23	0.46		40662		COAL	C3							As above coal. Just more bright coal, but pyrite blebs @ base, END PG 12	70
		77.23	77.43	0.20		40663		MDST	CARB	VFG	DGY-BLK					FLOOR SAMPLE, part of below Mdst unit	0
		77.43	77.65	0.22				MDST	CARB	VFG	DGY-BLK					Very fine porous cracks, 2cm pyrite band, silty laminations.	
		77.65	78.03	0.38				ROCK LOSS								ROCK LOSS	
	2.76						78.03										
30		78.03	80.30	2.27				MDST		VFG	DGY		30			mm to cm scale silty sandy laminations, fine porous fractures, few bands of silt.	
							box 26										
35		80.30	81.08	0.78				MDST		VFG	DGY		35			as above	
	2.86						81.08										
		81.08	83.54	2.46				MDST		VFG	DGY					as above	
							box 27										
35		83.54	84.12	0.58				MDST		VFG	DGY					as above	
	2.35						84.12										
40		84.12	86.72	2.60				MDST		VFG	DGY					as above	
							box 28										
		86.72	87.07	0.35				MDST		VFG	DGY					as above, END PG 13	
		87.07	87.17	0.10				ROCK LOSS								ROCK LOSS	
	2.26						87.17										
60		87.17	89.94	2.77				MDST	SLT	VFG	DGY					Bands of Slst (cm)	
							box 29										
		89.94	90.05	0.11				ROCK LOSS								ROCK LOSS	
		90.05	90.22	0.17				MDST		VFG	DGY					Qtz vein	
	2.26						90.22										
85		90.22	93.15	2.93				MDST		VFG	DGY					cm scale sltst laminations, Qtz veins	
							box 30										
		93.15	93.27	0.12				MDST		VFG	DGY					as above	
	0.85						93.27										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							box 37										
	2.28						117.65										
		117.65	118.68	1.03				SST		FG-MG	LGY					as above	
							box 38										
60		118.68	120.56	1.88				SST		FG	LGY					qtz infilled fractures with dolomite & vuggy cavities, mm to cm scale MDST laminations	
	1.18						120.70										
		120.56	121.22	0.66				SST	FG	LGY						as above	
		121.22	121.62	0.40		40667		SST	FG	LGY						ROOF SAMPLE, part of above Sst unit, END PG 17	0
							BOX 39									Some shearing, hard but light, minor amount of bright bands,	
		121.62	121.68	0.06		40668		COAL	C4		BLK						62
		121.68	121.88	0.20		40668		COAL LOSS								COAL LOSS	62
		121.88	122.18	0.30		40668		COAL	C4							As above coal, except for sheared to bits @ bottom of interval.	62
		122.18	122.50	0.32		40669		MDST		FG	LGY					PARTING SAMPLE, qtz veins. Coalified lenses	0
		122.50	122.60	0.10				ROCK LOSS								ROCK LOSS	
		122.60	122.92	0.32		40670		COAL	C4							Good clean coal, quartz veining, sheared to bits @ bottom.	62
		122.92	123.12	0.20		40671		MDST		VFG	DGY					FLOOR SAMPLE, part of below Mdst unit.	0
		123.12	123.59	0.47				MDST		VFG	DGY					Coalified bands	
		123.59	123.75	0.16				ROCK LOSS								ROCK LOSS	
	0.97						123.75										
		123.75	124.65	0.90				SST	MDST	FG	MGY					Qtz infilled frac, mm to cm scale MDST laminations, END PG 18	
							box 40										
		124.65	126.64	1.99				MDST								Strongly broken. Cm scale coal bands, slickensides on fracture surfaces, qtz brecciation	
		126.64	126.80	0.16				ROCK LOSS								ROCK LOSS	
	1.39						126.80										
		126.80	127.30	0.50				MDST	SST	VFG	DGY					mm to cm scale Sst laminations, qtz infilled fractures	
							box 41										
65		127.30	129.76	2.46				MDST	SST	VFG	DGY		65			as above	
		129.76	129.84	0.08				ROCK LOSS								ROCK LOSS	
	0.50						129.84										
65		129.84	130.46	0.62				MDST		VFG	DGY		65			mm to cm scale Sst laminations, fine porous fractures	
							box 42										
65		130.46	132.89	2.43				MDST		VFG	DGY		65			as above	
	0.35						132.89										
		132.89	133.58	0.69				MDST		VFG	DGY					as above	
		133.58	133.78	0.20				ROCK LOSS								ROCK LOSS	
							box 43										
		133.78	134.03	0.25				MDST	CARB	VFG	DGY					Qtz veinlets, coalified lenses	
		134.03	134.23	0.20		40672		MDST	CARB	VFG	DGY					ROOF SAMPLE, part of above Mdst unit, END PG 19	0
		134.23	134.58	0.35		40673		COAL	C5		BLK					Broken into chunks, one 3 cm thick parting pyrite bed, muddy texture	60
		134.58	134.90	0.32		40673		COAL LOSS								COAL LOSS	60
		134.90	135.10	0.20		40674		SST		FG-MG	LGY		75			FLOOR SAMPLE, part of below Sst unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
75		135.10	136.15	1.05				SST		FG-MG	LGY		75			Grey clay layer (almost powder) mm to cm scale MDST laminations, qtz infilled fractures, gouge, possible fault zone 135-138m	
		136.15	136.21	0.06				ROCK LOSS								ROCK LOSS	
	0.19						135.94										
		136.21	136.42	0.21				ROCK LOSS								ROCK LOSS	
		136.42	137.12	0.70				SST		FG-MG	LGY					as above	
							box 44										
		137.12	137.82	0.70				SST		FG-MG	LGY					as above	
		137.82	138.02	0.20		40675		SST		FG-MG	LGY					ROOF SAMPLE, part of above Sst unit.	0
		138.02	139.03	1.01		40739		COAL	C3		BLK					Semidolid, parts are sheared to bits, vitreous sheen, numerous bright beds & bits, "sugar" type texture	60
		139.03	139.23	0.20		40740		MDST		VFG	DGY					FLOOR SAMPLE, part of below Mdst.	0
	0.53						138.99										
		139.23	139.81	0.58				MDST		VFG	DGY					mm to cm scale Sltst, Sst laminations qtz veinlets	
							box 45										
30		139.81	140.70	0.89				MDST		VFG	DGY					cm scale bands of coal	
		140.70	140.90	0.20		40741		MDST		VFG	DGY					ROOF SAMPLE, part of above mdst unit.	0
		140.90	141.68	0.78		40742		COAL	C3		BLK					Sheared to bits, numerous chunks with bright bands, 3cm thick Mdst parting @ top, 4cm thick parting near base.	60
		141.68	141.88	0.20		40743		SST		MG	LGY					FLOOR SAMPLE, part of below Sst unit	0
		141.88	142.09	0.21				SST		MG	LGY					Qtz veinlets, mm to cm scale MDST laminations	
	1.58						142.04										
65		142.09	142.39	0.30				SST		MG	LGY					Bands of soft sand, END PG 21	
							box 46										
		142.39	143.44	1.05				SST		FG	LGY					Bands of soft sand, gouge, qtz infilled fracture, mod to strongly broken	
		143.44	143.91	0.47				MDST	SST	VFG	DGY					Gouge, carb MDST bands, bull's eye fracture	
70		143.91	145.08	1.17				SST		FG	MGY					Gouge, Sltst & Sst laminations	
	1.35						145.08										
		145.08	145.55	0.47				SST	MDST	FG	MGY					Gouge, broken & fractured, hinge zone 139-144m	
							box 47										
50		145.55	147.75	2.20				SST		FG	LGY					mm to cm scale MDST laminations, qtz veinlets	
		147.75	147.93	0.18				ROCK LOSS								ROCK LOSS	
		147.93	148.13	0.20				MDST		VFG	DGY					qtz veinlet	
	0.10						148.13										
		148.13	148.90	0.77				MDST		VFG	DGY					as above, END PG 22	
							box 48										
		148.90	149.27	0.37				ROCK LOSS								ROCK LOSS	
		149.27	150.18	0.91				MDST		VFG	DGY					Gouge, strongly sheared, cm scale clasts & qtz, brecciation, coalified lenses	
		150.18	151.18	1.00				SST	MDST	FG	MGY					Gouge, strongly sheared, coalified lenses, brecciation	
	0.42						151.18										
65		151.18	152.10	0.92				MDST	CARB	VFG	DGY		65			mm to cm scale coalified bands mixed with qtz, coal lenses, cm scale Sst laminations	
							box 49										
		152.10	152.25	0.15				ROCK LOSS								ROCK LOSS	
70		152.25	152.98	0.73				MDST		VFG	DGY	70				Carb MDST (cm scale), coal bands (cm scale)	
		152.98	153.18	0.20		40744		MDST		VFG	DGY	70				ROOF SAMPLE, part of above Mdst unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		153.18	154.22	1.04		40745		COAL	C6							SHC, numerous thick (plus 4cm) Mdst beds, One 3cm thick clay band. The clay band is filled with pyrite. The coal is very hard, heavy, and filled with irregular quartz veins. 75% rock & 25% coal	56
		154.22	154.48	0.26		40745		COAL LOSS								COAL LOSS END PG 23	56
	0.35						154.23										
		154.48	154.68	0.20		40756	40746	MDST	CARB	VFG	DGY-BLK	75				FLOOR SAMPLE, part of below Mdst unit.	0
75		154.68	155.73	1.05				MDST	CARB	VFG	DGY-BLK	75				Parasitic folds. Gouge, coal bands (cm scale), rip up clasts, qtz veinlets, pyrite	
75		155.73	157.28	1.55				MDST	CARB	VFG	DGY-BLK	75				10cm to 15cm band of coal mixed with qtz, pyrite within coal bands	
	0.61						157.28										
		157.28	158.62	1.34				MDST	SST	VFG	DGY	75				Gouge, cm scale Sst laminations, coalified bands, qta wwins	
							box 51										
		158.62	159.16	0.54				MDST		VFG	DGY					Pyrite band 4cm, gouge, coalified lense	
		159.16	159.36	0.20		40747		MDST		VFG	DGY					ROOF SAMPLE, part of above Mdst unit.	0
		159.36	159.71	0.35		40748		COAL	C6							Poor Sample, 80% rock & 20% coal, numerous mdst & clay bands, Coal is heavy & hard.	56
		159.71	159.89	0.18				COAL LOSS								COAL LOSS END PG 24	
		159.89	160.09	0.20		40749		MDST	SLT	VFG	DGY					FLOOR SAMPLE, part of below Mdst unit.	0
		160.09	160.32	0.23				MDST	SLT	VFG	DGY					mm to cm scale sltst, gouge	
	1.56						160.32										
70		160.32	161.95	1.63				MDST	SLT	VFG	DGY	70				as above, qtz infilled fractures	
							box 52										
		161.95	162.01	0.06				ROCK LOSS								ROCK LOSS	
70		162.01	163.37	1.36				MDST	SST	VFG	DGY	65				BCA changes	
	1.90						163.37										
		163.37	165.20	1.83				MDST	SST	VFG	DGY	60				Qtz infilled fractures, coalified lenses	
							box 53										
60		165.20	166.47	1.27				MDST	SST	VFG	DGY	60				as above	
	0.90						166.47										
		166.47	167.18	0.71				MDST	SST	VFG	DGY	60				as above	
55		167.18	168.35	1.17				SST		FG	LGY					mm to cm MDST laminations, cm scale Mdst clasts, broken and gouge like, END PG 25	
							box 54										
		168.35	168.98	0.63				SST		FG	LGY					Qtz veins, fractured surfaces have clay minerals	
		168.98	169.18	0.20		40750		SST		FG	LGY					ROOF SAMPLE, part of above SST unit.	0
		169.18	169.48	0.30		40676		COAL	CG							Strongly sheared and broken. NB: vertical bedding & shearing have made picking contacts between units difficult. Numerous mdst partings, hard, heavy, more rock than coal	55
	0.00						169.47										
		169.48	170.38	0.90		40676		COAL								As above coal	55
		170.38	170.82	0.44		40677		MDST	SLTST	VFG	BLK-GY					PARTING SAMPLE, Semi-solid, broken to bits in places, massive mdst. "z" fold in mdst, quartz veining	0
		170.82	171.09	0.27		40678		COAL	C6							Vertically bedded stoney coal 60% rock & 40% coal	55

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		171.09	171.32	0.23		40579	40679	MDST	SLTST	VFG	BLK-GY					PARTING SAMPLE, as above MDST/SLTST unit.	0
								BOX 55									
		171.32	171.70	0.38		40579	40679	MDST	SLTST							PARTING SAMPLE, as above MDST/SLTST unit.	0
		171.70	172.10	0.40		40580	40680	COAL	C6							Poor sample, stone coal, hard shink chunks of, but very light	55
		172.10	172.30	0.20		40581	40681	SST		MG	LGY					FLOOR SAMPLE, part of below Sst unit.	0
		172.30	172.52	0.22				SST		MG	LGY					Gouge, mm to cm scale MDST laminations, qtz veinlets	
	2.70							172.52									
		172.52	174.12	1.60				SST		MG	LGY					as above	
								box 56									
		174.12	175.56	1.44				SST		MG	LGY					Qtz infilled fractures ( fractures with vuggy cavites END PG 26	
	2.83							176.56									
		175.56	177.29	1.73				SST		FG	LGY					as above	
								box 57									
		177.29	178.61	1.32				SST		FG	LGY					as above	
	2.85							178.61									
		178.61	180.52	1.91				SST		FG	LGY					as above	
								box 58									
		180.52	181.66	1.14				SST		FG	LGY					as above, fold closure, MDST laminations along CA°	
	2.25							181.66									
		181.66	183.87	2.21				SST		FG	LGY					as aboe	
								box 59									
		183.87	184.72	0.85				SST		FG	LGY					as above	
	0.00							184.71									
		184.72	184.92	0.20		40682		SST		FG	LGY					ROOF SAMPLE, as above, END PG 27	0
		184.92	185.40	0.48		40683		COAL	C6		BLK					Soft, sheared to bits in places, mdst partings over entire interval, @ base:boney coal	54
		185.40	185.55	0.15		40684		MDST	SLTST	VFG						PARTING SAMPLE, massive mdst, last 4cm is Sitst	0
		185.55	185.74	0.19		40685		COAL	C5		BLK					As above coal	54
		185.74	185.88	0.14				COAL LOSS								COAL LOSS	
		185.88	186.08	0.20		40686		SST	MDST	FG	MGY					FLOOR SAMPLE, part of below SSt unit	0
		186.08	187.10	1.02				SST	MDST	FG	MGY					Gouge, coalified lenses, qtz infilled fractures woth vuggy cavites.	
								box 60									
		187.10	187.76	0.66				MDST	SST	VFG	MGY					Gouge )entire unit), pyrite, & coalified bands	
	0.00							187.76									
		187.76	190.05	2.29				MDST	SST	VFG	MGY					Qtz brecciation, gouge, rip up clasts, fault zone 187-192m	
								box 61									
65		190.05	190.80	0.75				MDST	SST	VFG	MGY		60			Gouge, polished fractured surfaces END PG 28	
	0.20							190.80									
50		190.80	191.54	0.74				MDST	SST	VFG	MGY		50			as above	
		191.54	192.29	0.75				SST		MG	MGY					Gouge. Strongly sheared and broken	
		192.29	192.83	0.54				ROCK LOSS								ROCK LOSS	
		192.83	193.85	1.02				MDST		VFG	DGY					mm to cm scale Sitst laminations, steepening of foliation, folded leucosomes, mod broken	
								box 62									



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	0.00						193.85										
60		193.85	194.70	0.85				MDST		VFG	DGY						mm to cm SLTST laminations, gouge, qtz veins
		194.70	195.56	0.86				SST		FG	LGY						mm to cm MDST, strongly sheared & brecciated
		195.56	196.01	0.45				MDST		VFG	DGY						5 to 10 cm band of coal mixed with Qtz & pyrite, pyrite mineralization in bands of about 3cm, hinge zone, current fractures almost horizontal END PG 29
							box 63										
		196.01	196.90	0.89				MDST		VFG	DGY						as above
	0.20						196.90										
		196.90	198.85	1.95				MDST	SST	VFG	DGY						Bands of coal mixed with Carb Mdst, Qtz brecciation, mm to cm scale Sst laminations, strongly broken
							box 64										
		198.85	199.95	1.10				MDST	SST	VFG	DGY						as above, moderately broken
	0.40						199.95										
30		199.95	202.14	2.19				MDST	SST	VFG	DGY		30				Rip up clasts, gouge, pyrite, coalified bands, low angle fracture, vuggy cavities in Qtz infilled fractures
							box 65										
		202.14	203.00	0.86				MDST	SST	VFG	DGY						Coal mixed with Qtz in fracture, vuggy cavities, mm to cm sst laminations, END PG 30
	0.84						203.00										
70		203.00	203.96	0.96				SST		FG	MGY		70				mm to cm scale MDST, END PG 30
		203.96	204.99	1.03				MDST		VFG	DGY						Coal mixed with Qtz in Carb MDST layer of 30cm, Qtz brecciation
							box 66										
		204.99	205.59	0.60				MDST		VFG	DGY						as above
		205.59	206.04	0.45				ROCK LOSS									ROCK LOSS
	1.68						206.04										
		206.04	206.26	0.22				ROCK LOSS									ROCK LOSS
		206.26	206.67	0.41				MDST	CARB	VFG	DGY-BLK						Coalified lenses, plant material, low angle fracture
		206.67	207.65	0.98				MDST	SST	VFG	MGY						Coal mixed with Qtz in parasitic folds, irregularly shaped leucosoma
60		207.65	208.50	0.85				SST		FG	LGY						mm scale MDST laminations, Qtz ceinlets
							box 67										
		208.50	209.09	0.59				SST	MDST	VFG	MGY						Rip up clasts, gouge, Carb Mdst 5cm, coalified bands
	1.41						209.09										
		209.09	209.42	0.33				ROCK LOSS									ROCK LOSS
		209.42	211.54	2.12				SST		FG-MG	LGY						Qtz veinlets, mod broken, gouge, MDST clasts END PG 31
							box 68										
		211.54	212.14	0.60				SST		FG-MG	LGY						mm to cm scale MDST laminations, Qtz infilled fractures
	1.89						212.14										
30		212.14	214.84	2.70				SST		FG-MG	LGY		30				Low angle fractures, gouge, Qtz infilled fractures, laminations display, offset and paracitic folds, plant material
							box 69										
		214.84	215.14	0.30				SST		FG	LGY						mm to cm scale MDST lamiantions, Qtz infilled fractures, parasitic folds, plant material
	1.15						215.19										
		215.14	215.64	0.50				SST		FG	LGY						as above

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70		215.64	216.74	1.10				MDST	SST	VFG	MGY					Coalified bands with Coal mixed with qtz gouge	
		216.74	217.74	1.00				SST	MDST	FG	MGY					Qtz infilled fractures with MDST, paraasitic fold, vuggy cavities END PG 32	
							box 70										
65		217.74	218.24	0.50				SST	MDST	FG	MGY		65			mm to cm scale MDST, qtz veinlets	
	1.05						218.24										
		218.24	220.48	2.24				SST	MDST	FG-MG	MGY					Mod broken, rip up clast, 20cm zone of Sst with MDST clasts	
							BOX 71										
65		220.48	221.28	0.80				SST	MDST	FG	MGY		65			mm to cm scale MDST laminations	
	0.68						221.28										
65		221.28	224.33	3.05				SST	MDST	FG	MGY		65			Steepening of foliation from 65° to 70° folded leucosomes	
	0.70						224.33										
		224.33	224.44	0.11				SST	MDST	FG	MGY					as above	
							BOX 72										
		224.44	225.12	0.68				SST		FG	MGY					MDST laminations folded, possible hinge zone here	
		225.12	225.55	0.43				MDST	SST	VFG	DGY					low angle laminations, END PG 33	
		225.55	226.15	0.60				SST		FG	MGY					cm scale MDST laminations	
		226.15	227.38	1.23				SST	MDST	FG	MGY					Qtz veins	
	0.50						227.38										
		227.38	227.60	0.22				SST	MDST	FG	MGY					as above	
		227.60	227.73	0.13				ROCK LOSS								ROCK LOSS	
							BOX 73										
85		227.73	228.76	1.03				SST	MDST	FG	MGY		85			Qtz veinlets, strongly broken at bottom on interval	
		228.76	228.96	0.20		40687		SST	MDST	FG	MGY		85			ROOF SAMPLE, part of above SST/MDST unit	0
		228.96	229.34	0.38		40688		COAL	C5		BLK					Solid boney at start, then sheared to bits @ bit. Blocky cleavage at base.	50
		229.34	229.59	0.25		40688		COAL LOSS								COAL LOSS	50
		229.59	229.87	0.28		40689		SHC LOSS								SHC LOSS	0
		229.87	230.23	0.36		40689		SHC	C6							Sheared to small bits of dull coal, blocky cleavage	0
		230.23	230.43	0.20		40690		MDST	SST	VFG	DGY					FLOOR SAMPLE, part of below unit.	0
		230.43	231.19	0.76				MDST	SST	VFG	DGY					Bulls eye, fold closures, hinge zone 228-231m, END PG 34	
	0.39						230.43										
							BOX 74										
		231.19	232.35	1.16				MDST		VFG	DGY					Coalified lenses, plant material, Qtz veins & infilled fractures, gouge, mm to cm scale Sst laminations, slickensides on fractured surfaces.	
		232.35	232.55	0.20		40691		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit	0
		232.55	233.10	0.55		40692		COAL	CG		BLK					First 30cm solid, last 30cm sheared to bits. Mdst partings over entire interval, 65% coal & 35% rock	50
		233.10	233.30	0.20		40693		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0
		233.30	233.66	0.36				MDST		VFG	DGY					Low angle fractures, qtz veinlets	
	1.56						233.48										
60		233.66	233.79	0.13				SST	MDST	FG	MGY		60			Qtz fold closures, mm to cm scale MDST laminations	
							BOX 75										
60		233.79	236.52	2.73				SST	MDST	FG	MGY		60			Qtz & dolomite in fractures, END PG 35	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	2.53						236.52										
		236.52	236.76	0.24				SST	MDST	FG	MGY					as above	
							BOX 76										
60		236.76	239.51	2.75				SST	MDST	FG	MGY		60			mm to cm scale MDST laminations, qtz veinlets	
		239.51	239.57	0.06				ROCK LOSS								ROCK LOSS	
	0.91						239.57										
60		239.57	240.16	0.59				SST	MDST	FG	MGY		60			as above	
							BOX 77										
45		240.16	241.04	0.88				MDST	SST	VFG	MG-DGY		45			Qtz & dolomite in fractures	
55		241.04	242.09	1.05				MDST	CARB	VFG	DGY-BLK		55			Qtz veinlets, coalified lenses	
		242.09	242.17	0.08				ROCK LOSS								ROCK LOSS	
		242.17	242.62	0.45				MDST	SST	VFG	MGY					Coal bands, qtz and dolomite in vuggy cavities	
	0.80						242.62										
75		242.62	243.35	0.73				SST	MDST	FG	MGY					Qtz & dolomite in fractures with vuggy cavities, carb MDST (MM to cm scale), END PG 36	
							BOX 78										
		243.35	245.67	2.32				SST		MG	LGY					Mod broken, gouge, qtz & dolomite in fractures with vuggy cavities, 5cm band of Qtz and dolomite	
	1.43						245.67										
45		245.67	246.36	0.69				SST	MDST	FG	MGY		45			mm to cm scale MDST laminations, Qtz infilled fractures	
							BOX 79										
		246.36	246.48	0.12				ROCK LOSS								ROCK LOSS	
60		246.48	248.72	2.24				SST	MDST	FG	MGY-DGY		60			as above, trace fossils, plant material	
	0.70						248.72										
		248.72	249.76	1.04				SST	MDST	FG	MGY-DGY					as above	
							BOX 80										
60		249.76	251.62	1.86				MDST	CARB	VFG	DGY-BLK		60			Plant material, fossils bivalve, mm to cm scale Siltst laminations	
		251.62	251.76	0.14				ROCK LOSS								ROCK LOSS	
	1.14						251.76										
		251.76	253.26	1.50				MDST	CARB	VFG	DGY-BLK					as above END PG 37	
							BOX 81										
		253.26	254.75	1.49				SST	SLT	FG	LGY-MGY					Lots of trace fossils and fossils, bivalve, plant material	
		254.75	254.81	0.06				ROCK LOSS								ROCK LOSS	
	2.50						254.81										
		254.81	256.41	1.60				SST	MDST	FG	MGY					Plant material	
							BOX 82										
		256.41	256.48	0.07				ROCK LOSS								ROCK LOSS	
		256.48	257.88	1.40				SST	MDST	FG	MGY					Coalified, Qtz veinlets, Carb MDST	
	0.50						257.88										
50		257.88	259.84	1.96				MDST	SST	VFG	DGY					mm to cm scale Carb MDST, Plant material, coalified lenses, Qtz infilled fractures	
							BOX 83										
		259.84	260.91	1.07				MDST	CARB	VFG	DGY-BLK					Qtz infilled fractures, pyrite, gouge, coalified lenses END PG 38	
	1.60						260.91										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
90		260.91	263.02	2.11				MDST		VFG	DGY		50			Coalified lenses, Qtz infilled fractures, Slickenslides on polished fracture surfaces, gouge, plant material	
							BOX 84										
		263.02	263.96	0.94				MDST		VFG	DGY					as above	
	0.62						263.96										
		263.96	265.03	1.07				SST	MDST	FG	MGY					Coalified lenses, gouge, Qtz infilled fractures	
85		265.03	266.38	1.35				MDST		VFG	DGY		85			Plant material, coalified lense, mm scale Sltst laminations	
							BOX 85										
		266.38	267.00	0.62				MDST		VFG	DGY		75			as above	
	2.36						267.00										
75		267.00	269.73	2.73				SST	MDST	FG	MGY		75			Coalified lenses, Qtz infilled fractures, cm scale coal bands, END PG 39	
							BOX 86										
		269.73	270.05	0.32				SST	MDST	FG	MGY					as above, sand increasing	
	2.40						270.05										
75		270.05	273.10	3.05				SST		FG	LGY		75			mm to cm scale Sst, Qtz and dolomite in fractures	
							BOX 87										
	1.44						273.10										
		273.10	274.41	1.31				SST		MG	LGY					Qtz infilled fractues with dolomite & vuggy cavities	
		274.41	274.64	0.23				ROCK LOSS								ROCK LOSS	
		274.64	275.24	0.60				MDST		VFG	DGY					Coalified bands, Qtz infilled fracture, mm to cm scale Sst	
		275.24	275.44	0.20		40694		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		275.44	275.95	0.51		40695		COAL	C4		BLK					Solid minor amount of bright bands, thinnly laminated, thin Mdst beds & stringers, pyrite blebs	45
		275.95	276.15	0.20		40696		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit. END PG 40	0
		276.15	276.28	0.13				MDST		VFG	DGY					Gouge, coalified bands, pyrite, Carb MDST, Qtz veinlets	
	2.13						276.15										
60		276.28	276.65	0.37				COAL								Coal, very stoney NOT SAMPLED	
							BOX 88										
70		276.65	279.20	2.55				SST	MDST	VFG	MGY		70			fold closure, qtz veinlets, mm to cm scale Carb MDST, foliation steepening	
	0.55						279.20										
		279.20	279.80	0.60				SST	MDST	VFG	MGY					Coalified bands, hinge zone 278-280, END PG 41	
							BOX 89										
20		279.80	282.10	2.30				SST	MDST	FG	MGY		22			Steepening of bedding planes, Qtz infilled fractures, gouge	
		282.10	282.24	0.14				ROCK LOSS								ROCK LOSS	
	0.57						282.24										
		282.24	282.89	0.65				MDST		VFG	DGY					Bands of coal (cm scale), strongly sheared & broken, gouge	
							BOX 90										
85		282.89	285.17	2.28				MDST		VFG	DGY		85			Gouge on top, very fine porpous fractures, mm to cm scale Sltst, slickenslides on fracture surfaces	
		285.17	285.29	0.12				ROCK LOSS								ROCK LOSS	
	1.08						285.29										
		285.29	285.46	0.17				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
60		285.46	286.18	0.72				MDST		VFG	DGY	60				mm to cm scale Sltst laminations, slickensides on fractures	
							BOX 91										
		286.18	288.34	2.16				SST	MDST	FG	MGY					Coalified bands, plant material, fossils	
	1.77						288.34										
65		288.34	289.42	1.08				SST	MDST	FG	MGY		60			as above	
							BOX 92										
65		289.42	291.39	1.97				SST	MDST	FG	MGY		65			Qtz infilles fractures with vuggy cavites, plant material	
	2.08						291.39										
		291.39	292.66	1.27				SST	MDST	FG	MGY					as above	
							BOX 93										
		292.66	294.44	1.78				SST		FG-MG	GY					cm scale MDST clasts, mm scale MDST laminations, Qtz infilled fractures	
	1.30						294.44										
		294.44	294.79	0.35				SST		FG-MG	LGY					as above	
		294.79	294.93	0.14				ROCK LOSS								ROCK LOSS	
65		294.93	296.09	1.16				MDST	SST	VFG	DGY		65			mm to cm sclae Carb MDST, mm to cm sclae Sst laminations	
							BOX 94										
70		296.09	296.24	0.15				MDST		VFG	DGY		70			Coalified bands	
		296.24	296.44	0.20		40697		MDST		VFG	DGY		70			ROOF SAMPLE, part of above MDST, END PG 43	0
70		296.44	297.04	0.60		40698		COAL	C3		BLK					Solid, numerous bright bands, blocky cleavage, pyrite beds & blebs in MDST parting	40
		297.04	297.15	0.11		40698		COAL LOSS								COAL LOSS	40
		297.15	297.35	0.20		40699		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		297.35	297.66	0.31				MDST		VFG	DGY					Carb Mdst, coal bands, Qtz in fractures	
	1.60						297.48										
		297.66	297.92	0.26		40700		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		297.92	298.41	0.49		AT10081		COAL	C4		BLK					As above coal, except this interval has more MDST partings	40
		298.41	298.60	0.19		AT10081		COAL LOSS									40
		298.60	298.80	0.20		AT10082		MDST		VFG	DGY		75			FLOOR SAMPLE, part of below MDST unit END PG 44	0
75		298.80	299.34	0.54				MDST		VFG	DGY		75			Top part is Carb MDST, SST laminations at bottom, coalified bands and lenses	
							BOX 95										
70		299.34	300.53	1.19				SST	MDST	FG	MGY		70			Qtz fractures	
	2.26						300.53										
70		300.53	302.34	1.81				SST	MDST	FG	MGY		70			as above	
							BOX 96										
		302.34	303.77	1.43				SST	MDST	FG	MGY					as above	
	1.20						303.58										
		303.77	304.80	1.03				SST	MDST	FG	MGY					as above	
		304.80	305.00	0.20		AT10083		SST	MDST	FG	MGY					ROOF SAMPLE, part of above SST unit.	0
		305.00	305.24	0.24		AT10084		COAL	C6							Boney stoney, hard, heavy coal, 60% rock & 40% coal, END PG 45	40
		305.24	305.44	0.20		AT10085		MDST	CARB	VFG	DGY					FLOOR SAMPLE, part of below MDST	0
		305.44	305.82	0.38				MDST	CARB	VFG	DGY					Coal bands	
							BOX 97										
		305.82	306.75	0.93				MDST	SST	VFG	DGY					Coalified lenses	
	0.33						306.63										

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2		Notes	Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA	
		306.75	306.85	0.10				ROCK LOSS								ROCK LOSS
88		306.85	309.00	2.15				MDST	SST	VFG	DGY		88			cm scale coal bands
							BOX 98									
		309.00	309.20	0.20		AT10086		MDST	SST	VFG	DGY		88			ROOF SAMPLE, part of below MDST
		309.20	309.60	0.40		AT10087		COAL	C5		BLK					Numerous mdst bands, quartz veinong
		309.60	310.10	0.50		AT10088		COAL	C3							Good clean light coal with a few mdst beds @ the base, bright bands through out
		310.10	310.20	0.10		AT10088		COAL LOSS								COAL LOSS END PG 46
		310.20	310.40	0.20		AT10089		MDST	SST	VFG	MGY		75			FLOOR SAMPLE, part of below MDST
	0.60						309.68									
75		310.40	312.44	2.04				MDST	SST	VFG	MGY		75			cm scale coal bands, pyrite, sand increasing towards bottom
							BOX 99									
		312.44	312.72	0.28				SST		FG	LGY					mm to cm scale MDST
	1.14						312.72									
		312.72	315.70	2.98				SST		FG	LGY					as above
		315.70	315.80	0.10				ROCK LOSS								ROCK LOSS
							BOX 100									
		315.80	316.15	0.35				SST		FG	LGY					as above, EOH 315.75, END PG 47

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-07
Drilling Start Date	29-Sep-12
Drilling Finish Date	30-Sep-12
Confirmed Easting	541125.7979
Confirmed Northing	6307678.5091
Elevation	1107.1272
Azimuth	
Dip	-90
Depth	284.49
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	541126
PreCollar Northing	6307678
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	5-Oct-12
Coal Logger	BVDB
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		0.00	4.26	4.26												OVB, casing marker-5.18m	
							BOX 1										
		4.26	5.18	0.92				MDST		VFG	DGY					Rubble, cm-scale gouge band	
	0.00						5.18										
70		5.18	6.74	1.56				MDST		VFG	DGY					Few mm-scale Sltst+Sst laminations	
							BOX 2										
		6.74	7.06	0.32				ROCK LOSS								ROCK LOSS	
		7.06	8.23	1.17				MDST		VFG	DGY					As above broken core	
	1.09						8.23										
70		8.23	9.76	1.53				MDST		VFG	DGY					As above	
							BOX 3										
		9.76	11.18	1.42				MDST		VFG	DGY					As above	
	0.15						11.28										
70		11.18	12.23	1.05				MDST		VFG	DGY					As above	
							BOX 4										
		12.23	13.27	1.04				ROCK LOSS								ROCK LOSS	
		13.27	14.37	1.10				MDST		VFG	DGY		15			As above, 7cm gouge/coal band+12cm quartz band near middle of interval, END PG 1	
	0.14						14.37										
70		14.37	15.47	1.10				MDST		VFG	DGY					Same as unit above, 20cm Course grained Sst dominant band towards base of interval, 3cm quartz+ gouge band, very few mm-scale quartz veinlets infilling fractures	
55																	
							BOX 5										
		15.47	16.30	0.83				ROCK LOSS								ROCK LOSS	
		16.30	17.19	0.89				MDST		VFG	DGY					As above unit slickenslides on fractures surfaces	
	0.77						17.37										
		17.19	18.77	1.58				MDST		VFG	DGY					As above, 20cm Sst dominant band towards bottom of interval	
							BOX 6										
		18.77	19.45	0.68				MDST		VFG	DGY					As above, lower 5cm is Carb Mdst with coaly lamiantions	
		19.45	19.65	0.20		40701		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		19.65	19.93	0.28		40702		COAL	C3						Light ash bands, qtz veinlets, END PG 2	80	
	0.24						20.42										
		19.93	19.98	0.05		40703		MDST	CARB						Carbonaceous Mudstone	0	
		19.98	20.25	0.27		40703		ROCK LOSS							ROCK LOSS	0	
		20.25	20.38	0.13		40704		COAL	C2						Minor bright bands of coal	80	
		20.38	20.49	0.11		40704		COAL	C5						As above	80	
		20.49	20.73	0.24		40704		COAL							As above	80	
		20.73	21.20	0.47		40704		COAL LOSS							COAL LOSS	80	
		21.20	21.33	0.13				ROCK LOSS							ROCK LOSS		
		21.33	21.99	0.66		40705		MDST	CARB	VFG	DGY				Few mm-cm scale coal+quartz lamiantions	0	
		21.99	22.42	0.43		40706		COAL	C2						Minor high ash bands, qtz veins	80	
							BOX 7										
		22.42	22.58	0.16		40707		MDST	CARB						Abundant coal & qtz stringers	0	
		22.58	23.20	0.62		40708		COAL	C2						Some shearing at top of unit banded with qtz at base, END PG 3	80	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	0.85						23.47											
		23.20	23.40	0.20		40709		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
																	mm-cm scale quartz veinlets infilling fractures, few mm scale coal+quartz laminations, lower third of interval is thoroughly broken same Sst lamintions.	
50		23.40	24.63	1.23				MDST		VFG	DGY							
		24.63	24.92	0.29				SST		MG	MGY						Few mm-cmscale MDST laminations	
							BOX 8											
		24.92	25.52	0.60				SST		MG	MGY						As above	
	2.17						26.52											
50		25.52	27.98	2.46				SST		MG	MGY						As above, few mm-scale quartz veinlets infilling fractures, ;ower 0.5m is course grained Sst, slickenslides on fracture surfaces	
							BOX 9											
		27.98	28.88	0.90				ROCK LOSS									ROCK LOSS	
60		28.88	29.57	0.69				SST		CG	DGY						Few mm-sclae MDST laminations, END PG 4	
	0.32						29.57											
		29.57	29.70	0.13				ROCK LOSS									ROCK LOSS	
		29.70	30.20	0.50		40710		COAL	C3								Sheared remnant cleating, qtz veinlets	78
		30.20	30.97	0.77				MDST		VFG	DGY		0				Few mm-scale coaly lenses, slickenslides on fracture surfaces, moderately broken	
70		30.97	31.64	0.67				SST	MDST	MG	MGY						Polished fracture surfaces, moderately broken mm-scale quartz veinlets infilling fractures, mm-scale MDST laminations	
							BOX 10											
		31.64	32.23	0.59				ROCK LOSS									ROCK LOSS	
		32.23	32.61	0.38				SST	MDST	MG	MGY						As above	
	1.15						32.61											
		32.61	33.99	1.38				SST	MDST	MG	MGY						As above, END PG 5	
		33.99	34.90	0.91				SST		MG	MGY						Few mm-scale quartz veinlets+mdst laminations	
							BOX 11											
		34.90	35.52	0.62				SST		MG	MGY						As above, vuggy cavites in quartz veinlets	
		35.52	35.66	0.14				ROCK LOSS									ROCK LOSS	
	2.37						35.66											
		35.66	38.05	2.39				SST		MG	MGY		35				As above, few cm-scale quartz veinlets with dolomite	
							BOX 12											
		38.05	38.57	0.52				SST		MG	MGY						As above	
	0.84						38.71											
		38.57	40.76	2.19				SST		MG	MGY		0-10				As above, very fractured-low angle fractures	
							BOX 13											
		40.76	40.83	0.07				ROCK LOSS									ROCK LOSS	
		40.83	41.76	0.93				SST		MG	MGY						As above	
	2.62						41.76											
		41.76	42.01	0.25				SST		MG	MGY						As above, END PG 6	
75		42.01	43.95	1.94				SST	MDST	MG	MGY						mm-cm scale MDST laminations	
							BOX 14											
70		43.95	44.81	0.86				SST	MDST	MG	MGY						As above, few mm-cm scale quartz veinlets, infilling fractures	
	2.58						44.81											
60		44.81	46.99	2.18				SST	MDST	MG	MGY						As above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 15											
60		46.99	47.77	0.78				SST	MDST	MG	MGY						As above	
	2.54						47.85											
60		47.77	49.95	2.18				SST	MDST	MG	MGY						As above	
							BOX 16											
		49.95	50.15	0.20				ROCK LOSS									ROCK LOSS	
		50.15	50.90	0.75				MDST	SST	FG	DGY						mm-cm scale Sst laminations	
	2.65						50.90											
50		50.90	53.29	2.39				MDST	SST	FG	DGY						As above, END PG 7	
							BOX 17											
		53.29	53.88	0.59				MDST		VFG	DGY						As above, few Sst laminations	
	2.07						53.95											
55		53.88	56.28	2.40				MDST		VFG	DGY						As above, few mm-scale quartz veinlets, infilling fractures	
							BOX 18											
		56.28	56.87	0.59				MDST		VFG	DGY						As above	
	1.14						57.00											
55		56.87	58.35	1.48				MDST		VFG	DGY						As above, few mm-scale coaly lenses, hard base of interval	
		58.35	58.55	0.20		40711		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit.	0
		58.55	59.10	0.55		40712		COAL	C3								Muddy bands in unit	70
		59.10	59.30	0.20		40713		MDST	CARB								PARTING SAMPLE. Sheared listric surfaces	0
		59.30	59.50	0.20		40714		COAL	C3								Strongly sheared, powdered (no grains), END PG 8	70
							BOX 19											
		59.50	59.80	0.30		40714		COAL	C3								As above	70
	0.39						60.05											
		59.80	60.30	0.50		40714		COAL									As above	70
		60.30	61.30	1.00		40715		COAL									As above	70
		61.30	62.40	1.10		40716		COAL									As above, END PG 9	70
60		62.40	62.60	0.20		40717		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		62.60	62.71	0.11													Few mm-scale quartz veinlwt, coalified lenses	
							BOX 20											
		62.71	62.94	0.23				ROCK LOSS									ROCK LOSS	
		62.94	63.09	0.15				MDST		VFG	DGY						As above up to cm scale veinlets infilling fractures with quartz+dolomite	
	1.84						63.09											
70		63.09	66.01	2.92				MDST		VFG	DGY						As above few mm-cm scale Sst laminations	
		66.01	66.14	0.13				ROCK LOSS									ROCK LOSS	
	2.27						66.14											
							BOX 21											
60		66.14	69.13	2.99				SST	MDST	FG	MGY						mm-cm scale MDST (fine grained) laminations, few mm-cm scale quartz veinlets	
		69.13	69.30	0.17				SST	MDST	FG	MGY						As above	
							BOX 22											
60		69.30	72.00	2.70				SST	MDST	FG	MGY						Few mm-cm scale MDST laminations, END PG 10	
		72.00	72.24	0.24				ROCK LOSS									ROCK LOSS	
	2.3						72.24											
		72.24	72.42	0.18				SST	MDST	FG	MGY		60				As above	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 23										
60		72.42	75.24	2.82				SST	MDST	FG	MGY		60			As above	
		75.24	75.29	0.05				ROCK LOSS								ROCK LOSS	
	1.07						75.29										
		75.29	75.71	0.42				ROCK LOSS								ROCK LOSS	
		75.71	76.09	0.38				SST	MDST	FG	MGY		60			As above	
							BOX 24										
60		76.09	78.33	2.24				SST	MDST	FG	MGY		60			As above, cm-scale gouge band	
	1.72						78.33										
60		78.33	78.71	0.38				SST	MDST	FG	MGY					As above	
							BOX 25										
55		78.71	81.16	2.45				SST	MDST	FG	MGY		55			As above two cm-scale quartz bands	
		81.16	81.38	0.22				ROCK LOSS								ROCK LOSS	
	1.6						81.38										
55		81.38	81.96	0.58				SST	MDST	FG	MGY		55			As above increasing MDST content towards base of interval, END PG 11	
							BOX 26										
60		81.96	82.49	0.53				SST	MDST	FG	MGY					As above	
		82.49	82.56	0.07				ROCK LOSS								ROCK LOSS	
		82.56	84.34	1.78				MDST		VFG	DGY					Mdst	
	0.55						84.43										
		84.34	85.04	0.70				MDST		VFG	DGY		60			Very few cm-scale quartz veinlets	
							BOX 27										
50		85.04	86.30	1.26				MDST		VFG	DGY					As above, Carb Mdst towards base of interval with few mm-scale coalified lenses, cm-scale gouge band.	
		86.30	86.50	0.20		40718		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		86.50	86.66	0.16		40719		COAL	C3							Solid, abundant quartz	60
		86.66	87.09	0.43		40719		COAL	C4							Sheared	60
		87.09	87.18	0.09		40719		MDST	CARB							Solid, high angle fracture	0
		87.18	87.26	0.08		40719		COAL	C3							Sheared, broken	60
	0.68						87.48										
		87.26	87.47	0.21		40719		COAL LOSS								COAL LOSS	60
		87.47	87.50	0.03		40719		COAL								As above, END PG 12	60
		87.50	87.70	0.20		40720		SST	MDST	FG	MGY					FLOOR SAMPLE, part of below SST/MDST unit.	0
70		87.70	88.22	0.52				SST	MDST	FG	MGY					mm-cm scale MDST laminations	
							BOX 28										
		88.22	89.02	0.80				ROCK LOSS								ROCK LOSS	
65		89.02	90.39	1.37				MDST		VFG	DGY		65			Few mm-cm scale SST laminations @ top of interval, few cm-scale quartz veinlets, 5cm gouge band near base of interval, polished fracture surfaces	
	0.84						90.53										
		90.39	90.54	0.15				COAL			BLK+WHT					Coal with quartz, few bright bands	
60		90.54	91.29	0.75				SST		MG	LGY					Few mm-cm scale MDST bands @ top, few cm-scale MDST rounded clasts	
							BOX 29										
65		91.29	92.86	1.57				SST		MG	LGY						
		92.86	93.06	0.20		40721		SST		MG	LGY					ROOF SAMPLE, part of above Sst unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		93.06	93.23	0.17		40722		COAL	C3							Very sheared, distorted, END PG 13	60
	1.14						93.57										
		93.23	93.82	0.59		40722		COAL								As above	60
		93.82	93.97	0.15		40722		COAL	C3							Solid banded	60
		93.97	94.04	0.07		40722		COAL	C2							Sheared	60
		94.04	94.15	0.11		40723		MDST		VFG	DGY					FLOOR SAMPLE, few mm-scale coalified lenses	0
		94.15	94.23	0.08		40723		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
							BOX 30										
		94.23	94.85	0.62				MDST		VFG	DGY					As above, few cm-scale Sst lamintions @ base of interval, few mm-scale quartz veinlets infilling fractures	
70		94.85	96.38	1.53				SST	MDST	MG	MGY			70		mm-cm scale MDST lamintions, very few mm-scale quartz veinlets, END PG 14	
		96.38	96.62	0.24				ROCK LOSS								ROCK LOSS	
	1.16						96.62										
		96.62	97.58	0.96				SST	MDST	MG	MGY					As above, few mm-scale coally lamintions, few MDST clasts	
							BOX 31										
		97.58	97.86	0.28				SST	MDST	MG	MGY					As above	
70		97.86	99.67	1.81				MDST		VFG	DGY					Few mm-scale quartz veinlets+coaly lenses	
	2.48						99.67										
		99.67	100.87	1.20				MDST		VFG	DGY			70		As above, mm-scale pyrite blebs near two 3cm coal bands with quartz, Fine porous cracks few Sst lamintion @ base.	
							BOX 32										
		100.87	102.61	1.74				SST		FG	MGY					Few mm-cm scale MDST laminations	
		102.61	102.72	0.11				ROCK LOSS								ROCK LOSS	
	2.35						102.72										
70		102.72	103.82	1.10				SST		FG	MGY					As above, 15 cm band with mm-scale quartz lenses. Possible shell fragments/fossils, END PG 15	
		103.82	104.15	0.33				MDST		VFG	DGY					Fine porous cracks few possible shell fossils, few mm-scale quartz veinlets	
							BOX 33										
		104.15	105.71	1.56				MDST		VFG	DGY			75		Fine porous cracks few pyrite blebs (mm-scale)	
	2.66						105.77										
		105.71	107.44	1.73				MDST		VFG	DGY					As above	
							Box 34										
		107.44	108.00	0.56				MDST		VFG	DGY					As above, few Sst laminations	
70		108.00	108.76	0.76				SST	MDST	FG	MGY					mm-cm scale Mdst lamintions, slickensides on fracture surfaces	
		108.76	108.81	0.05				ROCK LOSS								ROCK LOSS	
	1.97						108.81										
		108.81	109.01	0.20				SST	MDST	FG	MGY					As above	
50		109.01	110.57	1.56				SST		FG	MGY					Few mm-cm scale MDST lamintions, few mm-scale quartz veinlets, END PG 16	
								ROCK LOSS								ROCK LOSS	
							BOX 35										
		110.57	111.78	1.21				SST		FG	MGY					As above, 20cm course grained Sst band. Quartz infilling fractures	
		111.78	111.86	0.08													

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.43						111.86											
		111.86	113.08	1.22				SST		FG	MGY							As above
		113.08	113.31	0.23				SST	MDST	FG	DGY							mm-cm scale MDST laminations
							BOX 36											
		113.31	114.65	1.34				SST	MDST	FG	DGY							As above, quartz infilling fractures (mm-scale), alickenslides on fracture surfaces
		114.65	114.91	0.26				ROCK LOSS										ROCK LOSS
	2.46						114.91											
		114.91	116.03	1.12				SST	MDST	FG	DGY							As above
		116.03	116.53	0.50				SST		MG	MGY							Very few mm-scale MDST laminations
							BOX 37											
25		116.53	117.96	1.43				SST		MG	MGY							As above, fold hinge/closure in bedding, few cm-scal rounded mdst clasts. END PG 17
	2.28						117.96											
25		117.96	119.20	1.24				SST		MG	MGY							As above
		119.20	119.83	0.63				SST		CG	LGY							SST
							BOX 38											
		119.83	121.01	1.18				SST		CG-MG	LGY							Very few MDST laminations (mm-scale) & mm-scale quartz veinlets
	1.83						121.01											
30		121.01	122.86	1.85				SST		MG	MGY							Few mm-scale MDST laminations
10		122.86	123.09	0.23				ROCK LOSS										ROCK LOSS
							BOX 39											
		123.09	124.05	0.96				SST		MG	MGY							As above, fold hinge in bedding
	2.05						124.05											
5		124.05	126.21	2.16				SST		FG	MGY							As above, some MDST rich zones, fold closure in bedding, increasing MDST content with depth, hinge zone ~124-128m, END PG 18
							BOX 40											
		126.21	126.84	0.63				SST	MDST	FG	DGY							mm-cm scale MDST laminations fold closure in bedding, mm-scale quartz infilling fractures
		126.84	127.10	0.26				ROCK LOSS										ROCK LOSS
	1.85						127.10											
5		127.10	127.75	0.65				SST	MDST	FG	DGY							As above
		127.75	129.34	1.59				SST		VFG	LGY							Very few MDST laminations and lenses, possible fossil fragments
10		129.34	129.68	0.34				MDST		VFG	DGY							Very few SST laminations
							BOX 41											
		129.68	130.15	0.47				MDST		VFG	DGY		5					As above, slickenslides on fracture surfaces
	1.44						130.15											
		130.15	131.89	1.74				MDST		VFG	DGY							As above, increasing Sst content
		131.89	133.03	1.14				SST		FG	MGY							Few mm-scale quartz veinlets & MDST laminations, END PG 19
		133.03	133.10	0.07				ROCK LOSS										ROCK LOSS
							BOX 42											
		133.10	133.20	0.10				MDST	SST	FG	DGY							cm-scale Sst laminations, cm-scale quartz vein with MDST breccia fragments
	1.38						133.20											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
5		133.20	135.39	2.19				MDST	VFG	DGY		5				Few mm-cm scale Sst laminations, ≈ 20cm broken core zone with quartz breccia & gouge & slickensides on fracture surfaces	
30		135.39	136.19	0.80				SST	MDST	MG	MGY					4cm quartz +dolomite band with vuggy cavities @ top of interval, mm-scale MDST lamiantions, few mm-scale quartz veinlets	
		136.19	136.25	0.06				ROCK LOSS								ROCK LOSS	
							BOX 43										
1.72							136.25										
20		136.25	139.08	2.83				SST	MDST	MG	MGY					As above, fold closure in bedding, few mm-scale quartz infilling fractures (20cm zone with dense quartz infilling) slickensides on fracture surfaces, 1cm quartz+dolomite band. END PG 20	
40		139.08	139.29	0.21				ROCK LOSS								ROCK LOSS	
	1.61						139.29										
							BOX 44										
40		139.29	140.58	1.29				SST	MDST	MG	MGY					As above	
25		140.58	141.60	1.02				MDST	SST	FG	DGY					Gradatoinal contact between Sst above and and MDST below, mm-cm scale laminations, few mm-scale quartz veinlets	
		141.60	141.82	0.22				ROCK LOSS								ROCK LOSS	
		141.82	142.33	0.51				MDST		VFG	DGY					Very few Sst laminations (mm-scale)	
	2.44						142.34										
30		142.33	142.73	0.40				MDST		VFG	DGY					As above	
							BOX 45										
		142.73	145.39	2.66				MDST		VFG	DGY					As above very few pyrite blebs, up to cm-scale	
	2.46						145.39										
		145.39	146.00	0.61				MDST		VFG	DGY					As above, END PG 21	
							BOX 46										
		146.00	148.44	2.44				MDST		VFG	DGY					As above	
	2.34						148.44										
		148.44	149.32	0.88				MDST		VFG	DGY	35°	60°			As above, fine porous cracks	
							BOX 47										
		149.32	151.45	2.13				MDST		VFG	DGY					As above	
		151.45	151.49	0.04				ROCK LOSS								ROCK LOSS	
	2.57						151.49										
		151.49	152.62	1.13				MDST		VFG	DGY					As above	
							BOX 48										
		152.62	153.95	1.33				MDST		VFG	DGY					As above	
40		153.95	154.53	0.58				SST		MG	MGY					Few mm-cm scale MDST lamiantions, mm-scale quartz veinlets infilling fractures, fold closure in bedding, 5cm quartz band toward bottom of interval, wavy & irregular bedding. END PG 22	
	2.18						154.53										
30		154.53	155.87	1.34				SST		MG	MGY	30				As above polished surfaces	
							BOX 49										
		155.87	155.94	0.07				ROCK LOSS								ROCK LOSS	
		155.94	157.04	1.10				SST		MG	MGY					As above- increasing MDST content with depth (gradational contact with MDST unit below)	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		157.04	157.58	0.54				MDST		VFG	DGY					Few mm-scale Sst laminations at top (gradational contact with unit above)	
	2.17					157.58											
		157.58	159.08	1.50				MDST		VFG	DGY					As above (no SST) 5cm quartz band in middle	
						BOX 50											
		159.08	160.52	1.44				MDST		VFG	DGY					As above	
	1.40					160.63											
		160.52	162.24	1.72				MDST		VFG	DGY					As above, END PG 23	
						BOX 51											
		162.24	163.53	1.29				MDST		VFG	DGY					As above, few cm-scale pyrite blebs, few Sst laminations toward base of interval+ 10cm Sst band	
		163.53	163.66	0.13				ROCK LOSS								ROCK LOSS	
	0.37					163.68											
		163.66	165.50	1.84				MDST	SST	VFG	DGY					cm scale Sst bands, mm-cm scale quartz+dolomite infilling fractures throughout, some MDST breccia fragments in quartz, 5cm Carb gouge band with quartz	
						BOX 52											
		165.50	165.77	0.27				MDST	SST	VFG	DGY					As above, 10cm quartz+dolomite band.	
		165.77	166.21	0.44	40724			COAL	C4							Qtz veinlets, moderately sheared, END PG 24	55
50		166.21	166.56	0.35				SST	MDST	CG	MGY					mm-cm scale MDST bands, MDST+SST breccia fragments in quartz	
		166.56	166.73	0.17				ROCK LOSS								ROCK LOSS	
	0.65					166.73											
60		166.73	168.56	1.83				SST		CG	LGY					Few mm-cm scale MDST laminations mm-cm scale quartz+dolomite infilling fractures 10cm broken core+gouge	
						BOX 53											
		168.56	169.56	1.00				SST	MDST	CG	MGY					mm-cm scale MDST laminations, 25cm gouge zone, mm-cm scale quartz+dolomite infilling fractures	
		169.56	169.67	0.11				ROCK LOSS								ROCK LOSS	
	0.74					169.77											
		169.67	169.92	0.25				SST	MDST	CG	MGY					As above	
		169.92	170.12	0.20	40725			SST	MDST	CG	MGY					ROOF SAMPLE, part of above Sst unit.	0
		170.12	171.20	1.08	40726			COAL		C3						Strongly sheared, powdered, occasional MDST with pyrite, END PG 25	55
		171.20	171.40	0.20	40727			SST	MDST	MG	MGY					FLOOR SAMPLE, part of below SST/MDST unit.	0
		171.40	171.69	0.29				SST	MDST	MG	MGY					mm-cm scale MDST laminations, mm-cm scale quartz infilling fractures with angular MDST fragments, cm-scale gouge band.	
						BOX 54											
		171.69	172.18	0.49				SST	MDST	MG	MGY					As above	
70		172.18	172.70	0.52				MDST	SST	FG	DGY					mm-cm scale Sst laminations, very few mm-scale quartz+dolomite veinlets	
		172.70	172.82	0.12				ROCK LOSS								ROCK LOSS	
	1.73					172.82											
70		172.82	175.01	2.19				MDST	SST	FG	DGY					As above	
						BOX 55											
70		175.01	175.81	0.80				SST	MDST	CG	LGY					mm-cm scale MDST laminations	
		175.81	175.87	0.06				ROCK LOSS								ROCK LOSS	
	1.36					175.87											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		175.87	178.17	2.30				SST	MDST	CG	LGY					As above slickenslides on fracture surfaces, few mm-scale quartz veinlets, END PG 26	
							BOX 56										
		178.17	178.77	0.60				SST	MDST	CG	LGY					As above	
		178.77	178.89	0.12				ROCK LOSS								ROCK LOSS	
	2.77						178.92										
		178.89	181.41	2.52				MDST	SST	FG	DGY					mm-cm scale laminations of Sst, very few pyrite blebs	
							BOX 57										
		181.41	181.85	0.44				MDST		VFG	DGY					Few mm-scale Sst laminations	
	1.25						181.97										
		181.85	183.18	1.33				MDST		VFG	DGY					As above	
60		183.18	183.38	0.20		40728		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
60		183.38	183.68	0.30		40729		COAL	C4							Stongly sheared, qtz veins	50
		183.68	184.00	0.32		40730		MDST	CAB	VFG	DGY					Coal stringer & thin bands	0
		184.00	184.70	0.70		40731		COAL	C2	CG						Banded, friable, minor high ash bands, qtz on bedding, END PG 27	50
							BOX 58										
		184.70	184.90	0.20		40731		COAL								As above COAL	50
	1.60						185.01										
		184.90	185.20	0.30		40731		COAL								As above COAL	50
		185.20	185.40	0.20		40732		MDST	CARB	VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0
		185.40	187.51	2.11				MDST	CARB	VFG	DGY					Few mm-scale coaly lenses	
60		187.51	187.71	0.20				SST		CG	LGY					Few mm-scale quartz infilling fractures	
							BOX 59										
		187.71	187.85	0.14				SST		CG	LGY					As above, END PG 28	
		187.85	188.06	0.21				ROCK LOSS								ROCK LOSS	
	0.55						188.06										
		188.06	188.72	0.66				SST		CG	LGY					As above, 5cm gouge band	
		188.72	189.77	1.05				MDST		VFG	DGY					Few mm-scale quartz veinlets, 20cm gouge band at base of interval	
		189.77	190.10	0.33				ROCK LOSS								ROCK LOSS	
65		190.10	191.11	1.01				SST		CG	LGY					Very few MDST laminations (cm-mmscale), very few mm-scale quartz veinlets	
							BOX 60										
	0.66						191.11										
60		191.11	192.28	1.17				SST		CG	LGY					As above, increasing MDST content with depth	
		192.28	193.16	0.88				MDST		VFG	DGY					Few mm-scale quartz infilling fractures, 10cm Carb MDST band+soft gouge, same coaly material	
		193.16	193.88	0.72				ROCK LOSS								ROCK LOSS	
							BOX 61										
		193.88	194.16	0.28				MDST		VFG	DGY					As above no gouge, END PG 29	
	1.10						194.16										
		194.16	194.88	0.72				MDST		VFG	DGY					As above	
		194.88	195.28	0.40				SST		CG	LGY					Few mm-scale quartz veinlets and MDST lenses, quartz infilling fractures	
		195.28	195.44	0.16				ROCK LOSS								ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
60		195.44	196.95	1.51				MDST		VFG	DGY					Few mm-cm scale Sst lamiantions, one 15cm Sst dominant band.	
							BOX 62										
		196.95	197.21	0.26				MDST		VFG	DGY					As above	
	0.62						197.21										
		197.21	198.96	1.75				MDST		VFG	DGY					As above	
		198.96	199.70	0.74				MDST		VFG	DGY		90			Few mm-scale quartz veinlets & MDST lenses.	
		199.70	199.82	0.12				MDST		VFG	DGY					Slickenslides on fracture surfaces	
		199.82	200.01	0.19				ROCK LOSS								ROCK LOSS	
							BOX 63										
		200.01	200.25	0.24				MDST		VFG	DGY					As above, END PG 30	
	0.75						200.25										
		200.25	202.20	1.95				MDST		VFG	DGY		70			As above, mm-scale quartz infilling fractures, two 5cm gouge bands	
		202.20	202.38	0.18				COAL			BLK					Broken & sheared few Carb MDST bands (mm-scale), moderate brightness	
		202.38	202.71	0.33				COAL LOSS								COAL LOSS	
		202.71	203.17	0.46				MDST		VFG	DGY					Slickenslides on fracture surfaces, cm-scale gouge band @ top of interval, very few mm-scale coaly lamintions	
							BOX 64										
		203.17	203.30	0.13				MDST		VFG	DGY					cm-scale coal bands	
	1.3						203.30										
60		203.30	205.16	1.86				SST		CG	LGY		20			Very few mm-scale MDST laminations, slickenslide on fracture surfaces, few mm-scale quartz veinlets, END PG 31	
		205.16	206.00	0.84				MDST		VFG	DGY					Carb MDST @ top 30cm of interval with cm-scale coal bands & quartz bands (mm-scale), few mm-scale coaly lense throughout	
							BOX 65										
		206.00	206.09	0.09				MDST		VFG	DGY					As above	
		206.09	206.35	0.26				ROCK LOSS								ROCK LOSS	
	1.56						206.35										
		206.35	207.60	1.25				MDST		VFG	DGY					As above, few mm-scale quartz veinlets	
		207.60	208.00	0.40				COAL								COAL, END PG 32	
		208.00	208.11	0.11				COAL LOSS								COAL LOSS	
		208.11	209.40	1.29				MDST		VFG	DGY					Few mm-scale coaly lense @ top, few mm-cm scale Sst lenses.	
	1.44						209.40										
							BOX 66										
		209.40	212.45	3.05				MDST		VFG	DGY		80			As above, cm scale gouge band.	
	2.55						212.45										
		212.45	212.71	0.26				MDST		VFG	DGY					As above no gouge	
							BOX 67										
90		212.71	215.49	2.78				MDST		VFG	DGY					As above, increasing Sst content with depth	
	2.78						215.49										
		215.49	215.97	0.48				MDST		VFG	DGY					As above	
							BOX 68										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		215.97	218.54	2.57				SST	MDST	CG	MGY					mm-cm scale MDST bands few cm-scale quartz bands, END PG 33	
	2.74					218.54											
		218.54	219.23	0.69				SST		CG	LGY					Few cm-scale MDST bands mm-cm scale quartz veinlets	
						BOX 69											
		219.23	221.52	2.29				SST		CG	LGY					As above	
		221.52	221.59	0.07				Rock Loss								Rock Loss	
	2.18					221.59											
		221.59	222.34	0.75				SST		CG	LGY					As above, slickenslides on fracture surfaces.	
						BOX 70											
		222.34	222.47	0.13				Rock Loss								Rock Loss	
		222.47	224.64	2.17				SST		CG	LGY					As above	
	1.31					224.64											
		224.64	225.64	1.00				SST		CG	LGY					As above	
						BOX 71											
		225.64	225.93	0.29				Rock Loss								Rock Loss	
		225.93	227.69	1.76				SST		CG	LGY					As above, 40cm MDST dominant band in lower half of interval.	
	2.32					227.69											
		227.69	228.64	0.95				SST		CG	LGY					As above (no MDST), END PG 34	
						BOX 72											
		228.64	230.73	2.09				SST		CG	LGY					As above (few cm-scale MDST laminations)	
	2.49					230.73											
		230.73	231.82	1.09				SST		CG	LGY					As above, 5cm quartz band @ base of interval	
						BOX 73											
		231.82	232.27	0.45				Rock Loss								Rock Loss	
		232.27	233.78	1.51				SST		CG	LGY					As above	
	2.74					233.78											
		233.78	235.00	1.22				SST		CG	LGY					As above	
						BOX 74											
		235.00	236.83	1.83				SST		CG	LGY					As above	
	2.85					236.83											
		236.83	238.28	1.45				SST		CG	LGY					As above	
						BOX 75											
		238.28	239.88	1.60				SST		CG	LGY					As above, END PG 35	
	2.59					239.88											
		239.88	241.43	1.55				SST		CG	LGY					As above, possible fold hinges in bedding	
						BOX 76											
		241.43	242.93	1.50				SST		CG	LGY					As above	
	2.51					242.93											
		242.93	244.75	1.82				SST		CG	LGY					As above	
						BOX 77											
		244.75	245.97	1.22				SST		CG	LGY					As above	
	2.52					245.97											
		245.97	247.91	1.94				SST		CG	LGY					as aboe increasing MDST content with depth	
						BOX 78											
		247.91	249.02	1.11				SST	MDST	CG	MGY					mm-cm scale MDST laminations, very few mm-cm scale quartz veinlets PG 36	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	2.91						249.02											
60		249.02	251.14	2.12				MDST	SST	FG	MGY						mm-cm scale Sst laminations, gradational contact with unit above	
							BOX 70											
60		251.14	252.07	0.93				MDST	SST	FG	MGY						As above	
	2.78						252.07											
70		252.07	254.39	2.32				MDST	SST	FG	MGY						As above	
							BOX 80											
		254.39	255.09	0.70				MDST	SST	FG	MGY						As above	
	2.42						255.12											
60		255.09	256.37	1.28				MDST	SST	FG	MGY						As above	
		256.37	257.60	1.23				MDST		VFG	DGY		50				Very few Sst laminations, gradational contact with unit above	
							BOX 81											
		257.60	258.02	0.42				MDST		VFG	DGY						As above	
	0.76																	
60		258.02	259.00	0.98				MDST		VFG	DGY						As above, increasing Carb content towards base, few mm-scale coaly lenses	
		259.00	259.20	0.20		40734		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit, END PG 37	0
		259.20	260.20	1.00		40735		COAL	C2								very bright, remnant cleating, some shearing	40
		260.20	260.76	0.56		40736		COAL									Minor MDST laminae	40
							BOX 82											
		260.76	261.20	0.44		40736		COAL									As above	40
	1.37						261.21											
		261.20	262.30	1.10		40737		COAL									As above	40
		262.30	262.40	0.10		40737		COAL LOSS									COAL LOSS , END PG 38	40
		262.40	262.60	0.20		40738		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
70		262.60	263.94	1.34				MDST		VFG	DGY						Few mm-scale Sst lenses+coaly lenses	
							BOX 83											
		263.94	264.26	0.32				MDST		VFG	DGY						As above	
	2.53						264.26											
		264.26	267.14	2.88				MDST		VFG	DGY						As above many syb mm scale quartz+coaly lenses	
	2.82						267.30											
							BOX 84											
		267.14	267.20	0.06				MDST		VFG	MGY						As above	
90		267.20	270.14	2.94				MDST	SST	FG	MGY						mm-cm scale Sst laminations	
		270.14	270.36	0.22				ROCK LOSS									ROCK LOSS	
	2.81						270.36											
		270.36	270.58	0.22				MDST	SST	FG	MGY						As above	
							BOX 85											
90		270.58	273.41	2.83				MDST	SST	FG	MGY						As above, END PG 39	
	2.93						273.41											
90		273.41	274.00	0.59				MDST	SST	FG	MGY						As above	
							BOX 86											
		274.00	275.28	1.28				MDST	SST	FG	MGY						As above	
		275.28	276.15	0.87				SST	MDST	CG	LGY						mm-cm scale MDST laminations with gradational contact	
		276.15	276.38	0.23				SST		CG	LGY						Few mm-cm scale MDST lenses & coal bed bands	
	2.56						276.45											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		276.38	277.28	0.90				SST		CG	LGY					As above	
		277.28	277.35	0.07				MDST		VFG	DGY					MDST	
							BOX 87										
		277.35	277.52	0.17				ROCK LOSS								ROCK LOSS	
90		277.52	279.50	1.98				MDST		VFG	DGY					Few mm-cm scale coal+quartz lenses, few mm-cm scale Sst laminations, slickensides on fracture surfaces END PG 40	
	1.76						279.50										
		279.50	280.69	1.19				MDST		VFG	DGY					As above	
							BOX 88										
90		280.69	281.50	0.81				MDST		VFG	DGY					As above	
		281.50	281.65	0.15				COAL			BLK					Quartz infilling cracks, some mm-scale pyrite mineralization, mostly dull, few bright bands	
		281.65	282.55	0.90				MDST		VFG	DGY					Few mm-scale coalified lenses, mm-scale quartz infilling fractures, 13cm band @ base, coalified bands+quartz dominant	
	2.78						282.55										
90		282.55	283.55	1.00				MDST		VFG	DGY					As above (coal+quartz band @ top), few mm-cm scale Sst laminations towards base of interval-gradational contact with below unit.	
90		283.55	284.06	0.51				SST	MDST	MG	MGY					mm-cm scale MDST lamintions, END PG 41	
							BOX 89										
90		284.06	285.60	1.54				SST	MDST	MG	MGY					As above	
	2.87						285.60										
80		285.60	287.32	1.72				SST	MDST	CG	MGY					As above	
90																	
							BOX 90										
		287.32	288.65	1.33				SST		MG	LGY					Few mm-cm scale MDST laminations very few mm-scale quartz veinlets infilling fractures	
							288.65									EOH 288.65, END PG 42	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-08
Drilling Start Date	30-Sep-12
Drilling Finish Date	2-Oct-12
Confirmed Easting	538166.5508
Confirmed Northing	6309698.4905
Elevation	1094.7742
Azimuth	
Dip	-90
Depth	306.60
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	538163
PreCollar Northing	6309701
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	6-Oct-12
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
0.11		0.00	3.66	3.66			3.66										Casing Marker	
		3.66	4.17	0.51				SST		CG	LGY						Rubble	
		4.17	4.34	0.17				MDST		VFG	DGY						Rubble, few mm-scale coaly lenses	
		4.34	4.88	0.54				ROCK LOSS									ROCK LOSS	
	0.68						4.88											
		4.88	6.20	1.32				MDST		VFG	DGY						Few mm-cm scale Sst laminations	
85		6.20	6.76	0.56				SST		MG	LGY						Few mm-cm scale Mdst laminations	
								BOX 2										
		6.76	7.02	0.26				ROCK LOSS									ROCK LOSS	
		7.02	7.92	0.90				SST		CG	LGY						As above, few mm-scale quartz veinlets	
	2.44						7.92											
90		7.92	10.15	2.23				SST	MDST	MG	MGY						mm-cm scale mdst laminations	
								BOX 3										
90		10.15	10.97	0.82				SST	MDST	MG	MGY						As above bottom 17cm of interval has many quartz+Mdst lenses, possible fossils, END PG 1	
	1.12						10.97											
		10.97	13.28	2.31				MDST		VFG	DGY						Few mm-cm scale coalified lenses & pyrite lenses, quartz veinlets	
		13.28	13.39	0.11				ROCK LOSS									ROCK LOSS	
								BOX 4										
		13.39	14.02	0.63				MDST		VFG	DGY						As above	
	1.12						14.02											
		14.02	14.85	0.83				MDST		VFG	DGY						As above	
90		14.85	15.95	1.10				SST	MDST	MG	MGY						mm-cm scale coal bands, few mm-scale quartz veinlets	
		15.95	16.27	0.32				ROCK LOSS									ROCK LOSS	
		16.27	16.88	0.61				MDST	CARB	VFG	DGY-BLK							
								BOX 5										
		16.88	17.07	0.19				MDST	CARB	VFG	DGY-BLK						As above	
	1.02						17.07											
		17.07	18.44	1.37				MDST	CARB	VFG	DGY-BLK						As above	
		18.44	18.73	0.29				ROCK LOSS									ROCK LOSS	
90		18.73	20.12	1.39				SST	MDST	MG	LGY						mm-cm scale MDST laminations, END PG 2	
								BOX 6										
	2.38						20.12											
90		20.12	23.16	3.04				SST		M-CG	LGY						Few mm-cm sclae MDST Lamiantions, few mm-scale quartz veinlets	
	2.5						23.16											
		23.16	23.32	0.16				SST		M-CG	LGY						As above	
								BOX 7										
90		23.32	26.21	2.89				SST		M-CG	LGY						As above	
	2.85						26.21											
		26.21	26.59	0.38				SST		M-CG	LGY						As above	
								BOX 8										
90		26.59	29.26	2.67				SST		M-CG	LGY						As above	
	2.38						29.26											
90		29.26	29.94	0.68				SST		M-CG	LGY						As above	
								BOX 9										
		29.94	30.83	0.89				SST		M-CG	LGY						As above, END PG 3	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		30.83	31.23	0.40				MDST		VFG	DGY					Brecciated MDST in quartz+FG LGY matrix, banded MDST in top 15cm of interval.	
		31.23	31.34	0.11				ROCK LOSS								ROCK LOSS	
85		31.34	32.31	0.97				SST	MDST	MG	MGY					mm-scale lamiantions of MDST	
	2.13						32.31										
		32.31	33.22	0.91				SST	MDST	MG	MGY					As above	
		33.22	33.41	0.19				SST		CG	LGY					SST	
								BOX 10									
75		33.41	35.36	1.95				SST		CG	LGY					Few mm-scale MDST laminations & cm-scale bands (up to 10cm)	
	2.08						35.36										
85		35.36	36.73	1.37				SST		CG	LGY					As above	
								BOX 11									
90		36.73	38.40	1.67				SST		CG	LGY					As above, END PG 4	
	2.54						38.40										
85		38.40	39.94	1.54				SST		CG	LGY					As above	
								BOX 12									
80		39.94	41.24	1.30				SST		CG	LGY					As above	
		41.24	41.38	0.14				MDST		VFG	DGY					Very few mm-scale Sst laminations	
		41.38	41.44	0.06				ROCK LOSS								ROCK LOSS	
	2.51						41.45										
80		41.44	43.25	1.81				MDST	SST	FG	DGY					mm-cm scale MDST laminations, 1cm gouge	
								BOX 13									
85		43.25	44.41	1.16				MDST	SST	FG	DGY					As above	
		44.41	44.49	0.08				SST		CG	LGY					SST	
	2.89						44.50										
70		44.49	45.60	1.11				SST		CG	LGY					SST	
		45.60	46.44	0.84				MDST		VFG	DGY					Few mm-scale Sst lamiantions, END PG 5	
								BOX 14									
		46.44	47.49	1.05				SST	MDST	MG	MGY					mm-scale MDST lamiantions, 30cm MDST-dominant band in middle of interval.	
	1.30						47.55										
90		47.49	47.78	0.29				SST	MDST	MG	MGY					As above	
		47.78	48.22	0.44				MDST		VFG	DGY					Few mm-scale Sst lamiantions, mm-cm scale bright coal bands	
		48.22	48.42	0.20		AT10090		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		48.42	49.42	1.00		AT10091		COAL	C3		BLK					Vitreous sheen, numerous bright bands, blocky cleavage, several MDST partings, well banded.	80
		49.42	49.51	0.09		AT10091		COAL LOSS								COAL LOSS	80
		49.51	50.00	0.49		AT10092		COAL	C3		BLK					As above, except for a 2cm black clay band. Increased number of MDST partings.	80
								BOX 15									
							50.60										
		50.00	50.22	0.22		AT10093		MDST	CARB	VFG	BLK					PARTING SAMPLE, Massive, numerous coal beds, plant material, coal spars	0
		50.22	50.82	0.60		AT10094		COAL	C2		BLK					As above coal, but more bright layers	80
		50.82	51.85	1.03		AT10095		COAL	C2		BLK					As above coal, but more bright layers	80
		51.85	51.98	0.13		AT10095		COAL LOSS								COAL LOSS	80

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		51.98	52.56	0.58		AT10096		MDST	CARB		BLK									PARTING SAMPLE, as above Carb MDST	0
		52.56	52.95	0.39		AT10097		COAL	C4		BLK									Numerous MDST bands, ir-regular quartz veins, END PG 6, Page 7 was set aside for sampling, but this page was NOT used during sampling.	80
							Box 16														
		52.95	53.15	0.20		AT10098		MDST	CARB	VFG	DGY-BLK									FLOOR SAMPLE, part of below Carb MDST unit.	0
		53.15	53.34	0.19				MDST	CARB	VFG	DGY-BLK									Few mm-scale coal lamiantions	
		53.34	53.64	0.30				ROCK LOSS												ROCK LOSS	
	2.85						53.64														
85		53.64	56.08	2.44				MDST		VFG	DGY									Top 15cm is Carb Mdst with coaly laminations, few mm-scale Sst laminations	
							BOX 17														
		56.08	56.69	0.61				MDST		VFG	DGY									As above	
	2.26						56.69														
		56.69	57.82	1.13				MDST		VFG	DGY									As above increasing Sst content with depth(gradational contact with Sst unit below)	
		57.82	58.03	0.21				ROCK LOSS												ROCK LOSS	
90		58.03	59.54	1.51				SST		MG	LGY									Few mm-cm scale lamiantions of MDST	
							BOX 18														
		59.54	59.74	0.20				SST		MG	LGY									As above+few mm-scale quartz veinlets & 3cm gouge band, END PG 8	
	2.03						59.74														
85		59.74	62.43	2.69				MDST	SST	FG	MGY									mm-cm scale lamiantions of Sst, slickensides on fracture surfaces.	
							BOX 19														
		62.43	62.63	0.20				MDST	SST	FG	MGY									As above	
		62.63	62.79	0.16				ROCK LOSS												ROCK LOSS	
	2.54						62.79														
90		62.79	65.84	3.05				MDST	SST	FG	MGY									As above	
	2.77						65.84														
							BOX 20														
80		65.84	68.88	3.04				MDST	SST	FG	DGY									As above	
							68.88														
		68.88	69.11	0.23				MDST	SST	FG	DGY									As above	
							BOX 21														
90		69.11	71.74	2.63				MDST	SST	FG	DGY									As above few mm-scale quartz veinlets, END PG 9	
		71.74	71.93	0.19				SST	MDST	MG	MGY									mm-scale MDST lamiantions	
	0.64						71.93														
		71.93	72.10	0.17				SST	MDST	MG	MGY									As above, few bivalve fossils in pyrite rich Sst & 0,5cm quartz band @ base of interval.	
		72.10	72.27	0.17				COAL			BLK									Bright, sheared, come pyrite mineralization	
		72.27	72.34	0.07				MDST		VFG	DGY									FG LGY clasts in DGY muddy gouge in top half of interval.	
							BOX 22														
60		72.34	73.14	0.80				MDST		VFG	DGY									Few mm-cm scale Sst lamiantions, some pyrite mineralization towards base of interval, few mm-scale quartz veinlets infilling fractures, END PG 10	
		73.14	73.29	0.15				ROCK LOSS												ROCK LOSS	
		73.29	73.68	0.39				MDST												MDST	

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes				Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA			
																		Few mm-scale Sst laminations, mm-scale quartz veinlets infilling fractures some with MDST fragement (angular), 15cm coaly band in middle of interval with quartz+pyrite mineralization, few cm-scale coaly bands, 5cm coaly band+gouge near base of interval.
	1.93						74.98											
		73.68	74.98	1.30				MDST		VFG	DGY							
		74.98	75.18	0.20				MDST		VFG	DGY							Few mm-scale quartz veinlets infilling fractures
		75.18	75.64	0.46				SST		CG	LGY							Few mm-scale quartz veinlets infilling fractures, very few cm-scale MDST clasts, END PG 11
								BOX 23										
																		mm-cm scale quartz infilling fractures with some Sst fragments (angular), cm-scale gouge bands, some vuggy cavities in quartz, 25cm band of fine grained Sst in middle of interval, few mm-scale MDST laminations
	1.39						78.03											
		75.64	78.03	2.39				SST		CG	LGY							
		78.03	78.96	0.93				SST		CG	LGY							As above, fold closure in quartz veinlet
								BOX 24										
		78.96	79.82	0.86				SST		CG	LGY							As above
																		cm-scale gouge band @ top of interval mm-cm scale quartz infilling fractures, 3cm pyrite mineralization at base of interval. Very few cm-scale Sst laminations.
		79.82	80.62	0.80				MDST		VFG	DGY							
		80.62	80.82	0.20		AT10099		MDST		VFG	DGY							ROOF SAMPLE, part of above MDST unit.END PG 12
		80.82	80.97	0.15		AT10100		COAL	C6		BLK							hard, sheared into large chunks 50% rock & 50% coal. Looks like a Carb Mdst, but it is very light.
	0.37						81.08											
		80.97	81.50	0.53		AT10100		COAL	C6									As above coal
		81.50	81.70	0.20		AT10101		MDST	CARB		BLK							PARTING SAMPLE, Massive quartz veins @ every direction, a few coal beds
		81.70	81.90	0.20		AT10102		COAL	C6		BLK							As above coal
								BOX 25										
		81.90	82.20	0.30		AT10102		COAL	C6		BLK							As above coal
		82.20	82.40	0.20		AT10103		MDST		VFG	DGY							FLOOR SAMPLE, part of below MDST unit. END PG 13
																		Few mm-scale pyrite blebs, few mm-cm scale quartz veinlets/bands, few mm-scale coalified lenses, one 4cm coal+quartz band.
		82.40	83.98	1.58				MDST		VFG	DGY							
		83.98	84.12	0.14				ROCK LOSS										ROCK LOSS
	2.16						84.12											
		84.12	85.21	1.09				MDST		VFG	DGY							As above (no coal lenses/bands), few cm-scale Sst lamiantions.
								BOX 26										
		85.21	87.19	1.98				MDST	SST	FG	DGY							mm-cm scale Sst lamiantions, few mm-scale quartz veinlets
	1.78						87.17											
		87.19	88.44	1.25				MDST	SST	FG	DGY							As above
								BOX 27										
		88.44	89.95	1.51				MDST	SST	FG	DGY							As above
		89.95	90.15	0.20		40751		MDST	SST	FG	DGY							ROOF SAMPLE, part of above MDST unit. END PG 14
	0.20						90.22											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		90.15	91.15	1.00		40752		COAL	C2		BLK					Semi-solid, rock for first 31cm, blocky cleavage, shiny sheen, fairly clean coal with a few MDST partings, trace pyrite	70
		91.15	91.67	0.52		40753		COAL	C2		BLK					As above COAL	70
							BOX 28										
		91.67	92.17	0.50		40754		COAL	C4		BLK					Dull hard coal with 6cm parting of Sltst	70
		92.17	92.99	0.82		40755		COAL	C4		BLK					As above COAL	70
	2.50						93.27										
		92.99	93.60	0.61		40756		COAL	C4		BLK					As above COAL, END PG 15	70
		93.60	93.80	0.20		40757		SST	MDST	MG	MGY					FLOOR SAMPLE, part of below SST unit.	0
80		93.80	94.90	1.10				SST	MDST	MG	MGY					mm-cm scale MDST laminations throughout, some pyrite mineralization at contact with coal above, very few cm-scale quartz veinlets	
							BOX 29										
		94.90	95.96	1.06				SST	MDST	MG	MGY					As above	
		95.96	96.32	0.36				ROCK LOSS								ROCK LOSS	
	2.1						96.32										
		96.32	98.59	2.27				SST	MDST	MG	MGY						
							BOX 30										
80		98.59	99.36	0.77				MDST	SST	FG	DGY					mm-cm scale Sst lamiantions	
	2.74						99.36										
75		99.36	101.87	2.51				MDST	SST	FG	DGY						
							BOX 31										
		101.87	102.43	0.56				MDST	SST	FG	DGY						
	2.53						102.41										
80		102.43	105.16	2.73				MDST	SST	FG	DGY					As above, 30cm Sst dominant band	
							BOX 32										
		105.16	105.46	0.30				MDST	SST	FG	DGY					As above	
	1.00						105.46										
80		105.46	107.99	2.53				SST	MDST	MG	MGY					mm-cm scale MDST laminations 10cm quartz band with mm-scale MDST+SST laminations, few mm-scale quartz veinlets	
							BOX 33										
		107.99	108.32	0.33				SST	MDST	MG	MGY					As above (no quartz band)	
		108.32	108.51	0.19				ROCK LOSS								ROCK LOSS	
	2.51						108.51										
80		108.51	110.08	1.57				SST	MDST	MG	MGY					As above	
		110.08	111.49	1.41				MDST		VFG	DGY		70			Few mm-scale SST laminations, few mm-scale quartz lenses, END PG 17	
		111.49	111.56	0.07			BOX 34	ROCK LOSS								ROCK LOSS	
	1.82						111.56										
		111.56	112.68	1.12				MDST		VFG	DGY					As above, 3cm pyrite band near top of interval, very few coaly+quartz laminations.	
90		112.68	114.21	1.53				SST	MDST	MG	MGY		30	60		mm-cm scale MDST laminations, very few mm-scale quartz veinlets	
75		114.21	114.60	0.39				ROCK LOSS								ROCK LOSS	
	0.57						114.60										
		114.60	114.75	0.15				SST	MDST	MG	MGY					As above	
							BOX 35										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		114.75	115.32	0.57				SST	MDST	MG	MGY					As above, up to cm-scale quartz veinlets	
		115.32	117.49	2.17				MDST		VFG	DGY		55	45		Few mm-cm scale quartz veinlets, cm-scale gouge band. Carb MDST towards base with few mm-scale coalified lenses, slickensides on fracture surfaces.	
		117.49	117.65	0.16				ROCK LOSS								ROCK LOSS	
	1.38					117.65											
		117.65	117.83	0.18				MDST		VFG	DGY					As above, END PG 18	
								BOX 36									
		117.83	120.29	2.46				MDST	CARB	VFG	DGY-BLK					Many mm-5cm scale quartz veinlets+bands, many coalified lenses up to cm-scale, moderately broken. Polished fracture surfaces.	
	1.20					120.70											
		120.29	120.60	0.31				MDST	CARB	VFG	DGY-BLK					As above	
								BOX 37									
75		120.60	121.40	0.80				MDST	SST	VFG	DGY					mm-cm scale Sst laminations, few mm-scale quartz veinlets	
		121.40	123.12	1.72				SST	MDST	FG	MGY					mm-cm scale Sst laminations, mmscale quartz veinlets with vuggy cavities.	
		123.12	123.75	0.63				ROCK LOSS								ROCK LOSS	
	2.40					123.75											
70		123.75	124.25	0.50				SST	MDST	FG	MGY					As above, END PG 19	
								BOX 38									
70		124.25	126.80	2.55				SST	MDST	FG	MGY					As above	
	1.96					126.80											
80		126.80	127.58	0.78				SST	MDST	FG	MGY					As above	
								BOX 39									
80		127.58	129.84	2.26				MDST	SST	FG	DGY					mm-cm scale Sst lamiantions, 15cm Sst-dominant band @ base of interval	
	2.09					129.84											
75		129.84	130.75	0.91				MDST	SST	FG	DGY					As above	
								BOX 40									
75		130.75	132.89	2.14				MDST	SST	FG	DGY					As above	
	1.13					132.89											
		132.89	132.96	0.07				ROCK LOSS								ROCK LOSS	
70		132.96	134.20	1.24				MDST	SST	FG	DGY					As above, few 5cm-15cm Sst bands. END PG 20	
								BOX 41									
		134.20	134.37	0.17		40758		SST	MDST	MG	MGY					ROOF SAMPLE, pyritized bivalve fossils & contact with coal unit below, mm-scale MDST laminations.	0
		134.37	134.70	0.33		40759		COAL	C6		BLK					Numerous thin MDST beds, several mdst lenses, minor amount of quartz veining,	65
		134.70	134.90	0.20		40760		MDST	CARB	VFG	BLK					FLOOR SAMPLE, part of below Carb MDST unit.	0
		134.90	135.72	0.82				MDST	CARB	VFG	BLK					Massive, solid, coal beds through out. Some coal beds up to 10cm thick. One 3 cm grey clay bed. Pyrite lenses over entire interval. END PG 21	
		135.72	135.94	0.22				MDST	CARB	VFG	DGY-BLK					Few mm-scale coalified lenses & pyrite lenses	
	1.47					135.94											
		135.94	136.75	0.81				MDST	CARB	VFG	DGY-BLK					As above, few Sst laminations towards base-gradational contact with Sst unit below	
80		136.75	137.32	0.57				MDST	SST	FG	MGY					mm-cm scale Sst laminations (gradational contact with Sst below)	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 42											
80		137.32	138.92	1.60				SST		CG	LGY		20			Few mm-cm scale MDST laminations @ top of interval, few cm-scale gouge bands, few cm-scale MDST clasts.		
	2.06						138.99											
		138.92	139.34	0.42				SST		CG	LGY					As above, END PG 22		
80		139.34	139.64	0.30				SST	MDST	CG	MGY					mm-cm scale MDST laminations		
		139.64	139.84	0.20		40761		SST	MDST	CG	MGY					ROOF SAMPLE, part of above SST/MDST	0	
		139.84	139.99	0.15				COAL LOSS								COAL LOSS		
		139.99	140.38	0.39		40762		COAL	C4		BLK					Blocky cleavage, bright bands with dull bands. Pyrite bed & pyrite blebs, rocky @ base.	64	
		140.38	140.52	0.14		40762		MDST	CARB	VFG	DGY-BLK					Few mm-scale coalified lenses throughout.	0	
							BOX 43											
		140.52	142.04	1.52				MDST	CARB	VFG	DGY-BLK					As above, up to cm-scale coal bands, one ~ 10cm band of coal & quartz, END PG 23		
	0.56						142.04											
70		142.04	143.33	1.29				MDST	CARB	VFG	DGY-BLK					As above. 50cm on middle of interval has Course grained Sst with Mdst.		
							BOX 44											
		143.33	144.58	1.25				MDST	CARB	VFG	DGY-BLK					As above (no Sst band, just very few Sst laminations cm-scale) mm-scale quartz veinlets, 10cm gouge band @ base of interval.		
		144.58	144.84	0.26				ROCK LOSS								ROCK LOSS		
		144.84	145.08	0.24				SST		CG	LGY					SST		
	1.52						145.08											
90		145.08	146.38	1.30				SST		CG	LGY					Few mm-scale MDST laminations, few mm-cm scale quartz veinlets with vuggy cavities, cm-scale gouge bands, one 15cm MDST-dominant band (between 2 gouges). Slickensides on fracture surfaces		
							BOX 45											
		146.38	147.89	1.51				SST		CG	LGY		10			5cm gouge band, END PG 24		
		147.89	148.13	0.24				ROCK LOSS								ROCK LOSS		
	0.89						148.13											
		148.13	149.87	1.74				SST		CG	LGY		30			As above, few mm-scale quartz veinlets, lower 15cms is brecciated with quartz infill, some gouge		
		149.87	150.05	0.18				ROCK LOSS								ROCK LOSS		
		150.05	151.18	1.13				SST		CG	LGY					Thoughly broken majority of interval is gouge, mm-scale quartz veinlets, low angle (step) fractures, FAULT ZONE		
		151.18	151.23	0.05				ROCK LOSS								ROCK LOSS		
	0.40						151.18											
		151.23	151.39	0.16				SST		CG	LGY							
		151.39	151.59	0.20		40764		SST		CG	LGY					ROOF SAMPLE, part of above SST unit	0	
		151.59	152.37	0.78		40765		COAL	C6							Poor coal, numerous Mdst beds, some Mdst partings up to 6cm thick. The coal is made up of very thin beds (less than 1cm thick), dull coal. END PG 25	61	
							BOX 47											
		152.37	152.57	0.20		40766		MDST		VFG	DGY		20			FLOOF SAMPLE, part of below MDST unit.	0	
45		152.57	153.67	1.10				MDST		VFG	DGY		20					
		153.67	154.23	0.56				ROCK LOSS								ROCK LOSS		
	0.90						154.23											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		154.23	155.76	1.53				MDST		VFG	DGY					As above	
							BOX 48										
		155.76	157.14	1.38				MDST		VFG	DGY		40			As above polished surfaces	
		157.14	157.28	0.14				ROCK LOSS								ROCK LOSS	
	0.00						157.28										
		157.28	158.27	0.99				MDST		VFG	DGY		50			As above 10cm gouge band near base of interval	
		158.27	158.40	0.13				ROCK LOSS								ROCK LOSS	
		158.40	158.90	0.50				SST	MDST	MG	MGY					mm-cm scale MDST lamiantions, mm-scale quartz infilling fractures with some breccia, very few coal+ quartz lense. END PG 26	
							BOX 49										
		158.90	160.32	1.42				MDST	SST	FG	MGY					mm-cm scale Sst lamiantions, polished fracture surfaces few mm-scale quarts veinlets, cm=scale gouge bands	
	1.45						160.32										
		160.32	160.53	0.21				ROCK LOSS								ROCK LOSS	
		160.53	162.30	1.77				MDST		VFG	DGY					Few Sst laminations (mm-cm scale)	
							BOX 50										
		162.30	163.42	1.12				MDST		VFG	DGY					As above	
	0.75						163.37										
		163.42	163.62	0.20		40767		MDST		VFG	DGY					ROOF SAMPLE, as above, few coaly laminations (mm-scale)	0
		163.62	164.81	1.19		40770		COAL	C2		BLK					Numerous bright bands, light, blocky cleavage, pyrite lenses, minor amount of Mdst beds, otherwise good clean coal	60
		164.81	165.14	0.33		40770		COAL	C4							Less bright bands & more Mdst than above coal, harder, fairly sharp contact with above coal	60
		165.14	165.40	0.26		40771		MDST		VFG	BLK					PARTING SAMPLE, massive, not carb	0
		165.40	165.43	0.03		40772		COAL	C4							As above C4 coal END PG 27	60
							BOX 51										
		165.43	165.73	0.30		40772		COAL LOSS								COAL LOSS	60
		165.73	166.04	0.31		40772		COAL	C4							As above C4 COAL	60
		166.04	166.24	0.20		40773		MDST	CARB	VFG	DGY-BLK					FLOOR SAMPLE, part of below Carb MDST unit.	0
		166.24	166.59	0.35				MDST	CARB	VFG	DGY-BLK					Polished fracture surfaces, cm-scale coal, bands in upper half of interval, few mm-scale quartz veinlets	
	0.49						166.42										
		166.59	168.23	1.64												Few mm-scale quartz veinlets & Sst laminations. Few mm-scale coalified lenses-increasing towards base of interval, 15cm gouge band in middle of interval	
		168.23	168.43	0.20		40774		MDST		VFG	DGY					ROOF SAMPLE, part of above Carb MDST unit.	0
		168.43	168.75	0.32		40775		COAL LOSS								COAL LOSS	60
		168.75	168.95	0.20		40775		COAL	C4		BLK					Bright band at start, then turning dull with more mdst beds towards the base. Broken crushed shaeared for last half meter. END PG 28	60
							BOX 52										
		168.95	169.50	0.55		40775		COAL	C4		BLK					As above COAL	60
	0.89						169.47										
		169.50	170.05	0.55		40776		COAL	C4		BLK					As above COAL, END PG 29	60
		170.05	170.25	0.20		40777		MDST		VFG	DGY		90			FLOOF SAMPLE, part of below MDST unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		170.25	171.53	1.28				MDST		VFG	DGY		90			Few mm-scale quartz veinlets+coalified lense, fine porous cracks	
65		171.53	171.77	0.24				MDST	SST	FG	MGY					mm-scale Sst laminations	
							BOX 53										
70		171.77	172.52	0.75				MDST	SST	FG	MGY					As above, few mm-scale quartz veinlets	
	2.11						172.52										
70		172.52	175.01	2.49				MDST	SST	FG	MGY					As above	
							BOX 54										
65		175.01	175.47	0.46				MDST	SST	FG	MGY					As above	
		175.47	175.56	0.09				ROCK LOSS								ROCK LOSS	
	0.64						175.56										
		175.56	176.19	0.63				MDST	SST	FG	MGY					As above	
		176.19	178.16	1.97				MDST		VFG	DGY					Few mm-scale quartz infilling fractures, with some angular MDST fragments, some gouge, slickenslides on fracture surfaces. END PG 30	
		178.16	178.43	0.27				ROCK LOSS								ROCK LOSS	
							BOX 55										
	0.40						178.61										
		178.43	178.60	0.17		40778		MDST		VFG	DGY					ROOF SAMPLE, as above MDST	0
		178.60	178.92	0.32		40779		COAL	C2		BLK					Semi-solid, bright bands all over clean coal	55
		178.92	178.96	0.04				ROCK LOSS								ROCK LOSS	
		178.96	180.07	1.11		40780		MDST	CARB	VFG	DGY					PARTING SAMPLE, few mm-scale quartz veinlets & coalified lenses	0
		180.07	180.33	0.26		40781		COAL LOSS								COAL LOSS	55
		180.33	180.67	0.34		40781		COAL	C4		BLK						55
		180.67	180.73	0.06				ROCK LOSS								ROCK LOSS	
		180.73	181.01	0.28		40782		SST		CG	LGY					PARTING SAMPLE, fractured with quartz inGU & some MDST	0
		181.01	181.60	0.59		40783		COAL	C6		BLK					SHC, very hard & dull 60% rock & 40% coal END PG 31	55
	0.44						181.66										
							BOX 56										
		181.60	181.80	0.20		40784		MDST	CARB	VFG	BLK					PARTING SAMPLE, SHC, 80% rock & 20% coal	0
		181.80	182.16	0.36		40785		COAL	C6		BLK					Broken sheared chunks of dull coal	55
		182.16	182.40	0.24		40786		MDST	CARB	VFG	BLK					PARTING SAMPLE, as above Carb Mdst	0
		182.40	182.88	0.48		40787		COAL	C6		BLK					As above coal	55
		182.88	182.95	0.07		40787		COAL LOSS								COAL LOSS	55
		182.95	183.15	0.20		40788		MDST		VFG	DGY		65			FLOOR SAMPLE, part of below MDST unit.	0
		183.15	183.31	0.16				ROCK LOSS								ROCK LOSS	
		183.31	184.35	1.04				MDST		VFG	DGY		65			Very few cm-scale Sst bands, 10cm coal band in middle of interval	
		184.35	184.66	0.31				COAL	C6		BLK					Sheared, thick Mdst bands over entire interval.	
		184.66	184.71	0.05				COAL LOSS								COAL LOSS END PG 32	
	0.79						184.71										
							BOX 57										
		184.71	184.92	0.21				MDST	CARB	VFG	DGY					mm-scale coalified lenses, some with quartz	
60		184.92	186.45	1.53				MDST		VFG	DGY		65			Few mm-cm scale Sst lamiantions. Slickenslides on fracture surfaces	
		186.45	186.94	0.49		40790		COAL	C5		BLK					Sheared to bits in places, numerous thin Mdst beds.	55

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
60		186.94	187.37	0.43				MDST	CARB	VFG	DGY-BLK					mm-cm scale coalified bands/lenses	
		187.37	187.76	0.39				SST	MDST	FG	MGY					mm-cm scale MDST laminations	
	1.78						187.76										
							BOX 58										
65		187.76	189.09	1.33				SST	MDST	FG	MGY					As above, END PG 33	
70		189.09	190.80	1.71				SST		CG	LGY					Few mm-cm scale MDST lamiantions, very few mm-cm scale coalified lenses, few mm=scale quartz veinlets	
	1.93						190.80										
		190.80	191.03	0.23				SST		CG	LGY					As above	
							BOX 59										
		191.03	192.70	1.67				SST		CG	LGY					As above	
65		192.70	193.85	1.15				SST		FG	MGY					mm-cm scale MDST laminations	
	2.34						193.85										
70		193.85	194.36	0.51				SST		FG	MGY					As above	
							BOX 60										
65		194.36	196.41	2.05				SST		MG	LGY					Few mm-cm scale MDST laminations	
		196.41	196.76	0.35				SST	MDST	FG	MGY					mm-cm scale MDST laminations throughout, very few mm-scale quartz veinlets END PG 34	
		196.76	196.90	0.14				ROCK LOSS								ROCK LOSS	
	1.69						196.90										
65		196.90	197.77	0.87				SST	MDST	FG	MGY					As above	
							BOX 61										
70		197.77	199.95	2.18				SST	MDST	FG	MGY					As above	
	0.27						199.95										
60		199.95	200.85	0.90				MDST	SST	FG	MGY					mm-cm scale Sst lamiantions, few mm-scale quartz veinlets infilling fractures, few coaly laminations @ base.	
							BOX 62										
		200.85	201.11	0.26				COAL	MDST	FG	DGY-BLK					Quartz-rich, cm-scale pyrite mineralization, some bright bands generally dull.	
		201.11	202.44	1.33				MDST		VFG	DGY					Few mm-scale quartz veinlets, gouge, quite broken, few mm-scale coaly lenses, END PG 35	
		202.44	203.00	0.56				ROCK LOSS								ROCK LOSS	
	0.90						203.00										
		203.00	203.35	0.35				ROCK LOSS								ROCK LOSS	
		203.35	204.01	0.66				MDST		VFG	DGY					Majority of interval is gouge with cm scale quartz fragments & bands.	
		204.01	204.29	0.28				MDST								As above MDST	
							BOX 63										
		204.29	204.44	0.15				MDST								As above MDST	
		204.44	206.04	1.60				MDST		VFG	DGY					Few mm-scale coalified lenses, quartz veinlets, one cm-scale coalified lamiantions	
	1.93						206.04										
35		206.04	207.23	1.19				MDST		VFG	DGY					As above 15cm pyrite rich, 70cm zone of coal+quartz laminations, END PG 36	
							BOX 64										
		207.23	208.05	0.82				MDST		VFG	DGY					Very few mm-scale quartz veinlets	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
40		208.05	208.85	0.80				SST		CG	LGY					Gradational contact with unit above, few mm-scale quartz veinlets	
50		208.85	209.09	0.24				ROCK LOSS								ROCK LOSS	
	1.91						209.09										
60		209.09	210.43	1.34				SST		CG	LGY					As above	
		210.43	210.52	0.09				MDST		VFG	DGY					cm scale quartz+coaly band	
							BOX 65										
		210.52	210.67	0.15				ROCK LOSS								ROCK LOSS	
50		210.67	212.14	1.47				MDST		VFG	DGY		50			As above+few mm-scale quartz veinlets, 12cm Sst band.	
	1.28						212.14										
		212.14	213.65	1.51				MDST		VFG	DGY					As above, some 10cm brecciated bands, few mm-scale coaly lenses END PG 37	
							BOX 66										
		213.65	215.07	1.42				MDST		VFG	DGY					As above, cm-scale gouge bands	
		215.07	215.19	0.12				ROCK LOSS								ROCK LOSS	
	1.47						215.19										
		215.19	216.18	0.99				MDST		VFG	DGY					As above	
		216.18	216.57	0.39				SST		CG	LGY					Few mm-scale quartz veinlets	
							BOX 67										
		216.57	216.74	0.17				ROCK LOSS								ROCK LOSS	
		216.74	218.24	1.50				SST		CG	LGY					As above	
	1.52						218.24										
		218.24	219.89	1.65				SST		CG	LGY		25			As above, 10cm zone quartz-rich & broken core, up tp cm-scale quartz+dolomite+veinlets	
							BOX 68										
		219.89	221.28	1.39				SST		CG	LGY		10			As above	
	1.83						221.28										
		221.28	223.08	1.80				SST		CG	LGY					As above, END PG 38	
							BOX 69										
		223.08	224.24	1.16				SST		CG	LGY					As above	
	1.55						224.33										
		224.24	224.45	0.21				SST		CG	LGY					As above	
		224.45	224.65	0.20		40791		SST		CG	LGY					ROOF SAMPLE, as above	0
		224.65	225.05	0.40		40792		COAL	C3		BLK				Broken to bits & chunks trace amount of quartz veins	50	
		225.05	225.18	0.13		40792		COAL LOSS							COAL LOSS	50	
		225.18	225.38	0.20		40793		MDST	CARB	VFG	DGY-BLK				FLOOR SAMPLE, part of below MDST unit.	0	
		225.38	226.15	0.77				MDST	CARB	VFG	DGY-BLK				mm-cm scale coal bands & lenses, very few mm-scale quartz veinlets, cm-scale pyrite blebs		
							BOX 70										
		226.15	227.18	1.03				MDST	CARB	VFG	DGY-BLK				As above		
		227.18	227.38	0.20		40794		MDST	CARB	VFG	DGY-BLK				ROOF SAMPLE, part of above Carb Mdst END PG 39	0	
	2.12						207.38										
		227.38	228.07	0.69		40795		COAL	C2		BLK				Looks like all bright bands	50	
		228.07	228.30	0.23		40795		COAL LOSS							COAL LOSS	50	
		228.30	228.50	0.20		40796		MDST	CARB	VFG	DGY-BLK				FLOOR SAMPLE, part of below Carb MDST unit.	0	
		228.50	229.41	0.91				MDST	CARB	VFG	DGY-BLK				mm-cm scale coal bands, very few quartz veinlets (mm-scale), END PG 40		
							BOX 71										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		229.41	230.50	1.09		40797		COAL	C6	VFG	DGY-BLK					mm-scale coalified laminations with quartz, stoney boney coal	50
	2.21						230.43										
70		230.50	232.45	1.95				MDST	CARB	VFG	DGY					mm-cm scale coalified lenses & bands, very few Sst lenses (mm-scale) some pyrite mineralization	
							BOX 72										
75		232.45	233.29	0.84				MDST	SST	FG	MGY					mm-cm scale Sst laminations	
		233.29	233.48	0.19				ROCK LOSS								ROCK LOSS	
	2.37						233.48										
70		233.48	235.96	2.48				SST	MDST	FG	MGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets, END PG 41	
							BOX 73										
		235.96	236.52	0.56				SST	MDST	FG	MGY					As above	
	2.60						236.52										
80		236.52	237.92	1.40				SST	MDST	MG	MGY					As above, polished fracture surfaces	
75		237.92	239.16	1.24				SST		CG	LGY					Very few cm scale MDST bands	
		239.16	239.34	0.18				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
							BOX 74										
		239.34	239.51	0.17				SST	MDST	MG	MGY					As above	
		239.51	239.57	0.06													
	2.71						239.57										
75		239.57	241.32	1.75				SST	MDST	MG	MGY					As above	
80		241.32	242.63	1.31				MDST	SST	FG	MGY					mm-cm scale MDST lamiantions	
	2.04						242.62										
							BOX 75										
		242.63	242.70	0.07				ROCK LOSS								ROCK LOSS	
		242.70	243.84	1.14				MDST	SST	FG	MGY					As above	
		243.84	244.04	0.20		40798		MDST	SST	FG	MGY					ROOF SAMPLE, part of above MDST/SST unit, END PG 42	0
		244.04	244.93	0.89		40799		COAL	C3		BLK					Solid, hard, clean coal	45
		244.93	245.13	0.20		40800		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		245.13	245.65	0.52				MDST		VFG	DGY					Carb MDST in upper 15cm of interval, mm-cm scale coalified laminations, few mm-scale Sst laminations	
		245.65	245.71	0.06				ROCK LOSS								ROCK LOSS	
	2.79						245.76										
		245.71	245.96	0.25				MDST		VFG	DGY					Few mm-cm scale Sst laminations	
							BOX 76										
		245.96	247.06	1.10				MDST	SST	FG	MGY					mm-cm scale Sst laminations	
80		247.06	248.72	1.66				SST		MG	LGY					Few mm-cm scale MDST laminations clast	
	1.89						248.72										
		248.72	248.77	0.05				ROCK LOSS								ROCK LOSS	
70		248.77	249.28	0.51				SST		MG	LGY					As above	
							BOX 77										
		249.28	250.00	0.72				SST		MG	LGY					As above, END PG 43	
		250.00	250.20	0.20				MDST		VFG	DGY					4cm gouge/light frey clay band @ top of interval, few mm-cm scale coalified lamiantions+quartz	
		250.20	250.40	0.20		40801		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		250.40	251.00	0.60		40802		COAL	C5		BLK					Numerous Mdst partings, quartz veins along cleating	44
		251.00	251.20	0.20		40803		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		251.20	251.44	0.24				MDST		VFG	DGY					Very few mm-scale coaly lenses	
		251.44	251.79	0.35				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
	2.56					251.76											
70		251.79	252.48	0.69				SST	MDST	MG	MGY					As above	
						BOX 78											
		252.48	254.81	2.33				SST	MDST	MG	MGY					As above, END PG 44	
	1.88					254.81											
70		254.81	255.73	0.92				SST	MDST	MG	MGY					As above	
						BOX 79											
70		255.73	257.02	1.29				SST	MDST	MG	MGY					As above, few mm-scale quartz veinlets	
		257.02	257.20	0.18				MDST		VFG	MGY					MDST	
		257.20	257.38	0.18				COAL			BLK					Mostly dull, up to cm-scale quartz infilling voids/fractures, some mm-scale pyrite mineralization	
		257.38	257.56	0.18				COAL LOSS								COAL LOSS	
		257.56	257.86	0.30				SST		CG	LGY					Up to cm-scale quartz veinlets, polished fracture surfaces, very few mm-scale MDST bands	
	2.16					257.86											
		257.86	259.01	1.15				SST		CG	LGY		75			As above	
						BOX 80											
		259.01	260.86	1.85				SST		CG	LGY					As above, END PG 45	
	2.12					260.91											
		260.86	262.21	1.35				SST		CG	LGY					As above, very few mm-scale coalified lenses	
						BOX 81											
		262.21	263.93	1.72				SST		CG	LGY		15			As above	
	1.64					263.96											
		263.93	264.52	0.59				SST		CG	LGY		15			As above+0.23m band of granule conglomerate in Sst matrix	
		264.52	265.36	0.84				MDST		VFG	DGY		0			Few mm-scale quartz veinlets infilling fractures, some with coalified lenses	
						BOX 82											
		265.36	265.46	0.10				ROCK LOSS								ROCK LOSS	
		265.46	265.94	0.48				MDST		VFG	DGY					As above, few mm-scale Sst laminations towards base of interval.	
70		265.94	267.00	1.06				SST		CG	LGY					Few mm-scale quartz veinlets & MDST clast, END PG 46	
	1.08					267.00											
		267.00	268.62	1.62				SST		CG	LGY		5			As above	
						BOX 83											
		268.62	269.30	0.68				SST		CG	LGY					As above	
		269.30	270.05	0.75				SST		MG	MGY					mm-cm scale quartz veinlets & MDST laminations	
	2.8					270.05											
		270.05	271.90	1.85				SST		MG	MGY					As above	
						BOX 84											
		271.90	273.10	1.20				SST		MG	MGY					As above	
	1.67					273.10											
35		273.10	275.08	1.98				SST		MG	MGY		35			As above, up to 5cm quartz bands with Sst breccia few 20cm course grained Sst bands	
						BOX 85											
		275.08	275.18	0.10				ROCK LOSS								ROCK LOSS	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		275.18	276.15	0.97				SST		CG	LGY					mm-cm scale quartz infilling fractures 30cm band of breccia in middle of interval, END PG 47	
	1.65						276.15										
70		276.15	277.69	1.54				SST		CG	LGY					As above (no breccis) vuggy cavities (cm-scale) associate with quartz veinlets	
		277.69	278.35	0.66				MDST		VFG	DGY					Few mm-scale Sst laminations & mm-scale quartz veinlets/angular MDST clasts	
							BOX 86										
		278.35	278.47	0.12				ROCK LOSS								ROCK LOSS	
		278.47	279.20	0.73				MDST		VFG	DGY					As above	
	2.22						279.20										
		279.20	279.88	0.68				MDST		VFG	DGY					As above cm-scale coaly bands with quartz	
70		279.88	281.54	1.66				SST		CG	LGY		25			Few mm-cm scale quartz veinlets & MDST laminations & clasts, few fold hinges in quartz	
							BOX 87										
60		281.54	282.24	0.70				SST		CG	LGY					As above, (no fold hinges) END PG 48	
	1.85						282.24										
		282.24	284.79	2.55				SST		CG	LGY					As above	
							BOX 88										
		284.79	285.29	0.50				SST		CG	LGY					As above	
	1.64						285.29										
		285.29	286.96	1.67				SST		CG	LGY					As above	
60		286.96	288.07	1.11				SST	MDST	CG	MGY					mm-cm scale MDST lamiantions & bands, few quartz veinlets	
							BOX 89										
		288.07	288.34	0.27				MDST	SST	FG	MGY					mm-cm scale Sst laminations	
	1.71						288.34										
		288.34	288.50	0.16				ROCK LOSS								ROCK LOSS	
		288.50	289.40	0.90				MDST	SST	FG	MGY					As above, mm to cm scale quartz+dolomite veinlets, few mm-scale colified lenses, END PG 49	
		289.40	289.60	0.20		40804		MDST	SST	FG	MGY					ROOF SAMPIE, part of above MDST/SST unit. END PG 49	0
		289.60	290.15	0.55		40805		COAL	C4		BLK					Numerous Mdst beds, irregular quartz veining, but blocky cleavage in places, pyrite veins throughout	40
		290.15	290.25	0.10		40806		MDST		VFG	DGY					FLOOR SAMPLE, polished fracture surfaces	0
		290.25	290.35	0.10		40806		SST		MG	MGY					FLOOR SAMPLE, part of below SST unit.	0
40		290.35	291.30	0.95				SST		MG	MGY					Few mm-cm scale MDST laminations, few mm-cm scale quartz veinlets infilling fractures some with brecciated Sst fragments	
		291.30	291.44	0.14				MDST		VFG	DGY					Few mm-scale quartz veinlets	
							BOX 90										
	0.98						291.39										
		291.44	291.52	0.08				ROCK LOSS								ROCK LOSS	
		291.52	291.70	0.18				MDST		VFG	DGY					As above	
		291.70	292.00	0.30		40807		MDST		VFG	DGY					ROOF SAMPLE, part of below MDST, END PG 50	0
		292.00	292.61	0.61		40808		COAL	C4		BLK					Semi-solid upper contact @ 40° quartz & pyrite veining	40
		292.61	292.84	0.23		40808		COAL LOSS								COAL LOSS	40
		292.84	293.04	0.20		40809		MDST		VFG	DGY		65			FLOOR SAMPLE, part of below MDST unit.	0
		293.04	294.44	1.40				MDST		VFG	DGY		65			Few mm-cm scale with some quartz, few cm-scale Sst bands towards base of interval	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.66						294.44											
		294.44	294.78	0.34				MDST		VFG	DGY						As above, 10cm Sst band @ top of interval	
							BOX 91											
60		294.78	297.00	2.22				MDST		VFG	DGY						As above, few 10cm Sst bands.	
		297.00	297.20	0.20		40810		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit. END PG 51	0
		297.20	297.44	0.24		40811		COAL	C4								Coal with a lot of MDst, soft, pyrite beds throughout, thin lamiations of dull coal interbedded with MDST	40
	0.38						297.48											
		297.44	297.88	0.44		40811		COAL	C4								As above COAL	40
		297.88	298.07	0.19		40811		COAL	C4								As above COAL	40
							BOX 92											
		298.07	298.42	0.35		40811		COAL	C4								As above COAL END PG 52	40
		298.42	298.62	0.20		40812		MDST		VFG	DGY		50				FLOOR SAMPLE, part of below MDST unit.	0
		298.62	298.82	0.20				MDST		VFG	DGY		50				Some Carb MDST @ top of interval with cm-scale coal bands with pyrite, few mm-cm scale quartz veinlets	
		298.82	299.48	0.66				MDST	Carb								Carb MDST	
		299.48	300.41	0.93				ROCK LOSS									ROCK LOSS	
		300.41	300.53	0.12				MDST		VFG	DGY						Few mm-cm scale quartz veinlets with MDST breccia	
	1.00						300.53											
		300.53	300.99	0.46				MDST		VFG	DGY						As above, polished fracture surfaces	
							BOX 93											
10		300.99	302.44	1.45				MDST		VFG	DGY		10				As above slickenslides on fracture surfaces END PG 53	
0		302.44	303.52	1.08				SST		CG	LGY						mm-scale quartz veinlets, possible fold hinge in bedding few cm-scale MDST bands	
							303.58											
		303.52	304.16	0.64				SST		CG	LGY						As above	
							BOX 94											
		304.16	304.82	0.66				SST		CG	LGY						As above	
		304.82	304.96	0.14				ROCK LOSS									ROCK LOSS	
		304.96	306.63	1.67			306.63	MDST		VFG	DGY		15				mm-cm scale quartz infilling fractures, polished fracture surfaces with slickenslides throughly broken core, END PG 54, EOH 306.63	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-09
Drilling Start Date	1-Oct-12
Drilling Finish Date	5-Oct-12
Confirmed Easting	541271.0425
Confirmed Northing	6306293.7257
Elevation	1174.9653
Azimuth	
Dip	-90
Depth	398.04
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	541271
PreCollar Northing	6306296
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	RP
Lith and Geotech Logging Dates	7th to 9th October 2012
Coal Logger	RP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
	0.10	0.00	6.10	6.10			6.10												Casing		
		6.10	7.33	1.23				SST		MG	MGY								Strongly broken, gouge, mm-cm scale MDST lamiantions		
		7.33	7.92	0.59				ROCK LOSS											ROCK LOSS		
	0.80						7.92														
		7.92	8.49	0.57				ROCK LOSS											ROCK LOSS		
		8.49	10.09	1.60				SST	MDST	FG-MG	MGY								Strongly Broken, gouge, mm-cm scale MDST laminations		
								BOX 2													
		10.09	10.97	0.88				SST	MDST	FG-MG	MGY								As above		
	0.39						10.97														
		10.97	12.77	1.80				SST	MDST	FG-MG	MGY								As above		
								BOX 3													
		12.77	13.06	0.29				MDST		VFG	DGY								Coalified lenses, broken up core, core lost		
	0.80						14.02														
80		13.06	15.46	2.40				SST	MDST	FG-MG	MGY								cm scale MDST bands, broken up core, coalified bands, END PG 1		
								BOX 4													
		15.46	15.91	0.45				MDST	SST	VFG	MGY								Strongly broken, weathered		
		15.91	17.02	1.11				ROCK LOSS											ROCK LOSS		
	1.15						17.07														
		17.02	19.66	2.64				MDST	SST	VFG-MG	MGY								Sand content varies, medium grained in some places		
								BOX 5													
		19.66	20.03	0.37				MDST	SST	VFG	MGY								As above		
	0.84						20.12														
		20.03	22.58	2.55				MDST	SST	VFG-MG	MGY								Sand content varies, medium grained in some places, possible fold closure		
								BOX 6													
		22.58	22.92	0.34				MDST		VFG	MGY								Fine porous fractures, broken up		
	1.29						23.16														
75		22.92	24.52	1.60				MDST	SST	FG	MGY								mm-cm MDST laminations, thin porous cracks		
		24.52	25.83	1.31				SST		MG-CG	LGY								mm scale MDST laminations		
	0.72						26.21														
								BOX 7													
80		25.83	26.40	0.57				SST		MG-CG	LGY								mm-cm scale MDST		
		26.40	27.85	1.45				MDST		VFG	MGY								Fine porous cracks, quartz infilled fractures, coalified bands		
		27.85	28.05	0.20		AT10000		MDST		VFG	MGY								ROOF SAMPLE, part of above MDST unit.	0	
		28.05	28.15	0.10		AT10001		COAL	C2										Mixed with little MDST at top, quartz veins	85	
		28.15	28.42	0.27		AT10001		COAL	C5										No bright, cleats, only coal stringers, MDST bands	85	
		28.42	28.92	0.50		AT10001		COAL	C2										As C2 COAL above.	85	
	1.6						29.26														
		28.92	29.05	0.13		AT10002		MDST		VFG	DGY								FLOOR SAMPLE, Quartz veinlets	0	
		29.05	29.12	0.07		AT10002		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit	0	
								BOX 8													
		29.12	29.53	0.41				MDST		VFG	DGY								Fine porous cracks.fossils of plant material		
75		29.53	32.33	2.80				SST		MG-CG	LGY								15cm band of MDST, END PG 3		
	0.97						32.31														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		32.33	32.75	0.42				SST		MG-CG	LGY								mm scale MDST laminations		
							BOX 9														
60		32.75	33.29	0.54				SST		MG-CG	LGY								Plant material, fossils		
		33.29	33.54	0.25				MDST		VFG	DGY								Quartz infilled fractures with vuggy cavities, coalified bands		
		33.54	33.74	0.20		AT10003		MDST		VFG	DGY								ROOF SAMPLE, part of above MDST unit.	0	
		33.74	33.94	0.20		AT10004		COAL	C4										Highly carbonaceous, bright stringers	80	
		33.94	34.28	0.34		AT10004		COAL LOSS											COAL LOSS	80	
		34.28	34.48	0.20		AT10005		MDST											PARTING SAMPLE	0	
		34.48	34.75	0.27		AT10006		COAL	C3										Quartz vein minor	80	
		34.75	34.95	0.20		AT10007		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
		34.95	35.05	0.10				MDST		VFG	DGY								Strongly broken		
		35.05	35.36	0.31				ROCK LOSS											ROCK LOSS		
	1.15						35.36														
		35.36	36.13	0.77				SST		MG	LGY								Gouge, Coalified bands		
		36.13	37.20	1.07				ROCK LOSS											ROCK LOSS		
							BOX 10														
60		37.20	38.40	1.20				SST		MG	LGY			60					As above, END PG 4		
	1.4						38.40														
		38.40	40.40	2.00				SST		MG-CG	LGY								Soft sand, gouge, qtz & MDST clasts in fractures		
							BOX 11														
		40.40	40.87	0.47				MDST	CARB	VFG	DGY								Coalified bands, pyrite, Carb MDST		
		40.87	41.11	0.24				COAL											Quartz mixed with coal, pyrite, highly sheared		
		41.11	41.25	0.14				COAL LOSS											COAL LOSS		
		41.25	41.45	0.20				MDST	CARB	VFG	DGY								Carb MDST		
	0						41.45														
		41.45	43.35	1.90				MDST	CARB	VFG	DGY								Coal bands, fine porous fractures		
							BOX 12														
		43.35	44.20	0.85																	
		44.20	44.50	0.30				MDST	CARB	VFG	DGY								As above		
	0.35						44.50														
		44.50	47.15	2.65				MDST	CARB	VFG	DGY								Strongly broken, vuggy cavities,END PG 5		
		47.15	47.35	0.20				ROCK LOSS											ROCK LOSS		
							BOX 13														
		47.35	47.55	0.20				MDST		VFG	MGY								MDST		
	1.40						47.55														
60		47.55	49.30	1.75				MDST		VFG	MGY			60					Vuggy cavities with quartz fractures, gouge		
		49.30	49.42	0.12				ROCK LOSS											ROCK LOSS		
		49.42	50.66	1.24				SST		MG	LGY								mm-scale MDST laminations		
							BOX 14														
	0.60						50.66														
		50.66	53.55	2.89				MDST		VFG	DGY								cm-scale Sst laminations, coal bands, Carb. MDST bands		
		53.55	53.64	0.09				ROCK LOSS											ROCK LOSS		
	0.00						53.64														
		53.64	53.83	0.19				MDST		VFG	MGY								mm scale Sst, quartz veins		
							BOX 15														
		53.83	56.38	2.55				MDST		VFG	MGY								As above, gouge, Carb. MDST, fine porous fractures, END PG 6		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							56.69											
		56.38	56.66	0.28				MDST		VFG	DGY						As above	
							BOX 16											
60		56.66	57.05	0.39				SST	MDST	FG	LGY		60				Gouge	
60		57.05	58.69	1.64				MDST		VFG	DGY		60				Quartz infilled fractures, coalified lenses, coalified bands	
		58.69	58.93	0.24				COAL	CARB	VFG	BLK						Strongly broken quartz veinlets	
		58.93	59.42	0.49				ROCK LOSS									ROCK LOSS	
		59.42	59.66	0.24				SST		FG	LGY						Vuggy cavities, quartz veins	
	2.11						59.74											
		59.66	60.11	0.45				MDST		VFG	MGY						Coalified lenses, fine porous fractures	
							BOX 17											
		60.11	62.69	2.58				MDST		VFG	DGY						mm-scale Sltst laminations, coalified lenses, END PG 7	
	1.79						62.69											
		62.69	62.87	0.18				MDST		VFG	DGY						Strongly broken, sheared	
		62.87	63.32	0.45				ROCK LOSS									ROCK LOSS	
							BOX 18											
		63.32	65.84	2.52				SST		FG-MG	LGY						mm-cm scale MDST lamiantions, 25cm of MDST with Sst	
	3						65.84											
		65.84	66.14	0.30				SST		FG-MG	LGY						As above	
							BOX 19											
		66.14	68.88	2.74				SST		MG	LGY						mm-cm scale MDST lamiantions, quartz infilled fractures	
	2.53						68.88											
		68.88	69.41	0.53				SST		MG	LGY						As above	
							BOX 20											
		69.41	71.93	2.52				SST		MG	LGY						As above	
	2.68						71.93											
		71.93	72.63	0.70				SST		MG	LGY						As above, END PG 8	
							BOX 21											
		72.63	74.88	2.25				SST		MG	LGY						As above	
		74.88	74.98	0.10				ROCK LOSS									ROCK LOSS	
	0.88						74.98											
		74.98	76.00	1.02				SST		MG	LGY						Low angle fracture splitting the core into two	
		76.00	77.54	1.54				ROCK LOSS									ROCK LOSS	
	2.26						78.03											
		77.54	78.69	1.15				SST		MG	LGY						Quartz veins & fractures	
							BOX 23											
		78.69	80.27	1.58				SST		MG	LGY						As above	
	1.20						81.08											
		80.27	80.58	0.31				ROCK LOSS									ROCK LOSS	
		80.58	81.78	1.20				SST		MG	LGY						As above, plant material at the very bottom	
		81.78	81.98	0.20		AT10008		SST		MG	LGY						ROOF SAMPLE, part of above SST, END PG 9	0
		81.98	82.18	0.20		AT10009		COAL	C3								Banded, solid	70
							BOX 24											
		82.18	82.33	0.15		AT10009		COAL	C4								Sheared	70
		82.33	82.84	0.51		AT10009		COAL LOSS									COAL LOSS	70
		82.84	83.04	0.20		AT10010		MDST	CARB	VFG	DGY						FLOOR SAMPLE, part of below Carb MDST unit	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		83.04	83.67	0.63				MDST	CARB	VFG	DGY					Coal bands, gouge, strongly broken	
		83.67	83.83	0.16				ROCK LOSS								ROCK LOSS	
	0.50						84.12										
		83.83	84.26	0.43				MDST	CARB	VFG	DGY					As above	
		84.26	84.46	0.20		AT10011		MDST	CARB	VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
60		84.46	85.26	0.80		AT10012		COAL	C2						Some pyrite banding, sheared towards base	70	
		85.26	85.62	0.36		AT10013		COAL	C3						Broken with mild shearing, END PG 10	70	
							BOX 25										
		85.62	85.68	0.06		AT10013		COAL LOSS							COAL LOSS	70	
		85.68	85.88	0.20		AT10013		COAL	C3						As above	70	
		85.88	86.54	0.66		AT10014		MDST	CARB	VFG	DGY				PARTING SAMPLE, Coalified bands, very fine porous fractures	0	
		86.54	86.60	0.06				ROCK LOSS							ROCK LOSS		
		86.60	86.67	0.07		AT10015		COAL	C5						As above	70	
	1.1						87.17										
		86.67	86.80	0.13				COAL LOSS							COAL LOSS		
		86.80	87.00	0.20		AT10015		COAL	C5						As above	70	
		87.00	87.20	0.20		AT10016		MDST		VFG	DGY				FLOOR SAMPLE, part of below MDST unit,	0	
		87.20	88.65	1.45				MDST		VFG	DGY				Fine porous fractures		
							BOX 26										
		88.65	89.52	0.87				ROCK LOSS							ROCK LOSS		
		89.52	90.22	0.70				MDST	SST	VFG	DGY				Sheared fractures surfaces, END PG 11		
	0.9						90.22										
		90.22	92.16	1.94				MDST		VFG	DGY				mm-cm scale Sst lamiantions, coalified bands, fine porous fractures		
		92.16	92.46	0.30				COAL							No sample taken, Core Boxes were buried down		
							BOX 27										
		92.46	92.61	0.15				COAL							No sample taken, Core Boxes were buried down		
		92.61	93.27	0.66				MDST		VFG	DGY				Coal bands, Carb MDST bands, Strongly broken.		
	0.78						93.27										
		93.27	94.92	1.65				MDST		VFG	DGY				Coalified bands, quartz veins, END PG 12		
							BOX 28										
		94.92	95.96	1.04				MDST		VFG	DGY				cm scale coalified bands		
	1.35						96.32										
		95.96	98.20	2.24				MDST		VFG	DGY				As above		
							BOX 29										
		98.20	98.83	0.63				MDST		VFG	DGY				As above		
	1						99.36										
		98.83	100.18	1.35				MDST		VFG	DGY				Pyrite, quartz vein, coal bands		
		100.18	100.38	0.20		AT10017		MDST		VFG	DGY				ROOF SAMPLE, part of above MDST unit.	0	
		100.38	100.92	0.54		AT10018		COAL	C3						Banded	68	
		100.92	101.20	0.28		AT10019		COAL	C5						Coal, END PG 13	68	
		101.20	101.40	0.20				MDST	CARB	VFG	DGY				NOT SAMPLED FLOOR, part of below Carb MDST unit.		
		101.40	101.50	0.10											Coal bands mixed with quartz		
							BOX 30										
		101.50	101.55	0.05				COAL	C5						Not sampled		
		101.55	102.15	0.60				MDST		VFG	DGY				Coalified lenses		
		102.15	102.41	0.26				ROCK LOSS							ROCK LOSS		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam		
		From	To	Drilled	True							FCD	FCA	BCD	FCA								
	2						102.41																
65		102.41	104.79	2.38				SST	MDST	FG	LGY-MGY				65						Low angle fracture		
		104.79	104.88	0.09				ROCK LOSS														ROCK LOSS	
							BOX 31																
		104.88	105.46	0.58				SST		FG	LGY											mm-cm scale MDST	
	2.14						105.46																
70		105.46	106.89	1.43				SST		FG	LGY											cm scale MDST clasts, cm band of MDST	
		106.89	108.11	1.22				MDST	SST	VFG	DGY											Very fine porous cracks	
							BOX 32																
60		108.11	108.51	0.40				MDST		VFG	DGY											cm scale Sst bands	
	1.5						108.51																
		108.51	109.56	1.05				MDST	CARB	VFG	DGY-BLK											Coalified bands & lenses, plant material END PG 14	
		109.56	109.75	0.19				COAL														Quartz mixed in Coal, MDST mixed in coal	
		109.75	111.11	1.36				MDST		VFG	DGY											Coal bands, plant material	
							BOX 33																
		111.11	111.33	0.22				MDST	SST	FG	LGY											Solid and competent	
		111.33	111.56	0.23				ROCK LOSS														ROCK LOSS	
	2.4						111.56																
		111.56	114.55	2.99				MDST	SST	FG	LGY											As above	
							BOX 34																
		114.55	114.60	0.05				MDST	SST	FG	LGY											As above	
	1.7						114.60																
		114.60	117.65	3.05				SST	MDST	FG	LGY											Coalified lenses, END PG 15	
							BOX 35																
		117.65	119.14	1.49				SST	MDST	FG	LGY-MGY											cm scale bands of Sst, gouge, coalified lenses	
		119.14	119.26	0.12				COAL	CARB													Mixed with Carb MDST, strongly broken	
		119.26	119.69	0.43				ROCK LOSS														ROCK LOSS	
		119.69	120.70	1.01				MDST		VFG	DGY											Coalified lenses, mm to cm scale Sst laminations.	
	2.8						120.70																
		120.70	120.95	0.25				MDST		VFG	DGY											cm scale MDST bands	
							BOX 36																
		120.95	121.39	0.44				MDST		VFG	DGY											Pyrite, coal bands on cm scale	
80		121.39	123.75	2.36				SST	MDST	FG	LGY											cm scale MDST bands	
	2.19						123.75																
		123.75	124.05	0.30				SST	MDST	FG	LGY											Coalified bands	
							BOX 37																
		124.05	126.80	2.75				SST	MDST	FG	LGY											As above, broken at bottom, END PG 16	
	1.93						126.80																
		126.80	126.93	0.13				MDST		VFG	MGY											Polished fracture surface	
							BOX 38																
60		126.93	129.68	2.75				MDST		VFG	SGY				60							Coalified bands (10cm), coalified lenses, mm-cm scale Sst laminations	
	1.70						129.84																
		129.84	130.03	0.35				MDST		VFG	DGY											Sheared fracture surfaces, quartz veins	
							BOX 39																
		130.03	131.08	1.05				MDST		VFG	DGY											As above	
		131.08	132.72	1.64				SST		FG-MG	LGY											cm scale MDST lamiantions	
	1.60						132.89																



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA							
		132.72	133.18	0.46				SST		FG-MG	LGY									As above		
							BOX 40															
		133.18	133.52	0.34				SST		MG-CG	LGY										cm scale MDST clsts	
		133.52	135.72	2.20				SST		VFG	DGY										Coalified lenses, 10cm of gouge like material, but solidified & band of Carb MDST, END PG 17	
	2.36						135.94															
		135.72	136.38	0.66				SST		FG	LGY										mm-cm scale MDST lamitions	
							BOX 41															
		136.38	137.96	1.58				SST		FG	LGY										As above SST unit	
		137.96	138.16	0.20		AT10020		SST		FG	LGY										ROOF Sample, part of above SST unit.	0
		138.16	138.45	0.29		AT10021		COAL	C3												Mixed with Carb MDST, broken up, plant materials	65
		138.45	138.65	0.20		AT10022		MDST													PARTING SAMPLE, MDST	0
	1.95						138.98															
		138.65	138.80	0.15		AT10022		MDST	CARB	VFG	DGY-BLK										PARTING SAMPLE, Carb MDST	0
75		138.80	139.21	0.41		AT10023		COAL	C3												Pyrite, MDST lense, quartz,	65
		139.21	139.26	0.05		AT10024		MDST	CARB	VFG	DGY										FLOOR SAMPLE, Coaly bands cm scale	0
		139.26	139.41	0.15		AT10024		COAL/CARB MDST													FLOOR SAMPLE, Light like coal, not shiny	0
		139.41	139.81	0.40				SST		MG	LGY										END PG 18	
							BOX 42															
		139.81	141.72	1.91				SST	MDST	FG-MG	LGY										cm scale MDST bands, Carb MDST laminations, grain size varies	
		141.72	142.04	0.32				ROCK LOSS													ROCK LOSS	
	1.61						142.04															
		142.04	143.34	1.30				SST	MDST	FG-MG	LGY										As above, 25cm band of plant material in MDST, coalified bands	
							BOX 43															
65-70		143.34	144.97	1.63				MDST		VFG	DGY										5cm band of Carb MDSt with coal laminations in it. Cm scale SST bands	
		144.97	145.08	0.11				ROCK LOSS													ROCK LOSS	
	1.5						145.08															
65		145.08	146.37	1.29				MDST		VFG	DGY										As above	
							BOX 44															
		146.37	146.81	0.44				MDST		VFG	MGY										mm-cm scale Sst	
		146.81	147.46	0.65				ROCK LOSS													ROCK LOSS	
		147.46	147.76	0.30				MDST		VFG	LGY										Gouge (all of it soft gouge like clay_	
		147.76	148.13	0.37				MDST		VFG	MGY										2cm coalified band END PG 19	
	1.50						148.13															
		148.13	149.63	1.50				MDST	SST	VFG	MGY										25cm band of Sst at bottom, slickensides on fracture, gouge like material	
							BOX 45															
		149.63	151.02	1.39				SST		MG	LGY										mm scale Carb MDST lamiantions, slickensides on fracture surface	
	1.07						151.13															
		151.02	151.77	0.75				SST		MG	LGY										As above	
		151.77	152.67	0.90				MDST		VFG	DGY										cm scale bands of coal, moderately broken	
		152.67	153.13	0.46				ROCK LOSS													ROCK LOSS	
							BOX 46															
		153.13	154.23	1.10				MDST	CARB	VFG	DGY										mm-cm scale bands of Coals, qtz veins	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.00						154.23											
		154.23	155.13	0.90				MDST		VFG	DGY							cm scale coal bands
		155.13	155.84	0.71				SST		MG	LGY							Plant material, coalified lense, END PG 20
							BOX 47											
		155.84	156.90	1.06				SST		MG	LGY							Low angle fractures, mm-cm scale MDST lamiantions
		156.90	157.28	0.38				ROCK LOSS										ROCK LOSS
	0.9						157.28											
		157.28	159.13	1.85				SST		MG	LGY							As above
							BOX 48											
		159.13	160.32	1.19				SST		MG	LGY							As above, Fault Zone 157-159m
	2.08						160.32											
		160.32	161.25	0.93				SST		MG	LGY							mm-cm scale MDST clasts
		161.25	162.09	0.84				MDST		VFG	MGY							Moderately broken
							BOX 49											
		162.09	163.26	1.17				SST		FG	LGY							mm-cm scale MDST lamiantions
		163.26	163.37	0.11				ROCK LOSS										ROCK LOSS
	1.67						163.37											
80		163.37	165.51	2.14				MDST		VFG	MGY							Plant material, fossils. Mm-cm scale laminations END PG 21
							BOX 50											
		165.51	166.12	0.61				MDST		VFG	DGY							Coalified bands & lenses, gouge
	0						166.42											
		166.12	168.02	1.90				MDST	SST	VFG	MGY							cm scale coal bands, strongly broken, crushed in a few location, Fault Zone 166-169m
							BOX 51											
		168.02	168.20	0.18				COAL										mixed with Carb MDST, strongly broken
		168.20	168.69	0.49				ROCK LOSS										ROCK LOSS
		168.69	169.11	0.42				MDST	CARB	VFG	DGY							Strongly broken
		169.11	169.23	0.12				COAL										mixed with Carb MDST, strongly broken
		169.23	169.47	0.24				MDST	CARB									Carb MDST
	1.78						169.47											
		169.47	170.58	1.11				MDST		VFG	DGY							Coalified lenses
70		170.58	171.69	1.11				SST		FG-MG	LGY							mm scale MDST lamiantions END PG 22
							BOX 52											
		171.69	172.52	0.83				SST		FG	LGY							Quartz veinlets
	1						172.52											
		172.52	173.40	0.88				SST		FG	LGY							As above
		173.40	173.57	0.17				MDST		VFG	LGY							MDST
		173.57	173.72	0.15				COAL		MG	DGY-BLK							Crushed, mixed with Clay & Mdst.
							BOX 53											
		173.72	174.19	0.47				MDST	SST	VFG	MGY							mm-cm scale Sst
		174.19	175.26	1.07				ROCK LOSS										ROCK LOSS
	2.5						175.56											
45-60		175.26	178.06	2.80				SST		MG	LGY							mm-cm scale MDST, quartz infilled fractures with vuggy cavities.
							BOX 54											
		178.06	178.31	0.25				SST		MG	LGY							As above, END PG 23
	1.30						178.61											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
45		178.31	179.21	0.90				SST		MG	LGY									cm clasts of MDST elongated along bedding plane	
		179.21	180.41	1.20				MDST	SST	VFG	DGY									5cm band of coal with some signs of gas coming out	
		180.41	181.36	0.95				SST		FG-MG	LGY									MDST laminations	
								BOX 55													
	2.35							181.66													
		181.36	184.41	3.05				SST		FG-MG	LGY									As above, some plant material	
	1.38							184.71													
		184.41	184.63	0.22				SST		FG-MG	LGY									As above	
								BOX 56													
		184.63	187.43	2.80				SST		FG-MG	LGY									cm scale MDST bands, quartz veins with vuggy cavities, MDST increasing downwards	
	0.6							187.76													
		187.43	187.71	0.28				SST		MG	LGY									As above, END PG 24	
								BOX 57													
		187.71	190.10	2.39				SST		MG	LGY										
		190.10	190.30	0.20		AT10025		SST		MG	LGY									ROOF SAMPLE, part of above SST unit.	0
		190.30	190.80	0.50				COAL LOSS												COAL LOSS	
	0.56							190.80													
		190.80	190.82	0.02				COAL LOSS												COAL LOSS	
		190.82	191.07	0.25		AT10026		COAL	C3											Shiny broken sheared	60
								BOX 58													
		191.07	191.27	0.20		AT10027		COAL												SAMPLED AS A "FLOOR SAMPLE", part of below COAL unit	60
		191.27	191.30	0.03				COAL												COAL	
		191.30	191.45	0.15				ROCK LOSS												ROCK LOSS	
		191.45	193.85	2.40				MDST	SST	VFG	DGY									Gouge, broken core, low angle fracture	
	0.2							193.85													
		193.85	194.23	0.38				SST	MDST	MG	LGY									Quartz infilled fractires	
								BOX 59													
		194.23	195.25	1.02				SST	MDST	FG-MG	LGY-MGY									Gouge, quartz infilled fractures	
		195.25	195.41	0.16				COAL		MG	MGY-BLK									Strongly broken, mixed with Carb MDST	
		195.41	196.76	1.35				MDST		VFG	DGY									Strongly broken, sheared, low angle fractures, coalified bands	
	1.52							196.90													
		196.76	197.00	0.24				SST		VCG	MGY									Sst	
								BOX 60													
		197.00	197.25	0.25				ROCK LOSS												ROCK LOSS	
		197.25	199.95	2.70				SST		CG	MGY									mm-cm scale MDST lamiantions, gouge, Carb. MDST bands	
	1.86							199.95													
		199.95	200.15	0.20				SST		CG	MGY									As above	
		200.15	200.75	0.60				MDST	SST	VFG	MGY									Quartz infilled fractures, END PG 26	
								BOX 61													
		200.75	203.00	2.25				MDST	SST	VFG	DGY									Fracture surfaces have clay minerals	
	2.65							203.00													
		203.00	203.83	0.83				SST	MDST	FG	MGY									SST	
								BOX 62													
		203.83	204.88	1.05				SST		FG	LGY									cm scale MDST clasts	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
70		204.88	206.04	1.16				SST	MDST	FG	MGY		70			mm-cm scale MDST clasts	
	2.28						206.04										
70		206.04	207.13	1.09				SST	MDST	FG	MGY		70			As above	
							BOX 63										
70		207.13	208.80	1.67				SST	MDST	FG	MGY		70			5cm band of quartz	
		208.80	208.90	0.10				COAL								Mixed with quartz, maybe some core was lost	
	1.64						209.00										
		208.90	210.44	1.54				MDST		VFG	DGY					Coalified bands, sheared fracture surfaces, END PG 27	
							BOX 64										
		210.44	211.24	0.80				MDST		VFG	DGY					As above	
		211.24	211.58	0.34				ROCK LOSS								ROCK LOSS	
		211.58	212.14	0.56				SST		FG	LGY					mm-cm scale MDST laminations	
	2.23						212.14										
		212.14	214.04	1.90				SST		MG	LGY					mm-cm scale MDST clast, plant materials and fossils concentrated in 10cm band	
							BOX 65										
70		214.04	214.52	0.48				SST		MG	LGY					As above	
		214.52	214.70	0.18				COAL			DGY-BLK					Mixed with Carb. MDST, broken up	
		214.70	214.92	0.22				MDST	CARB	VFG	DGY-BLK					Coalified lenses	
	0.1						215.19										
65		214.70	216.80	2.10				MDST	CARB	VFG	DGY-BLK		65				
		216.80	217.07	0.27				ROCK LOSS								ROCK LOSS	
							BOX 66										
		217.07	217.33	0.26				MDST	CARB	VFG	DGY-BLK						
		217.33	217.53	0.20		AT10028		MDST	CARB	VFG	DGY-BLK					ROOF SAMPLE, part of above Carb MDST, END PG 28	0
		217.53	217.80	0.27		AT10029		COAL	C3							Mdst stringers, remnant cleats	99
		217.80	218.08	0.28		AT10029		COAL LOSS								COAL LOSS	99
	1.98						218.24										
		218.08	218.30	0.22		AT10029		COAL	C2							As above coal	99
		218.30	218.50	0.20		AT10030		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0
		218.50	220.45	1.95				MDST		VFG	DGY					Coalified lense, abundant fossils of bivalve and other plant material	
							BOX 67										
		220.45	220.90	0.45				MDST		VFG	DGY					As above	
		220.90	221.28	0.38				ROCK LOSS								ROCK LOSS	
	1.18						221.28										
70		221.28	223.83	2.55				MDST	SST	VFG	DGY					Gouge, core broken, END PG 29	
							BOX 68										
		223.83	224.43	0.60				MDST	SST	VFG	DGY					As above, low angle fractures	
	1.12						224.33										
75		224.43	225.59	1.16				MDST	SST	VFG	DGY					As above	
		225.59	225.93	0.34		AT10031		COAL	C2	C3						Signs of gas emission, nicely cleated, Not sheared	99
		225.93	226.73	0.80				MDST	CARB	VFG	DGY					Coalified lenses, fine porous fractures	
							BOX 69										
		226.73	227.38	0.65				MDST		VFG	DGY					Sheared fractures surfaces, very polished fracture surfaces	
	2.16						227.38										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
80		227.38	229.94	2.56				MDST		VFG	DGY					mm-cm scale SST, mm-cm scale Carb MDST, coalified lenses	
							BOX 70										
		229.94	230.43	0.49				MDST		VFG	DGY					As above, END PG 30	
	0.66						230.43										
70		230.43	232.56	2.13				MDST		VFG	DGT		70			As above	
		232.56	232.60	0.04				COAL								Mixed with quartz	
		232.60	232.64	0.04				MDST		VFG	DGY					MDST	
		232.64	232.70	0.06				COAL								COAL	
		232.70	233.12	0.42				MDST	CARB	VFG	DGY-BLK					Pyrite, coalified lenses	
		233.12	233.18	0.06				ROCK LOSS								ROCK LOSS	
							BOX 71										
	2.18						233.48										
		233.18	236.18	3.00				MDST		VFG	DGY					Coalified lenses, sheared fracture surfaces	
72		236.18	236.26	0.08		AT10032		COAL	C2							Bright shiny	99
		236.26	236.39	0.13		AT10032		COAL LOSS								COAL LOSS, END PG 31	99
	0.8						236.52										
							BOX 72										
		236.39	236.67	0.28		AT10032		COAL	C2							Banding (very lith)	99
		236.67	238.57	1.90				MDST		VFG	DGY					Coalified lenses, strongly sheared, slickensides	
		238.57	239.33	0.76				SST		FG	LGY					mm scale MDST laminations	
		239.33	239.57	0.24				ROCK LOSS								ROCK LOSS	
	2.30						239.57										
							BOX 73										
50		239.57	242.52	2.95				SST		FG-MG	LGY		50			Abundant fossils & plant material, low angle quartz infilled fracture with vuggy cavities, cm scale clasts	
		242.52	242.62	0.10				ROCK LOSS								ROCK LOSS	
	2.10						242.62										
		242.62	242.86	0.24				SST		FG-MG	LGY					As above, END PG 32	
							BOX 74										
		242.86	245.67	2.81				SST		MG-CG	LGY					Low angle fracture, mm-scale MDST Laminations, cm scale clasts	
	0.30						245.67										
		245.67	245.77	0.10				SST		MG-CG	LGY					As above	
70		245.77	246.07	0.30				MDST		VFG	DGY		70			mm-scale Sst laminations	
							BOX 75										
		246.07	246.79	0.72				MDST		VFG	DGY					Gouge, quartz infilled fracture, 20cm band of Sst	
		246.79	246.99	0.20		AT10033		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		246.99	247.52	0.53		AT10034		COAL	C3							Sheared & crushed, quartz veinlets	99
		247.52	247.72	0.20		AT10035		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST	0
		247.72	247.82	0.10				MDST		VFG	DGY					Quartz veins. Carb Mdst	
		247.82	247.95	0.13				COAL/CARB/MDST								Coal/Carb MDST, END PG 33	
		247.95	248.45	0.50				SST		FG	LGY					mm scale MDST lamiantions	
		248.45	248.72	0.27				ROCK LOSS								ROCK LOSS	
	1.50						248.72										
		248.72	249.26	0.54				SST		FG	LGY					As above	
							BOX 76										
		249.26	250.16	0.90				SST		FG	LGY					mm-cm scale MDST, quartz veins	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		250.16	251.76	1.60				MDST		VFG	DGY					Strongly broken, polished fracture surfaces, slickensides on surface	
	0.70						251.76										
		251.76	251.81	0.05				ROCK LOSS								ROCK LOSS	
		251.81	252.21	0.40				MDST		VFG	DGY					As above	
							BOX 77										
		252.21	254.81	2.60				MDST	SST	VFG	DGY		30			Quartz veinlets, low angular fracture, polished fracture surfaces, mod-strongly broken	
	1.68						254.81										
							BOX 78										
		254.81	257.86	3.05				MDST	SST	VFG	DGY		70			Quartz veinlets & infilled, END PG 34	
	2.43						257.86										
							BOX 79										
		257.86	260.91	3.05				SST		FG	LGY-MGY					mm-cm scale MDST laminations, quartz infilled fractures, low angle fracture almost 0° from CA	
	1.69						260.91										
							BOX 80										
		260.91	263.96	3.05				SST		FG	LGY					5-10cm thick quartz fractures, cm scale MDST clasts	
	1.13						263.96										
							BOX 81										
		263.96	266.93	2.97				SST		FG	LGY					As above, 60cm of core is ~ 60% Quartz, mm-cm scale MDST	
		266.93	267.00	0.07				ROCK LOSS								ROCK LOSS	
	2.6						267.00										
							BOX 82										
75		267.00	270.02	3.02				SST		FG	MGY					cm scale MDST & bands, quartz infilled fractures POSSIBLY PLACED THE MARKER AT WRONG LOCATION AS THE ONE BELOW IS ONLY 2.8M OF CORE OUT OF 3.05M END PG 35	
	1.67						270.05										
							BOX 83										
50		270.02	273.04	3.02				SST		FG	MGY					mm-cm scale MDST laminations, gouge, qtz infilled fractures	
	0.1						273.10										
							BOX 84										
45		273.04	273.28	0.24				SST		FG	MGY		45			As above	
		273.28	273.48	0.20		AT10036		SST		FG	MGY		45			ROOF SAMPLE, part of above SST unit.	0
		273.48	274.20	0.72		AT10037		COAL	C3							Pyrite nodule just above, some quartz & dolomite	55
		274.20	274.79	0.59		AT10038		MDST	CARB	VFG	DGY					PARTING SAMPLE, Strongly broken, mixed with some Carb MDST, listric surfaces	0
		274.79	275.29	0.50		AT10039		COAL	C3	CG	DGY					Sheared	55
		275.29	275.40	0.11		AT10039		COAL LOSS								COAL LOSS	55
		275.40	275.60	0.20		AT10040		MDST								FLOOR SAMPLE, part of below MDST unit.	0
		275.60	275.75	0.15				MDST								MDST, END PG 36	
							BOX 85										
		275.75	275.89	0.14				SST		FG	LGY					SST	
	2.55						276.15										
		275.89	278.94	3.05				SST		FG	LGY					cm scale MDST clasts, quartz infilled fractures	
							BOX 86										
	1.33						279.20										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 87											
		278.94	281.98	3.04				MDST	SST	VFG	DGY						Moderately broken, low angle fracture, slickensides on some fractures	
							282.24											
		281.98	285.03	3.05				MDST	SST	VVFG	DGY		50				Coalified lenses, fossils, Slickensides on some fractures.	
							BOX 88											
	1.91						285.29											
		285.03	287.98	2.95				MDST	SST	VFG	DGY		70				AS above	
	0.52						288.34											
		287.98	288.18	0.20				MDST	CARB	VFG	DGY-BLK						Low angle fracture, coalified lenses, END PG 37	
							BOX 89											
		288.18	288.59	0.41				MDST	CARB	VFG	DGY-BLK		55				Slickensides on fractures, gouge between the fractures	
		288.59	288.79	0.20		AT10041		MDST	CARB	VFG	DGY-BLK		55				ROOF SAMPLE, part of above MDST unit	0
		288.79	289.79	1.00		AT10042		COAL	C3								Sheared, occasional cleats	50
		289.79	290.79	1.00		AT10043		COAL	C3								As above	50
		290.79	290.84	0.05		AT10043		COAL LOSS									COAL LOSS	50
		290.84	291.04	0.20		AT10044		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		291.04	291.24	0.20				MDST		VFG	DGY							
		291.24	291.39	0.15				ROCK LOSS									ROCK LOSS	
							BOX 90											
	2.5						291.39											
		291.39	292.64	1.25				MDST		VFG	DGY						mm-cm SST lamiantions, low angle fracture	
		292.64	294.44	1.80				SST		FG	LGY-MGY						mm-cm MDST lamiantions, END PG 38	
	2.88						294.44											
		294.44	294.70	0.26				SST	MDST	FG	LGY-MGY						SST/MDST	
							BOX 91											
		294.70	297.48	2.78				SST		FG	LGY-MGY						Quartz infilled fractures with brecciation, fractures have vuggy cavities, mm-cm scale MDST lamiantions	
	2.3						297.48											
		297.48	298.02	0.54				SST		FG	LGY-MGY						As above	
							BOX 92											
70		298.02	300.53	2.51				SST		FG	LGY-MGY						mm-cm scale MDST lamiantions, low angle fractures, weathered fracture surfaces	
	1.28						300.53											
		300.53	300.88	0.35				MDST	SST	VFG	DGY						mm-cm scale MDST lamintions	
							BOX 93											
		300.88	303.55	2.67				MDST	SST	VFG	DGY						Low angle fracture at 0° along the entire unit	
	0.58						303.58											
		303.55	303.76	0.21				MDST	SST	VFG	DGY						As above, END PG 39	
							BOX 94											
		303.76	306.57	2.81				MDST		VFG	DGY		40				Coalified lenses, some sort of burrowing marks, gouge, moderately broken on top	
	1.27						306.63											
		306.57	306.73	0.16				MDST		VFG	DGY						As above	
							BOX 95											
75		306.73	309.35	2.62				MDST	SST	VFG	DGY						Quartz infilled fractures with vuggy cavities, fracture at low angle, coalified lenses, strongly broken at bottom	
	0						309.68											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		309.35	309.60	0.25				MDST	CARB	VFG	DGY-BLK								Slickenslides on fractures, gouge with sign of gas emission, pyrite, END PG 40		
		309.60	309.80	0.20				MDST	CARB	VFG	DGY								Crab. MDST mixed with coal		
		309.80	310.00	0.20		AT10045		MDST	CARB	VFG	DGY								ROOF SAMPLE, part of above MSDT unit.	0	
		310.00	311.20	1.20		AT10046		COAL	C3										Strongly sheared, powdered, listric surfaces	45	
		311.20	311.43	0.23		AT10047		MDST	CARB	VFG	DGY								PARTING SAMPLE, Sheared, horizontal fractures	0	
		311.43	311.58	0.15		AT10047		ROCK LOSS											ROCK LOSS	0	
		311.58	312.28	0.70		AT10048		COAL	C4										Sheared, minor quartz, remnant cleft	45	
		312.28	312.63	0.35		AT10048		COAL LOSS											COAL LOSS	45	
		312.63	312.83	0.20		AT10049		MDST	CARB	VFG	DGY-BLK			50					FLOOR SAMPLE, part of below MDST unit.	0	
	0						312.72														
		312.83	313.15	0.32				MDST	CARB	VFG	DGY-BLK			50					Coalified bands & lenses. END PG 41		
							BOX 97														
		313.15	313.65	0.50				MDST	CARB	VFG	DGY-BLK								As above		
		313.65	313.95	0.30		AT10050		COAL	C4										Sheared, gradational contacts at roof & floor	45	
		313.95	314.18	0.23				COAL LOSS											COAL LOSS		
		314.18	315.38	1.20				MDST	CARB	VFG	DGY-BLK								Strongly broken, coalified lenses, quartz infilled fractures		
		315.38	315.77	0.39				ROCK LOSS											ROCK LOSS		
	2.2						315.77														
		315.77	316.09	0.32				MDST		VFG	DGY								Coalified lenses, quartz veins		
							BOX 98														
		316.09	318.69	2.60				MDST		VFG	DGY-BLK			60					Fossils, quartz veinlets, quartz infilled fractures with vuggy cavities, Carb MDST bands, END PG 42		
		318.69	318.82	0.13				ROCK LOSS											ROCK LOSS		
	2.21						318.82														
		318.82	319.30	0.48				MDST		VFG	DGY								Coalified lenses, mm-cm scale SST lamiantions		
							BOX 99														
60		319.30	321.87	2.57				MDST		VFG	DGY								mm-cm scale SST & Sst lamiantions, quartz infilled brecciation, coal ified lenses (very few)		
	2.37						321.87														
		321.87	322.51	0.64				MDST	SST	VFG	DGY								Quartz infilled fractures		
							BOX 100														
		322.51	324.45	1.94				SST	MDST	FG-MG	MGY								MDST laminations at 65°, quartz infilled fractures		
		324.45	324.92	0.47				MDST		VFG	DGY								mm-cm scale SST lamiantions		
	2.8						324.92														
		324.92	325.78	0.86				MDST		VFG	DGY								As above		
							BOX 101														
40		325.78	327.96	2.18				MDST	SST	VFG	MGY								cm scale MDST clasts, lamiantions at 40°, quartz veins with parasitic folds, END PG 43		
	2.05						327.96														
		327.96	329.04	1.08				SST		MG	LGY								cm scale MDST clasts, mm scale laminations of MDST		
							BOX 102														
20		329.04	331.01	1.97				SST		MG	LGY								mm-cm scale MDST lamiantions at 20°, steepening of MDST laminations, lamaintions exhibit paralitic folds		
	2.8						331.01														
25		331.01	332.25	1.24				SST	MDST	FG	LGY-MGY								Folded leucosomes		
							BOX 103														



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
22		332.25	334.06	1.81				SST		FG	LGY								mm-cm scale MDST lamiantions, steepening bedding planes, possible hinge zone in area		
	2.82						334.06														
		334.06	335.55	1.49				SST		FG	LGY								As above		
							BOX 104														
21		335.55	337.03	1.48				SST	MDST	FG	LGY-MGY								Micro fault at 41cm from top of interval, bedding planes very steep or low angle, END PG 44		
		337.03	337.11	0.08				ROCK LOSS											ROCK LOSS		
	1.46						337.11														
		337.11	338.79	1.68				MDST	SST	VFG	DGY								moderately broken, mm-cm scale SST		
							BOX 105														
		338.79	340.11	1.32				SST	MDST	VFG	LGY								Folded leucomes		
	2.1						340.16														
20		340.11	341.88	1.77				SST		FG	LGY								Quartz veinlets		
							BOX 106														
		341.88	341.98	0.10				ROCK LOSS											ROCK LOSS		
		341.98	343.20	1.22				SST		FG	LGY										
	2						343.20												Fol closures, bulls eye features, bedding plane		
28		343.20	345.23	2.03				SST		FG	LGY								Fold closure, bulls eys, more MDST lamiantions, bedding plane angle /30°, coming out of hinge zone, hinge zone 335-343m, END PG 45		
							BOX 107														
		345.23	346.06	0.83				MDST		VFG	DGY								mm scale coalified lenses		
	1.77						346.25														
33		346.06	347.62	1.56				MDST		VFG	DGY								As above		
		347.62	347.82	0.20		AT10051		MDST		VFG	DGY								ROOF SAMPLE, part of above MDST unit.	0	
		347.82	348.37	0.55		AT10052		COAL	C2										Steeply bedded	40	
							BOX 108														
		348.37	348.47	0.10		AT10052		COAL LOSS											COAL LOSS	40	
		348.47	348.72	0.25		AT10052		COAL											Coal	40	
		348.72	349.15	0.43		AT10053		MDST	CARB	VFG	DGY								PARTING SAMPLE, near vertical bedding	0	
		349.15	349.30	0.15		AT10054		COAL	C3										As above	40	
	0						349.30														
		349.30	350.15	0.85		AT10054		COAL	C3										As above	40	
		350.15	351.15	1.00		AT10055		COAL	C3										As above, END PG 46	40	
							BOX 109														
		351.15	352.15	1.00		AT10056		COAL	C3										As above possible "s" structure through the coal	40	
		352.15	352.35	0.20		AT10057		COAL	C3										As above	40	
							352.35														
		352.35	353.15	0.80		AT10057		COAL	C3										As above, END PG 47	40	
							BOX 110														
		353.15	354.15	1.00		AT10058		COAL	C3										As above	40	
		354.15	354.80	0.65		AT10059		COAL	C4										As above	40	
		354.80	355.40	0.60		AT10060		MDST		VFG	DGY								FLOOR SAMPLEm NDST	0	
	0.10						355.40														
		355.40	355.78	0.38				SST	MDST	FG	LGY-MGY								Quartz veins, coalified bands		
							BOX 111														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA							
		355.78	358.14	2.36				SST		FG	LGY									Strongly broken, gouge, quartz veins & infilled fractures		
		358.14	358.44	0.30				MDST	SST	VFG	DGY									Strongly broken, pyrite, gouge END PG 48		
							358.44															
							BOX 112															
		358.44	359.30	0.86				MDST		VFG	DGY										Strongly broken, gouge, coalified bands	
40		359.30	361.00	1.70				SST	MDST	FG	LGY-MGY										Gouge, quartz infilled fracture	
							BOX 113															
		361.00	361.49	0.49				SST	MDST	FG	LGY										As above	
	0.30						361.49															
10		361.49	363.79	2.30				SST		FG	LGY										mm-cm scale MDST lamiantions, quartz infilled fracture, gouge, fractures at low angle	
							BOX 114															
		363.79	364.54	0.75				MDST		VFG	LGY-MGY										Parasitic folds, quartz infilled fractures, strongly broken	
	0.13						364.54															
		364.54	365.62	1.08				MDST	SST	VFG	MGY										moderately broken, quartz infilled fractures, low angle lamiantions, possible fault zone 360-38m, END PG 49	
		365.62	366.00	0.38		AT10061		COAL	C4												Strongly sheared, no cleats, mixed with some MDST Carb	99
		366.00	366.36	0.36				MDST	SST	VFG	LGY-MGY										Strongly broken, slickenslides on fracturess	
							BOX 115															
		366.36	366.57	0.21				ROCK LOSS													ROCK LOSS	
		366.57	367.59	1.02				SST	MDST	FG	MGY										Gouge like material in fractures, moderately broken, quartz veinlets	
	0.1						367.59															
		367.59	369.39	1.80				SST		MG	MGY										Strongly broken, gouge, mm-cm MDST laminations	
							Box 116															
	0.56						370.64															
80		369.39	371.14	1.75				SST	MDST	FG	MGY										SST/MDST, END PG 50	
							BOX 117															
		371.14	372.42	1.28				MDST		VFG	DGY										mm-cm Sst lamiantions, quartz veinlets	
		372.42	373.47	1.05				ROCK LOSS													ROCK LOSS	
	0.53						373.68															
60		373.47	373.77	0.30				MDST		VFG	DGY										Coalified lenses	
		373.77	373.97	0.20				COAL													Very strongly broken	
		373.97	374.99	1.02				MDST		VFG	DGY										Quartz infilled fractures, coalified lenses	
							BOX 118															
		374.99	376.52	1.53				MDST		VFG	DGY										Coalified lenses, quartz infilled fractures	
	0.44						376.73															
		376.52	377.42	0.90				MDST		VFG	DGY										As above	
		377.42	377.62	0.20		AT10062		MDST		VFG	DGY										ROOF SAMPLE, par of above MDST	0
		377.62	377.84	0.22		AT10063		COAL	C4												Strongly Sheared, no cleats, END PG 51	99
							BOX 119															
		377.84	378.40	0.56		AT10063		COAL	C4												As above	99
		378.40	378.84	0.44		AT10064		MDST	CARB	VFG	DGY										PARTING SAMPLE, Coalified bands, broken core, quartz veins	0
		378.84	379.27	0.43		AT10065		COAL	C4												As above	99
		379.27	379.60	0.33				COAL LOSS													COAL LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		379.60	379.78	0.18		AT10066		MDST	CARB	VFG	DGY									PARTING SAMPLE, mixed with coal bands, END PG 52	0
	1.33						379.78														
		379.78	380.35	0.57		AT10066		MDST	CARB	VFG	DGY									PARTING SAMPLE, mixed with coaly bands	0
		380.35	380.70	0.35		AT10067		COAL	C4											Strongly broken and sheared, quartz veinlets	99
		380.70	380.90	0.20		AT10068		SST	MDST	FG	MGY									FLOOR SAMPLE, part of below SST unit.	0
		380.90	381.17	0.27				SST	MDST	FG	MGY									Quartz veinlets	
							BOX 120														
70		381.17	382.77	1.60				SST	MDST	FG	MGY									As above	
		382.77	382.83	0.06				ROCK LOSS												ROCK LOSS	
	2.50						382.83														
		382.83	384.60	1.77				SST	MDST	FG	MGY									As above	
							BOX 121														
		384.60	385.77	1.17				SST	MDST	FG	MGY									As above	
		385.77	385.88	0.11				ROCK LOSS												ROCK LOSS	
	1.49						385.88														
		385.88	387.84	1.96				SST	MDST	FG	MGY									As above	
							BOX 122														
65		387.84	388.47	0.63				SST	MDST	FG	MGY									As above, END PG 53	
		388.47	388.78	0.31		AT10069		COAL	C3											Broken, but not very sheared, cleats can be seen	99
		388.78	388.92	0.14				COAL LOSS												COAL LOSS	
	2.54						388.92														
		388.92	391.09	2.17				MDST	SST	VFG	DGY									Coalified lenses with quartz fractures, plant material	
							BOX 123														
		391.09	391.89	0.80				MDST	SST	VFG	DGY									As above	
		391.89	391.97	0.08				ROCK LOSS												ROCK LOSS	
	2.70						391.97														
		391.97	394.47	2.50				MDST	SST	VFG	DGY									As above, plant material, fossils	
							BOX 124														
		394.47	395.02	0.55				MDST	SST	VFG	DGY									SST lamiantions (mm-cm scale)	
	2.77						395.02														
		395.02	397.70	2.68				SST	MDST	FG	MGY									Quartz infilled fracture with vuggy cavities, END PG 54	
							BOX 125														
		397.70	398.00	0.30				SST		FG	MGY									As above	
		398.00	398.07	0.07				ROCK LOSS												ROCK LOSS	
							398.07													EOH 398.07, END PG 55	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-10
Drilling Start Date	3-Oct-12
Drilling Finish Date	5-Oct-12
Confirmed Easting	538480.0919
Confirmed Northing	6310235.1947
Elevation	1048.7209
Azimuth	
Dip	-90
Depth	309.20
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	538490
PreCollar Northing	6310241
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	RP
Lith and Geotech Logging Dates	10th & 11th October 2012
Coal Logger	RP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		0.00	1.83	1.83			BOX 1									OVB, casing (10ft)	
	1.55																
		1.83	4.48	2.65				SST		FG-MG	LGY					mm-cm scale MDST lamiantions, mm-cm scale MDST clasts, quartz veinlets, Oxide weathering on some fractures.	
		4.48	4.88	0.40				ROCK LOSS								ROCK LOSS	
	1.70						4.88										
		4.88	5.43	0.55				SST		FG-MG	LGY					As above	
							BOX 2										
80		5.43	7.92	2.49				SST		FG-MG	LGY					As above, coalified lenses	
	1.20						7.92										
		7.92	8.74	0.82				SST		FG-MG	LGY					SST	
							BOX 3										
		8.74	8.92	0.18				SST		FG-MG	LGY					As above	
		8.92	8.96	0.04				COAL								Quartz mixed, END PG 1	
		8.96	10.84	1.88				MDST		VFG	DGY					mm-cm scale SST lamiantions, coalified lenses, low angle fracture	
		10.84	10.97	0.13				ROCK LOSS								ROCK LOSS	
	1.80						10.97										
		10.97	11.95	0.98				SST	MDST	FG-MG	MGY					Quartz veinlets, interbedded	
							BOX 4										
		11.95	14.02	2.07				SST		FG	LGY					mm-cm scale MDST lamiantions	
	1.30						14.02										
		14.02	15.12	1.10				SST		FG	LGY					cm scale MDST clasts. Plant material remains	
							BOX 5										
		15.12	16.94	1.82				MDST		VFG	DGY					Coalified lenses, 15cm SST with abundant, fossils & plant material, very fine porous fracture	
	0.62						17.07										
		16.94	18.27	1.33				MDST		VFG	DGY					Gouge, zone of brecciated MDST clasts, mm-cm scale Sltst & Sst lamiantions, END PG 2	
							BOX 6										
		18.27	19.49	1.22				MDST		VFG	DGY					As above	
		19.49	19.70	0.21				ROCK LOSS								ROCK LOSS	
		19.70	20.12	0.42				SST		FG	LGY					Quartz infilled fracture, mm-cm scale MDST lamiantions	
	2.18						20.12										
		20.12	21.61	1.49				SST		FG	LGY					SST	
							BOX 7										
85		21.61	23.08	1.47				SST	MDST	FG	MGY					cm scale bands of MDST	
	1.49						23.16										
		23.08	24.92	1.84				SST	MDST	FG	MGY					As above	
							BOX 8										
		24.92	25.16	0.24				ROCK LOSS								ROCK LOSS	
85		25.16	25.78	0.62				MDST		VFG	DGY					Bands of Carb. MDST, quartz infilled brecciation, coalified bands & lenses	
		25.78	25.98	0.20		AT10070		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		25.98	26.23	0.25		AT10071		COAL								Solid, thin bright bands, pyrite grains cm scale END PG 3	70
	0.80						26.21										
		26.23	26.53	0.30		AT10071		COAL								As above	70

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		26.53	26.73	0.20		AT10071		COAL								Dense & muddy	70
		26.73	27.07	0.34		AT10071		COAL								Not sheared as a whole, but little but at the base	70
		27.07	27.27	0.20		AT10072		MDST		VFG	MGY					FLOOR SAMPLE, coalified bands & lenses	0
		27.27	27.63	0.36				MDST	CARB	VFG	DGY					Coalified lenses	
							BOX 9										
		27.63	28.15	0.52				ROCK LOSS								ROCK LOSS	
		28.15	29.26	1.11				MDST		VFG	DGY					Very fine porous fractures END PG 4	
	1.26						29.26										
85		29.26	31.34	2.08				SST	MDST	FG	MGY					Coalified bands at the bottom of interval, mm-cm scale Slst lamiantions, gouge at bottom	
							BOX 10										
		31.34	31.43	0.09				ROCK LOSS								ROCK LOSS	
		31.43	32.31	0.88				MDST		VFG	DGY						
	0.00						32.31										
65		32.31	35.36	3.05				MDST		VFG	LGY					Strongly broken & sheared, gouge, cm-scale clasts, mm- cm scale SST, quartz infilled fractures, low anige fractures	
	0.00						35.36										
							BOX 11										
		35.36	36.80	1.44				MDST		VFG	LGY					As above, coalified bands & llenses	
		36.80	37.20	0.40		AT10073		COAL								Extremely broken, friable	68
		37.20	37.48	0.28		AT10073		COAL LOSS								COAL LOSS, END PG 5	68
		37.48	37.63	0.15				MDST		VFG	DGY					Possible Fault Zone at 33-36m	
		37.63	38.40	0.77				ROCK LOSS								ROCK LOSS	
	1.13						38.40										
55		38.40	38.68	0.28				SST		MG	LGY					mm scale MDST laminations	
							BOX 12										
		38.68	39.51	0.83				SST		MG	LGY					As above	
		39.51	41.45	1.94				MDST		VFG	DGY					mm-cm bands of SST, cm scale coal bands, cm scale Carb MDST, gouge, pyrite	
	0.76						41.45										
		41.45	41.68	0.23				SST		MG	LGY					mm scale MDST laminations	
							BOX 13										
55		41.68	44.23	2.55				MDST	SST	VFG	DGY					mm-cm scale MDST & SST laminations, strongly broken, pyrite in fractures	
							BOX 14										
		44.23	44.49	0.26				MDST		VFG	DGY					mm-cm scale SST & SLTST, END PG 6	
	0.20						44.50										
		44.49	46.78	2.29				MDST		VFG	DGY					mm-cm scale SST, moderately to strongly broken, possible fault zone, 45-47m, 5cm band of coal	
							BOX 15										
		46.78	47.55	0.77				SST		FG	LGY					As above	
	1.70						47.55										
25		47.55	49.81	2.26				SST		FG	LGY					mm-cm scale SST, quartz infilled fracture with vuggy cavities, plant material remain	
							BOX 16										
30		49.81	50.60	0.79				SST		FG	LGY					As above	
	2.40						50.60										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		50.60	53.01	2.41				SST		FG	LGY					mm-cm scale MDST clasts, coal spars, quartz infilled fractures	
							BOX 17										
		53.01	53.64	0.63				SST		FG	LGY					As above, END PG 7	
	2.38						53.64										
		53.64	55.15	1.51				SST		FG	LGY					Abundant fossils, plant material, quartz infilled fracture, few coalified spans or clasts,	
45		55.15	56.23	1.08				MDST		VFG	DGY					mm-cm scale Sltst laminations	
							BOX 18										
		56.23	56.69	0.46				MDST		VFG	DGY					mm-cm scale SST laminations	
	0.50						56.69										
45		56.69	58.99	2.30				MDST	SST	VFG	DGY		50			gouge, quartz infilled fractures with vuggy cavities, mm-cm scale SST lamiantions	
		58.99	59.19	0.20				SST		FG	LGY					Quartz veinlets	
							BOX 19										
		59.19	59.59	0.40				SST		FG	LGY					As above	
	1.03						59.74										
		59.59	62.22	2.63				SST		FG	LGY					As above	
							BOX 20										
		62.22	62.54	0.32				SST		FG	LGY					END PG 8,END PG 8	
	0.40						62.79										
		62.54	63.07	0.53				SST		FG	LGY					Gouge, broken core, quartz veinlets, coalified bands, strongly broken, quartz veinlets	
65		63.07	65.15	2.08				MDST		VFG	DGY					Coalified bands, strongly broken, quartz veinlets, bands of Carb. MDST	
							BOX 21										
		65.15	65.48	0.33				MDST	CARB	VFG	DGY					Gouge, moderately broken	
	1.50						65.84										
65		65.48	66.08	0.60				MDST	CARB	VFG	DGY					As above, sharp contact with coal	
		66.08	66.43	0.35		AT10074		COAL								Minor pyrite along bedding, good cleat with quartz on cleat fracture. Bentonite like stuff just at the base of coal, dark grey to black like paste, END PG 9	67
		66.43	66.79	0.36				MDST	CARB	VFG	DGY					5cm coal band, soft	
40		66.79	68.25	1.46				SST		FG	LGY					mm-cm scale MDST, Quartz veinlets	
							BOX 22										
		68.25	68.48	0.23				ROCK LOSS								ROCK LOSS	
		68.48	68.88	0.40				SST		FG	LGY					cm scale MDST clasts, as above	
	2.60						68.88										
60		68.88	71.73	2.85				SST		FG	LGY					As above, bands of plant material concentrated zones, coalified lenses, coal spans, quaartz infilled fracture with vuggy cavities	
							BOX 23										
		71.73	71.93	0.20				SST		FG	LGY					As above	
	2.29						71.93										
		71.93	74.98	3.05				SST		FG-MG	LGY					As above, gradational change in grain size, END PG 10	
	1.40						74.98										
							BOX 24										
		74.98	78.03	3.05				SST		FG-MG	LGY					Moderately broken, as above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	2.95						78.03											
		78.03	78.17	0.14				SST		FG-MG	LGY						As above	
							BOX 25											
		78.17	81.07	2.90				SST		FG	LGY						As above	
	1.20						81.08											
		81.07	81.29	0.22				SST		FG	LGY						As above	
							BOX 26											
		81.29	81.57	0.28				SST	MDST	VFG	MGY						mm-cm scale MDST, gouge at bottom	
		81.57	84.12	2.55				MDST	CARB	VFG	DGY-BLK						mm-cm (5cm) scale coal bands, plant material, fossils, Carb. MDST decreases down, END PG 11	
	2.68						84.12											
88		84.12	84.54	0.42				SST	MDST	FG	MGY						Coalified lenses, plant material, MDST clasts	
							BOX 27											
88		84.54	87.04	2.50				SST	MDST	FG	MGY						Almost 50-50 MDST & SST	
		87.04	87.13	0.09				ROCK LOSS									ROCK LOSS	
							87.17											
		87.13	87.80	0.67		AT10076		COAL									Shiny, minor dull brands	65
90		87.80	87.95	0.15		AT10077		MDST	CARB	VFG	DGY-BLK						Pyrite, sharp contact with coal, END PG 12	0
							BOX 28											
		87.95	90.22	2.27				MDST		VFG	DGY						mm-cm SST. Coalified or Carb MDST, laminations (mm-scale)	
	2.23						90.22											
90		90.22	91.29	1.07				SST	MDST	FG	MGY						mm scale Carb MDST lamiantions	
							BOX 29											
90		91.29	93.24	1.95				MDST	SST	VFG	DGY						Quartz infilled fractures. Cm scale MDST clasts within SST	
	0.85						93.27											
		93.24	94.61	1.37				SST		MG	LGY						Quartz veins, low angle fractures, mm-cm scale SST Lamiantions	
							BOX 30											
		94.61	96.30	1.69				SST		FG-MG	LGY						Local gouge, cm scale MDST, clasts, quartz infilled fracture	
	2.37						96.32											
		96.30	97.78	1.48				SST		FG-MG	LGY						As above, END PG 13	
							BOX 31											
		97.78	98.28	0.50				SST		FG-MG	LGY						As above	
		98.28	99.32	1.04				MDST	CARB	VFG	DGY-BLK						Gradational contact from SST to MDST	
	0.25						99.36											
90		99.32	99.45	0.13				COAL		CG	DGY-BLK						Pyrite band, quartz mixed with coal	
		99.45	101.00	1.55				MDST	SST	VFG	DGY						carb MDST bands near coal. Gouge, coalified lenses	
							BOX 32											
		101.00	101.28	0.28				COAL									Mixed with Carb MDST, quartz, signs of gas emission, not shiny like coal	
		101.28	102.33	1.05				MDST	SST	FG	MGY						Bands of Carb, MDST	
	0.20						102.41											
		102.33	104.10	1.77				MDST	CARB	VFG	DGY						Bands of SST cm scale, quartz infilled fractures	
							BOX 33											
50		104.10	105.34	1.24				MDST	CARB	VFG	DGY						Low angle fracture, coalified bands, quartz veinlets, END PG 14	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	0.70						105.46											
		105.34	106.36	1.02				SST		FG	LGY						mm scale MDST laminations	
		106.36	106.80	0.42		AT10078		COAL									Strongly sheared, shiny	64
		106.80	107.05	0.25				SST		FG	LGY						Gouge, strongly broken	
							BOX 34											
		107.05	108.33	1.28				SST		FG	LGY						mm scale MDST lamonation, gouge, quartz in fracture, fault zone 107-108m	
		108.33	108.51	0.18				ROCK LOSS									ROCK LOSS	
	0.10						108.51											
70		108.51	109.51	1.00				SST		FG	LGY						As above	
		109.51	110.16	0.65				SST		MG	LGY						Quartz veinlets END PG 15	
							BOX 35											
		110.16	111.02	0.86				SST		FG	LGY						Gouge, mm scale MDST lamiantions	
		111.02	111.56	0.54				MDST	SST	VFG	MGY						Gouge, broken, SST lamiantions	
	0.00						111.56											
		111.56	112.55	0.99				ROCK LOSS									ROCK LOSS	
		112.55	113.45	0.90				MDST		VFG	DGY						Bands of Carb. MDST	
		113.45	113.60	0.15				COAL									Mixed with Carb. MDST	
		113.60	114.07	0.47				MDST		VFG	MGY						mm-cm scale SST laminations	
							BOX 36											
		114.07	114.60	0.53				SST	MDST	FG	MGY						Quartz veinlets	
	0.77						114.60											
		114.60	115.41	0.81				ROCK LOSS									ROCK LOSS	
		115.41	116.65	1.24				SST	MDST	MG	LGY						Quatz brecciation, strongly broken, coalified bands	
		116.65	117.65	1.00				ROCK LOSS									ROCK LOSS	
	2.68						117.65											
		117.65	117.79	0.14				SST		FG	LGY						SST, END PG 16	
							BOX 37											
		117.79	120.64	2.85				SST		FG	LGY						Low angle quartz infilled fracture, local gouge, mm-scale MDST laminations	
	0.75						120.70											
		120.64	120.96	0.32				SST		FG	LGY						As above	
							BOX 38											
		120.96	121.05	0.09				ROCK LOSS									ROCK LOSS	
		121.05	121.60	0.55				SST		FG	LGY						As above	
85		121.60	122.00	0.40				MDST		VFG	DGY						Carb MDST, local bands	
		122.00	122.47	0.47		AT10079		COAL									Cleats, some banded MDST, pyrite	61
80		122.47	123.75	1.28				MDST		VFG	DGY		80				Carb MDST band near top contact, with coal , coalified lenses, END PG 17	
							123.75											
		123.75	124.25	0.50				MDST	SST	VFG	DGY						Coal band, gradatioal contact, changing from MDST to SST	
							BOX 39											
		124.25	126.28	2.03				MDST		VFG	DGY						Quartz infilled fractures, brecciations, mm-cm scale SST, vuggy cavities in Quartz	
75		126.28	126.64	0.36				SST		FG	LGY						mm scale MDST laminations	
	2.92						126.80											
		126.64	127.33	0.69				SST		FG	LGY						As above	
							BOX 40											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		127.33	127.48	0.15				ROCK LOSS								ROCK LOSS	
		127.48	129.84	2.36				SST		FG	LGY					As above	
	2.87						129.84										
		129.84	130.69	0.85				SST		FG	LGY					As above	
							BOX 41										
80		130.69	132.89	2.20				SST		FG	LGY		80			SST, END PG 18	
	2.46						132.89										
		132.89	134.05	1.16				SST		FG-MG	LGY					As above	
							BOX 42										
70		134.05	135.94	1.89				SST		FG	LGY					Coalified lenses, mm-cm scale MDST laminations	
	2.47						135.94										
		135.94	137.36	1.42				SST		FG	LGY					As above	
							BOX 43										
		137.36	138.94	1.58				SST		FG	LGY					As above	
		138.94	138.99	0.05				ROCK LOSS								ROCK LOSS	
	2.53						138.99										
		138.99	139.76	0.77				SST		FG	LGY					MDST lamiantions increasing, quartz infilled fracture	
		139.76	139.91	0.15				ROCK LOSS								ROCK LOSS	
		139.91	140.76	0.85				MDST		VFG	DGY					mm-cm scale SST	
							BOX 44										
		140.76	141.80	1.04				MDST	CARB	VFG	DGY					Abundant coalified bands & lamiantions, plant material	
		141.80	142.00	0.20		AT10080		MDST	CARB	VFG	DGY					ROOF SAMPLE, part of above MDST unit, END PG 19	0
		142.00	142.07	0.07		40851		COAL	C2							Minor pyrite, zones of quartz on cleats, bands of dull coal	60
	0.56						142.04										
		142.07	142.82	0.75		40851		COAL	C2							As above	60
		142.82	142.92	0.10		40851		COAL	C2							Solid	60
		142.92	143.30	0.38		40851		COAL	C2							As above C2	60
90		143.30	143.80	0.50		40852		MDST	Carb	VFG	DGY					PARTING SAMPLE, Coalified lenses, quartz veins	0
		143.80	143.88	0.08				COAL								As above C2, * was taken for	
							BOX 45										
		143.88	144.51	0.63		40853		COAL	C2							Very solid good quality, true thickness, END PG 20	60
		144.51	144.78	0.27		40854		COAL	C4							Significant amount of quartz	60
		144.78	145.17	0.39		40855		COAL	C2							As above C2 COAL	60
	1.30						145.06										
		145.17	145.21	0.04		40855		MDST	CARB	VFG	DGY					PARTING SAMPLE, Carb MDST	0
		145.21	145.46	0.25		40855		COAL LOSS								COAL LOSS	60
		145.46	145.99	0.53		40855		COAL	C2							Solid, 10cm piece with quartz	60
		145.99	146.59	0.60		40856		MDST	SST	VFG	DGY					PARTING SMAPLE, 10cm band of pyrite, quartz veins	0
		146.59	146.95	0.36		40857		COAL	C4							Banded C5 within quartz mixed, END PG 21	60
							BOX 46										
		146.95	147.15	0.20		40858		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		147.15	147.65	0.50				MDST		VFG	DGY					Coalified bands, Carb MDST bands, quartz infilled fractures	
		147.65	148.01	0.36				COAL								mixed with quartz & MDST	
		148.01	148.15	0.14				MDST	CARB	VFG	DGY					Coalified bands	
	0.84						148.13										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		148.15	149.82	1.67				MDST		VFG	DGY					Coalified bands, folded leucosomes of coal, quartz infilled fracturs, coalified lenses, slickenslides on fracture surfaces	
		149.82	150.20	0.38		40859	BOX 47	COAL								Dull bands, some quartz, END PG 22	60
		150.20	150.50	0.30		40859		COAL								As above	60
		150.50	150.96	0.46		40860		MDST		VFG	DGY					PARTING SAMPLE, Coalified bands, quartz infilled fractures	0
		150.96	151.21	0.25		40861		COAL								Bright thin bands	60
	0.26						151.18										
		151.21	151.78	0.57		40861		COAL								As above minor pyrite near base, END PG 23	60
		151.78	152.35	0.57		40862		MDST		VFG	DGY	70°				PARTING SAMPLE, Quartz infilled fracture, increasing carb toward base	0
70		152.35	153.20	0.85		40863		COAL								Sheared in zones. Listric surfaces, minor quartz in non sheared zones	60
							BOX 48										
		153.20	153.40	0.20		40863		COAL	C3							As above	60
		153.40	153.70	0.30		40864		SST	MDST	FG	MGY					FLOOR SMPLE, part of below SST unit.	0
		153.70	154.23	0.53				SST	MDST	FG	MGY					Strongly broken, coalified bands	
	2.29						154.23										
		154.23	154.83	0.60				MDST		VFG	DGY-BLK					Coalified bands, carb MDST	
		154.83	156.39	1.56				SST		FG-MG	LGY					mm-cm scale MDST laminations	
							BOX 49										
		156.39	157.23	0.84				SST		FG-MG	LGY					As above	
		157.23	157.28	0.05				ROCK LOSS								ROCK LOSS	
	1.00						157.28										
		157.28	158.92	1.64				SST		FG-MG	LGY					60cm of quartz, strongly broken, END PG 24	
		158.92	159.16	0.24				ROCK LOSS								ROCK LOSS	
		159.16	159.82	0.66				MDST		VFG	DGY					mm scale SST lamiantions	
							BOX 50										
		159.82	160.32	0.50				MDST		VFG	DGY					Quartz veinlets	
	1.85						160.32										
		160.32	160.85	0.53				SST		FG	LGY					Plant material remains	
		160.85	162.28	1.43				MDST		VFG	DGY					Quartz infilled fractures	
		162.28	162.78	0.50				SST		FG	LGY					Quartz infilled fracture, plant material	
		162.78	163.01	0.23				MDST		VFG	DGY					Coal spans & lenses	
							BOX 51										
		163.01	163.37	0.36				MDST		VFG	DGY					Coal lenses	
	2.59						163.37										
		163.37	164.07	0.70				MDST		VFG	DGY					mm-cm scale SST lamiantions	
		164.07	164.21	0.14				ROCK LOSS								ROCK LOSS	
80		164.21	166.47	2.26				SST		FG	LGY					mm-cm scale MDST, END PG 25	
							BOX 52										
	2.17						166.47										
		166.47	168.27	1.80				SST		FG	LGY					mm-cm MDST lamiantions, quartz veinlets	
80		168.27	169.48	1.21				SST	MDST	FG	MGY		88			Coal ified bands, carb MDST bands, SST to MDST unterchanging but mostly SST, pyrite	
	2.36						169.47										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		169.48	169.83	0.35				SST	MDST	FG	MGY					As above	
							BOX 53										
80		169.83	172.52	2.69				MDST	SST	VFG	MGY					Plant material, Qtz veins in fracture, mm to cm MDST lamiantions in some bands, coalified bands	
	0.60						172.52										
		172.52	173.28	0.76				MDST	SST	VFG	DGY					Band of SST (Soft)	
							BOX 54										
88		173.28	174.88	1.60				MDST		VFG	DGY					Quartz infilled fractures. Coaly lenses, END PG 26	
		174.88	175.44	0.56				SST		FG	LGY					Very few MDST lamiantions	
	2.04						175.56										
		175.44	176.59	1.15				SST		FG	LGY					As above	
							BOX 55										
		176.59	178.23	1.64				SST		FG	LGY					Coalified lenses	
		178.23	178.61	0.38				MDST		VFG	DGY					mm scale SST lamiantions	
	1.34						178.61										
		178.61	179.01	0.40				MDST	CARB	VFG	DGY					Coalified bands, pyrite	
		179.01	179.21	0.20				COAL								mixed with quartz & Carb MDST, folded leucosomes	
		179.21	179.89	0.68				MDST		VFG	DGY					Coalified lense, very fine porous cracks	
							BOX 56										
		179.89	181.57	1.68				MDST		VFG	DGY					Coalified lenses, Coal band 1 cm, SST increasing downwards, gradational contact	
		181.57	181.66	0.09				ROCK LOSS								ROCK LOSS	
	2.15						181.66										
75		181.66	183.26	1.60				MDST		VFG	MGY					Coalified lenses, mm-scale SST, END PG 27	
							BOX 57										
		183.26	184.71	1.45				SST		FG	LGY					mm scale MDST lamiantions	
	2.80						184.71										
		184.71	186.56	1.85				SST		FG	LGY					As above	
							BOX 58										
		186.56	187.66	1.10				SST		FG	LGY					As above	
	2.60						187.76										
		187.66	189.85	2.19				SST		FG	LGY					As above, quartz infilled fracture with vuggy cavities	
							BOX 59										
		189.85	190.75	0.90				SST		FG	LGY					As above	
	1.77						190.80										
		190.75	191.75	1.00				SST		FG	LGY					As above	
70		191.75	193.21	1.46				MDST		VFG	DGY		70			mm-cm scale SST lamiantions, quartz infilled fractures	
							BOX 60										
		193.21	193.40	0.19				ROCK LOSS								ROCK LOSS	
		193.40	193.90	0.50				MDST		VFG	DGY					As above, END PG 28	
	0.30						193.85										
		193.90	195.03	1.13				MDST		VFG	DGY					mm-cm scale Carb MDST lamiantions, coalified lenses	
		195.03	195.23	0.20		40866		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST	0
55		195.23	195.33	0.10		40867		COAL LOSS								COAL LOSS	50
		195.33	195.61	0.28		40867		COAL		C2						Quartz abundant	50
		195.61	195.96	0.35		40867		COAL		C5						Increasing dirty towards base, gradational contact	50
		195.96	196.16	0.20		40868		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST	0
		196.16	196.80	0.64				MDST		VFG	DGY					Coal bands, Carb MDST bands, coalified lenses, moderately broken	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 61										
		196.80	197.14	0.34				SST	MDST	FG	MGY					Quartz fractures	
	1.60						196.90										
90		197.14	199.32	2.18				MDST		VFG	DGY					cm scale coal bands, mm-scale MDST laminations	
		199.32	199.83	0.51				SST		FG	LGY					mm scale MDST laminations, END PG 29	
							BOX 62										
		199.83	199.95	0.12				MDST		VFG	DGY					MDST	
	0.96						199.95										
70		199.95	201.82	1.87				MDST	SST	VFG	DGY					Moderately broken, quartz infilled fractures	
		201.82	202.72	0.90				SST		FG	LGY					Quartz infilled fractures	
							BOX 63										
		202.72	202.87	0.15				SST		FG	LGY					As above	
		202.87	203.00	0.13				ROCK LOSS								ROCK LOSS	
	1.26						203.00										
25		203.00	206.04	3.04				MDST	SST	VFG	DGY					Quartz infilled fractures, local gouge, steepening of foliations, folded leucosomes, possible hinge zone, 199-209m	
	1.44						206.04										
							BOX 64										
25		206.04	208.69	2.65				MDST	SST	VFG	DGY					As above, gradational change to SST	
		208.69	209.09	0.40				SST		FG	MGY					Quartz infilled fractues, END PG 30	
	1.85						209.09										
		209.09	209.44	0.35				SST	MDST	FG	MGY					Gouge, fold lecosomes	
							BOX 65										
		209.44	209.74	0.30				MDST	SST	VFG	DGY					MDST/SST	
50		209.74	210.27	0.53				SST		FG	LGY					SST	
50		210.27	212.14	1.87				MDST	SST	VFG	DGY					MDST/SST	
	1.40						212.14										
		212.14	212.64	0.50				MDST	CARB	VFG	DGY-BLK					Plant materials, coal bands, quartz infilled	
							BOX 66										
		212.64	212.79	0.15				MDST	CARB	VFG	DGY-BLK					As above	
		212.79	212.98	0.19				ROCK LOSS								ROCK LOSS	
		212.98	215.10	2.12				MDST		VFG	DGY					mm-cm scale SST, SST increasing downward, plant material, coalified lenses	
		215.10	215.30	0.20		40869		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
	1.30						215.19										
75		215.30	216.00	0.70		40870		COAL	C4							Abundant quartz through out, pyrite banding throughout, some shearing, lowe gradational contact, END PG 31	45
		216.00	216.28	0.28		40870		COAL	C4							As above	45
							BOX 67										
		216.28	216.48	0.20		40871		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit/	0
		216.48	216.93	0.45				MDST		VFG	DGY					Coal band cm scale mixed with quartz Carb MDST, coalified lenses	
88		216.93	218.24	1.31				MDST	SST	VFG	MGY					CM scale coal mixed with quartz band, coalified lenses	
	1.06						218.24										
		218.24	219.06	0.82				MDST	SST	VFG	MGY					As above	
							BOX 68										
		219.06	219.39	0.33				MDST	SST	VFG	MGY					As above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
80		219.39	219.63	0.24				SST		MG	LGY					Quartz vein	
		219.63	221.28	1.65				MDST	SST	VFG	DGY					cm scale bands of carb MDST, cm scale coal bands, signs of gas emission, END PG 32	
	1.40					221.28											
60		221.28	222.25	0.97				MDST	SST	VFG	MGY		60			As above	
								BOX 69									
		222.25	222.34	0.09				ROCK LOSS								ROCK LOSS	
		222.34	223.64	1.30				SST		FG	LGY					mm scale MDST lamiantions, quartz infilled fracture	
		223.64	224.33	0.69				MDST	SST	VFG	DGY					Quartz infilled frac	
	0.20					224.33											
		224.33	225.49	1.16				MDST	SST	VFG	DGY					Local gouge, cm scale Clasts, quartz infilled brecciation	
								Box 70									
	0.30																
		225.49	225.76	0.27				ROCK LOSS								ROCK LOSS	
		225.76	227.38	1.62				MDST		VFG	DGY					As above, 10cm band of coal infilled with quartz, 5cm band of carb MDST	
						227.38											
		227.38	228.82	1.44				MDST		VFG	DGY					15cm band of Carb MDST, coal bands at low angle 30°, cm scale SST bands	
								BOX 71									
		228.82	230.43	1.61				SST		VFG	DGY					As above, END PG 33	
	0.90					230.43											
		230.43	232.01	1.58				SST	MDST	FG	LGY					Abundant mircofaults off setting MDST laminations	
								BOX 72									
		232.01	233.42	1.41				MDST		VFG	MGY-DGY					Interbedded dark MDST, LGY MDST, 10cm coal mixed with quartz & mdst, mm-cm scale SST	
		233.42	233.49	0.07				ROCK LOSS								ROCK LOSS	
	0.75					233.48											
		233.49	235.02	1.53				MDST		VFG	MGY-DGY					As above	
								BOX 73									
65		235.02	236.52	1.50				MDST		VFG	MGY-DGY					15-20cm band of Carb MDST with coalified lenses and cm scale coal bands	
						236.52											
		236.52	238.20	1.68				MDST		VFG	MGY-DGY					As above pyrite, END PG 34	
								BOX 74									
		238.20	239.57	1.37				MDST		VFG	DGY					Quartz veinlets and infilled fractures	
	0.92					239.57											
		239.57	241.24	1.67				MDST		VFG	DGY					Coal spars, coalified bands	
								BOX 75									
		241.24	242.62	1.38				MDST	SST	VFG	DGY					Car MDST bands, coal bands	
						242.62											
45		242.62	244.11	1.49				MDST	SST	VFG	DGY					As above	
								BOX 76									
		244.11	245.67	1.56				MDST		VFG	DGY					local gouge, quartz infilled fracture, 10cm band of coal mixed with quartz	
	0.50					245.67											
		245.67	247.27	1.60				MDST		VFG	DGY					Coalified lenses	

BCA	RQD	Unit		Thickness Drilled	True	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To									FCD	FCA	BCD	FCA			
							BOX 77											
		247.27	248.57	1.30				MDST		VFG	DGY						Quartz infilled fractures, brecciated, coalified bands, END PG 35	
		248.57	248.72	0.15				ROCK LOSS									ROCK LOSS	
	0.84						248.72											
		248.72	250.29	1.57				MDST		VFG	DGY						10cm band of coal, pyrite, Carb MDST laminations	
							BOX 78											
		250.29	251.76	1.47				SST		FG	LGY						mm-cm scale MDST. Quartz infilled fractures, brecciation	
	2.50						251.76											
		251.76	253.27	1.51				MDST		VFG	DGY						Coalified bands, coalified lenses	
							BOX 79											
60		253.27	254.81	1.54				MDST		VFG	DGY		60				mm-cm scale SST laminations	
	2.77						254.81											
		254.81	255.51	0.70				MDST		VFG	DGY						As above	
		255.51	256.46	0.95				SST		FG	LGY						mm-cm scale MDST, quartz veinlets	
							BOX 80											
60		256.46	257.78	1.32				SST		FG	LGY		60				As above, END PG 36	
		257.78	257.86	0.08				ROCK LOSS									ROCK LOSS	
	2.39						257.86											
		257.86	259.68	1.82				SST		FG	LGY						As above	
							BOX 81											
		259.68	260.81	1.13				SST		FG	LGY						As above	
		260.81	260.91	0.10				ROCK LOSS									ROCK LOSS	
	1.75						260.91											
		260.91	263.11	2.20				SST		FG	LGY						mm-cm scale MDST lamiantions, abundant quartz infilled fracture with dolomite	
							BOX 82											
		263.11	263.36	0.25				SST		FG	LGY						mm scale MDST lamiantions	
		263.36	263.96	0.60				MDST	SST	VFG	LGY-MGY						Strongly broken, shear zone from 263.00-265.00, gouge	
	0.43						263.96											
		263.96	265.72	1.76				MDST	SST	VFG	MGY-DGY						Shear zone, quartz infilled fractures, 10cm of a coal band, mixed with quartz & dolomite	
							BOX 83											
		265.72	266.87	1.15				SST		FG	LGY						mm-cm scale MDST laminations, END PG 37	
	0.33	266.87	267.00	0.13			267.00	ROCK LOSS									ROCK LOSS	
		267.00	269.05	2.05				SST		FG	LGY						fold closures, bulls eye, possible hinge zone at 267, foliation steepening	
		269.05	269.16	0.11				ROCK LOSS									ROCK LOSS	
							BOX 84											
		269.16	269.96	0.80				MDST	SST	VFG	DGY						20cm band of quarta, mm-cm scale carb MDST, quartz infilled fractures	
		269.96	270.16	0.20		40872		MDST	SST	VFG	DGY						ROOF SMAPLE, part of above MDST	0
	0.56						270.05											
		270.16	271.16	1.00		40873		COAL	C4								Solid, no cleating, fabric is destroyed	40
		271.16	272.01	0.85		40874		COAL	C4								As above with significant pyrite	40
							BOX 85											



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		272.01	272.81	0.80		40875		COAL	C4							Gradational contact, getting muddy towards base, END PG 38	40
		272.81	273.01	0.20		40876		MDST		VFG	DGY					PARTING SAMPLE, carb MDST lamiantions, grad	0
	0.30						273.10										
		273.01	273.45	0.44		40876		MDST		VFG	DGY					PARTING SAMPLE, quartz infilled fractures	0
		273.45	274.25	0.80		40877		COAL	C5							Hard. Dull, signs of shearing, high ash	40
		274.25	274.34	0.09		40877		COAL LOSS								COAL LOSS	40
		274.34	274.90	0.56		40878		MDST	CARB	VFG	DGY					PARTING SAMPLE, Pyrite, half of core is coalified, the other half is MDST, hinge zone, 273-276, steepening of bedding planes, bulls eye feature, "S" structure	0
							BOX 86										
		274.90	275.26	0.36		40879		MDST		VFG	DGY					PARTING SAMPLE, Carb MDST, pyrite, coal bandsEND PG 39	0
		275.26	275.69	0.43		40880		COAL								Quartz mixed, pyrite, gradational contact	40
		275.69	275.99	0.30		40881		MDST		VFG	DGY					PARTING SAMPLE, Quartz infilled fractures	0
		275.99	276.38	0.39				ROCK LOSS								ROCK LOSS	
	0.53						276.15										
		276.38	276.80	0.42		40882		COAL	C4							Vertical bedding, gradational contact	40
		276.80	277.00	0.20		40883		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
0		277.00	277.75	0.75				MDST		VFG	DGY					Folded lecosomes, quartz infilled fractures, BCA ≈ 0°	
							BOX 87										
		277.75	278.98	1.23				MDST		VFG	DGY					Quartz infilled fractures with vuggy cavities, coal spars, slickenslides on fracture surfaces, END PG 40	
		278.98	279.20	0.22				ROCK LOSS								ROCK LOSS	
	0.74						279.20										
		279.20	280.98	1.78				MDST		VFG	DGY					Bands of Carb MDST, quartz veinlets, BCA ≈ 0°	
							BOX 88										
		280.98	282.45	1.47				MDST		VFG	DGY					Local gouge, quartz infilled fractures, coalified bands	
	1.55						282.24										
		282.45	283.95	1.50				MDST	SST	VFG	DGY					cm scale pyrite bands, coalified lenses, coal mixed with quartz	
							BOX 89										
		283.95	285.40	1.45				SST	MDST	FG	LGY-MGY					Quartz infilled fractures, locally broken	
	1.55						285.29										
		285.40	286.18	0.78				MDST		VFG	DGY					Quartz infilled fractures	
55		286.18	286.43	0.25				COAL								Mixed with quartz & MDST	
		286.43	287.04	0.61				MDST		VFG	MGY					Coalified bands, steep foliations, END PG 41	
							BOX 90										
		287.04	288.44	1.40				MDST	SST	VFG	DGY					Parasitic folds, mm-cm scale coalified bands	
	2.90						288.34										
		288.44	289.26	0.82				MDST	SST	VFG	DGY						
		289.26	290.31	1.05				SST		FG	LGY					mm-cm scale SST lamiantions	
							BOX 91										
		290.31	291.49	1.18				SST		FG	LGY					As above	
	2.98						291.39										
		291.49	293.60	2.11				SST		FG	LGY					As above, cm scale clasts	
							BOX 92										
		293.60	294.53	0.93				SST		FG	LGY					As above	
	2.02						294.44										



BCA	RQD	Unit		Thickness Drilled	True	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To									FCD	FCA	BCD	FCA		
		294.53	294.64	0.11				SST		FG	LGY					As above, END PG 42	
		294.64	294.94	0.30		40884		COAL								Bright with cleats, quartz infilled	99
		294.94	295.08	0.14				COAL LOSS								COAL LOSS	
60		295.08	297.11	2.03				SST	MDST	FG	LGY					SST/MDST	
							BOX 93										
		297.11	297.69	0.58				MDST		VFG	DGY		60			Quartz veinlets	
	1.50						297.48										
		297.69	300.37	2.68				SST	MDST	FG	LGY					Quartz infilled fractures, low angle foliation $\approx 0^\circ$	
							BOX 94										
		300.37	300.62	0.25				SST	MDST	FG	LGY					SST/MDST	
							300.53										
15		300.62	302.25	1.63				SST	MDST	FG	LGY					Quartz infilled fractures, shear zone, low angle fractures, END PG 43	
		302.25	302.68	0.43				MDST	SST	VFG	DGY					Quartz veinlets	
75		302.68	303.63	0.95				SST		FG	LGY					Quartz veinlets, mm-cm scale MDST	
	1.89						303.58										
							BOX 95										
30-60		303.63	306.57	2.94				SST		FG	LGY					mm-cm scale MDST, microfaults offsetting 1cm, foliation is varying from 30 degrees to 60 degrees	
		306.57	306.76	0.19				ROCK LOSS								ROCK LOSS	
	1.83						306.63										
		306.76	306.94	0.18				SST		FG	LGY					As above	
							BOX 96										
55		306.94	309.68	2.74				SST		FG	LGY					As above, network of quartz veins, mm-cm scale MDST laminations	
							309.68									END OF HOLE 309.68, END PG 44	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-11
Drilling Start Date	4-Oct-12
Drilling Finish Date	8-Oct-12
Confirmed Easting	547676.7552
Confirmed Northing	6298679.4611
Elevation	981.0762
Azimuth	
Dip	-90
Depth	421.36
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	547872
PreCollar Northing	6298652
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	8th to 11th October 2012
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		0.00	7.92	7.92												Casing Marker	
							BOX 1										
	0.00						7.92										
		7.92	8.47	0.55				SST		CG	LGY					Rubble	
	0.28						9.14										
		8.47	9.26	0.79				MDST		VFG	DGY					Few mm-scale quartz veinlets	
		9.26	10.48	1.22				SST		CG	LGY					Few mm-scale quartz veinlets	
							BOX 2										
		10.48	11.23	0.75				SST		CG	LGY					As above, rubble	
	0.23						12.19										
		11.23	11.42	0.19				SST		CG	LGY					As above	
		11.42	12.12	0.70				MDST		VFG	DGY					Few SST laminations & quartz veinlets, (mm-scale), rubble	
		12.12	13.11	0.99				SST		FG	LGY					Very few mm-scale quartz veinlets, rubble	
							BOX 3										
		13.11	13.47	0.37				SST		FG	LGY					As above, END PG 1	
	0.32						15.24										
		13.47	13.81	0.34				SST		FG	LGY					As above	
		13.81	14.46	0.64				MDST		VFG	DGY					Rubble	
							BOX 4										
		14.46	14.68	0.22				SST		FG	LGY					As above, few mm-cm scale MDST laminations	
	1.50						18.29										
25		14.68	17.54	2.86				SST		FG	LGY					As above, few mm-cm scale MDST laminations	
	0.65						21.34										
							BOX 5										
50		17.54	20.36	2.83				SST		FG	LGY					As above, cm scale gouge bands, 20cm MDST, dominant zone	
	1.02						24.38										
							BOX 6										
		20.36	22.16	1.79				SST		FG	LGY					mm-cm scale quartz veinlets, few cm-scale MDST fragments, 40cm quartz band at top of interval with vuggy cavities, END PG 2	
		22.16	23.36	1.21				MDST		VFG	DGY					Few mm-cm scale quartz veinlets	
	0.62						27.43										
		23.36	23.46	0.10				SST		MG	MGY					Few mm-scale MDST laminations	
							BOX 7										
40		23.46	26.31	2.85				SST		MG	MGY					As above, few mm-cm scale quartz+dolomite veinlets with vuggy cavities	
	0.82						30.48										
		26.31	26.46	0.14				MDST		VFG	DGY					Few mm-scale SST laminations	
							BOX 8										
		26.46	27.85	1.40				MDST		VFG	DGY					As above, few mm-scale quartz veinlets, fold hinges in quartz veinlets	
70		27.85	29.13	1.27				SST		MG	LGY					Few mm scale MDST laminations& quartz veinlets, END PG 3	
	0.71						33.53										
		29.13	29.48	0.35				SST		MG	LGY					As above	
							BOX 9										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		29.48	30.87	1.38				SST		MG	LGY				10					As above, 15cm band of quartz in middle of interval	
		30.87	32.28	1.42				MDST		VFG	DGY									Very few mm-scale quartz veinlets	
	1.94						36.58														
		32.28	32.56	0.28				MDST		VFG	DGY	0								As above	
								BOX 10													
		32.56	35.52	2.96				SST	MDST	MG	MGY									mm-cm scale MDST laminations	
	1.96						39.62														
75		35.52	36.12	0.60				SST	MDST	MG	MGY									As above	
								BOX 11													
		36.12	38.90	2.78				SST		MG	MGY									Few mm-cm scale MDST laminations, END PG 4	
	0.96						42.67														
		38.90	39.60	0.70				SST		CG	LGY									15cm MDST band at top of interval. Few rounded MDST clasts, mm-cm scale quartz veinlets	
								BOX 12													
75		39.60	42.04	2.45				SST		CG	LGY				5					Same as unit above, few MDST laminations & quartz veinlets	
	2.00						45.72														
		42.04	42.95	0.91				SST		CG	LGY									As above	
								BOX 13													
90		42.95	45.31	2.36				SST		CG	LGY									As above	
	2.13						48.77														
		45.31	46.45	1.14				SST		CG	LGY									As above	
								BOX 14													
		46.45	47.92	1.46				SST		CG	LGY									As above, 5cm band with fossil fragments at base of unit, PG 5	
		47.92	48.69	0.78				MDST		VFG	DGY									Few m[scale SST laminations at top of interval	
	2.65						51.82														
90		48.69	50.09	1.40				MDST		VFG	DGY									Few mm-cm scale MDST laminations	
								BOX 15													
		50.09	51.94	1.85				SST		FG	MGY									Few mm-cm scale MDST laminations	
	2.25						54.86														
90		51.94	53.72	1.78				SST		FG	MGY									As above	
								BOX 16													
80		53.72	55.31	1.58				SST		FG	MGY									As above	
	0.91						57.91														
		55.31	57.07	1.76				SST		FG	MGY									As above, few mm-scale quartz veinlets	
								BOX 17													
		57.07	58.32	1.25				SST		FG	MGY									As above, END PG 6	
	1.66						60.96														
		58.32	60.17	1.85				SST		FG	LGY									As above	
								BOX 18													
		60.17	61.70	1.53				SST		FG	LGY									As above	
	2.10						64.01														
		61.70	62.72	1.02				SST		FG	LGY									As above	
85		62.72	63.74	1.02				MDST		VFG	DGY									Few SST laminations near top of interval (mm-cm scale), fine porous cracks	
								BOX 19													
		63.74	63.97	0.23				MDST		VFG	DGY									Few mm-scale coalified lenses & quartz veinlets	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		63.97	64.14	0.17				COAL			BLK					Few bright lenses. Mostly dull with quarta, mm-scale pyrite lamination	
		64.14	64.87	0.73				MDST		VFG	DGY					MDST, END PG 7	
	0.80						67.06										
		64.87	66.41	1.54				MDST		VFG	DGY					Few mm-scale quartz veinlets, mm-cm scale coal bands with quartz	
		66.41	66.55	0.14				COAL			BLK					Bright bands quartz infilling up to cm-scale	
		66.55	67.02	0.47				MDST		VFG	DGY					Few cm-scale coal+quartz bands, Few mm-scale SST	
							BOX 20										
80		67.02	68.14	1.12				MDST	SST	VFG	DGY					mm-cm scale SST lamiantions	
	2.18						70.10										
		68.14	68.89	0.75				MDST	SST	VFG	DGY					As above	
80		68.89	70.41	1.52				SST		FG	LGY					Few mm-cm scale MDST bands, possible fossils at upper contact (bivalves) & coalified lense (cm-scale). END PG 8	
							BOX 21										
80		70.41	71.42	1.01				SST		FG	LGY					As above (no fossils)	
	1.37						73.15										
80		71.42	74.06	2.65				SST		FG	LGY					As above, few mm-scale quartz veinlets. Grades to MG	
							BOX 22										
		74.06	74.80	0.73				SST		MG	LGY					As above	
	2.76						76.20										
70		74.80	77.60	2.80				SST		MG	LGY					As above	
							BOX 23										
		77.60	78.12	0.52				SST		MG	LGY					As above	
	2.06						79.25										
70		78.12	81.18	3.06				SST		MG	LGY					As above	
							BOX 24										
		81.18	81.30	0.12				SST		MG	LGY					As above, slickenslides on fracture surface, END PG 9	
	0.58						82.30										
		81.30	81.43	0.13				SST		CG	LGY					few mm-scale MDST laminations	
0.00	0.00	81.43	83.05	1.62				MDST		VFG	DGY					Slickenslides on fracture surfaces, few mm-scale coaly lenses towards base.	
		83.05	83.32	0.27				COAL LOSS								COAL LOSS	
		83.32	83.50	0.18		40813		COAL								Rocky heavy, but a few very bright spots	85
		83.50	84.59	1.09				MDST		VFG	DGY					Fine porous cracks	
	2.25						85.34										
							BOX 25										
		84.59	87.74	3.15				MDST		VFG	DGY					As above, few mm-scale quartz veinlets	
	2.47						88.39										
		87.74	88.01	0.27				MDST		VFG	DGY					As above	
							BOX 26										
		88.01	88.90	0.89				MDST		VFG	DGY					As above, 4cm coal band at top of interval, END PG 10	
		88.90	89.08	0.19				COAL			BLK					Sheated, some bright, possibly C3	
		89.08	90.74	1.66				MDST		VFG	DGY					polished fracture surface with slickenslides few mm-scale SST laminations	
	2.70						91.44										
		90.74	91.51	0.77				MDST		VFG	DGY					As above	
							BOX 27										

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes		Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA	
		91.51	92.16	0.65				MDST		VFG	DGY					As above, gradational contact with SST unit below
70		92.16	94.03	1.87				SST		CG	LGY					Very few MDST laminations & clasts (mm-cm scale)
	2.84						94.49									
70		94.03	94.95	0.92				SST		CG	LGY					As above
							BOX 28									
80		94.95	97.18	2.23				SST		CG	LGY					As above, increasing MDST content, END PG 11
	2.59						97.54									
70		97.18	98.42	1.25				SST		CG	LGY					As above
							BOX 29									
		98.42	99.91	1.49				SST		CG	LGY					As above
	1.45						100.58									
		99.91	100.08	0.17				SST	MDST	MG	MGY					mm-cm scale MDST laminations
		100.08	100.28	0.20		40814		SST	MDST	MG	MGY					ROOF SAMPLE, part of above SST/MDST unit. 0
		100.28	100.43	0.15		40815		COAL	C6		BLK					Stone coal, 65% MDST & 35% dull hard coal 80
		100.43	100.52	0.09				COAL LOSS								COAL LOSS
		100.52	100.76	0.24		40816		MDST		VFG	BLK					PARTING SAMPLE, massive, NO Carb material, quartz veining. 0
		100.76	101.06	0.30		40817		COAL	C6		BLK					As above COAL, except broken into large chunks, END PG 12 80
							BOX 30									
		101.06	101.12	0.06		40817		COAL	C6		BLK					As above coal, except wispy pyrite vein 80
		101.12	101.32	0.20		40818		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit 0
		101.32	102.66	1.34				MDST		VFG	DGY					As above coal, except wispy pyrite vein
	1.64						103.63									
		102.66	103.64	0.98				MDST		VFG	DGY		15			As above, broken steep/low angle
							BOX 31									
		103.64	105.79	2.16				MDST		VFG	DGY					As above
	1.35															
		105.79	107.07	1.28				MDST		VFG	DGY					As above, END PG 13
							BOX 32									
		107.07	108.20	1.13				MDST		VFG	DGY					
		108.20	108.40	0.20		40819		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit. 0
		108.40	108.66	0.26		40820		COAL								Solid heavy more bright bands towards the base 99
		108.66	108.78	0.12				COAL LOSS								COAL LOSS
		108.78	109.01	0.23		40821		MDST		VFG	DGY					FLOOR SAMPLE, very mm-scale coalified lenses 0
	1.33						109.73									
		109.01	109.73	0.72				ROCK LOSS								ROCK LOSS
60		109.73	111.17	1.44				MDST		VFG	DGY					As above, few mm-scale SST laminations
							BOX 33									
		111.17	111.33	0.16				MDST		VFG	DGY					As above, very broken
		111.33	112.78	1.45				SST		CG	LGY					Few mm-scale quartz veinlets, moderately broken (low angle fractures) END PG 14
	0.58						112.78									
60		112.78	113.97	1.19				SST		CG	LGY					As above, very few mm-scale MDST laminations, fold closure in quartz
							BOX 34									
		113.97	114.57	0.60				ROCK LOSS								ROCK LOSS
		114.57	115.82	1.25				SST		CG	LGY					As above, very broken
	0.00						115.82									

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		115.82	116.94	1.12				SST		CG	MGY					Few mm-cm scale MDST lamiantions, very broken	
							BOX 35										
		116.94	118.16	1.22				ROCK LOSS								ROCK LOSS	
		118.16	118.87	0.71				SST		CG	MGY					As above	
	0.91						118.87										
70		118.87	120.85	1.98				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
							BOX 36										
85		120.85	121.92	1.07				MDST		VFG	DGY					Few mm-cm scale SST laminations, END PG 15	
	1.65						121.92										
		121.92	123.78	1.86				SST		CG	LGY		65			Few mm-cm scale MDST laminations & clasts, few mm-scale quartz veinlets polished fracture surface.	
							BOX 37										
80		123.78	124.97	1.19				SST		CG	LGY					As above	
	0.92						124.97										
		124.97	126.99	2.02				SST		FG	LGY					As above, some MG SST, cm-scale gouge band	
							BOX 38										
		126.99	127.86	0.87				SST		FG	MGY					Very broken, few mm-cm scale MDST laminations, few mm-scale quartz veinlets, up to 5cm gouge zone	
		127.86	128.02	0.16				ROCK LOSS								ROCK LOSS	
	0.26						128.02										
		128.02	128.70	0.68				SST		FG	MGY					As above	
		128.70	129.06	0.36				ROCK LOSS								ROCK LOSS	
		129.06	129.71	0.65				MDST		VFG	DGY					Mostly rubble& gouge few mm-scale quartz veinlets, END PG 16	
							BOX 39										
85		129.71	130.50	0.79				MDST		VFG	DGY					Few mm-scale SST lamiantions & quartz veinlets	
		130.50	130.58	0.08		40822		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
	1.30						131.06										
		130.58	130.62	0.04		40822		Clay								ROOF SAMPLE, sticky grey clay	0
		130.62	130.70	0.08		40822		MDST		VFG	DGY					ROOF SAMPLE, 5 cm FG SST band, cm-scale coalified lenses	0
		130.70	131.34	0.64		40823		COAL								Broken into chunks, chunks have faces that are sheared coal, thin beds interbedded with MDST	70
		131.34	131.58	0.24		40823		COAL LOSS								COAL LOSS	70
		131.58	131.78	0.20		40824		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST	0
85		131.78	132.66	0.88				MDST		VFG	DGY					Few mm-scale laminations, coalified lenses, quartz veinlets with vuggy cavities	
							BOX 40										
		132.66	133.59	0.93				SST		CG	LGY					Few mm-scale SST lamiantions towards top of interval & mm-scale quartz veins, END PG 17	
		133.59	134.11	0.52				ROCK LOSS								ROCK LOSS	
	2.81						134.11										
		134.11	136.53	2.42				SST		CG	LGY					As above (very little MDST)	
							BOX 41										
		136.53	137.04	0.51				SST		CG	LGY					As above	
		137.04	137.15	0.11				MDST		VFG	DGY					Few mm-scale SST laminations (part of Muddy SST unit below)	
	1.53						137.16										
70		137.15	139.34	2.19				SST	MDST	MG	MGY					mm-cm scale laminations of MDST, lower half interval is rubble, few mm-scale quartz veinlets	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 42										
		139.34	139.84	0.50				SST	MDST	MG	MGY					As above (no rubble, quartz infilling fractures)	
	0.56						140.21										
70		139.84	140.67	0.83				SST	MDST	MG	MGY					As above	
		140.67	140.87	0.20		40825										ROOF SAMPLE, part of above SST/MDST unit. END PG 18	0
		140.87	141.87	1.00		40826		COAL	C6		BIK					Sheared, polished fracture surfaces, mm-cm scale coal bands, few mm-scale quartz veinlets	70
		141.87	142.43	0.56				COAL LOSS								COAL LOSS	
							BOX 43										
		142.43	142.60	0.17		40826		COAL	C6		BIK					As above Coal	70
		142.60	143.20	0.60		40827		MDST	CARB	VFG	BIK					PARTING SAMPLE, Broken into chunks, coal beds, quartz veins	0
	0.13						143.26										
		143.20	143.45	0.25		40827		MDST	CARB	VFG	BIK					PARTING SAMPLE, broken into chunks, coal beds, quartz veins	0
		143.45	143.64	0.19		40828		COAL	C6							As above muddy coal	70
		143.64	143.76	0.12		40829		MDST	CARB	VFG	BIK					PARTING SAMPLE, as above Carb MDST	0
		143.76	143.80	0.04				ROCK LOSS								ROCK LOSS	
		143.80	145.00	1.20		40830		COAL	C6							As above COAL	70
		145.00	145.30	0.30				COAL LOSS								COAL LOSS, END PG 19	
		145.30	145.51	0.21		40831		MDST	CARB	VFG	BIK					FLOOR SAMPLE, few mm-cm scale coal+quartz bands	0
							Box 44										
		145.51	145.95	0.44				MDST	CARB	VFG	BIK					As above	
		145.95	146.07	0.12				ROCK LOSS								ROCK LOSS	
							146.30										
		146.07	147.08	1.01				MDST	CARB	VFG	DGY					As above	
		147.08	147.28	0.20		40832		MDST	CARB	VFG	DGY					ROOF SAMPLE, part of above Carb MDST unit.	0
		147.28	148.00	0.72		40833		COAL	C2							Bright bands alternating with dull bands, solid, hard Mdst stringers throughout.	70
		148.00	148.28	0.28		40833		COAL LOSS								COAL LOSS	70
		148.28	149.00	0.72		40834		COAL	C2							As above COAL, except for sheared in places	70
		149.00	149.28	0.28		40834		COAL LOSS								COAL LOSS	70
	0.76						149.35										
							BOX 45										
		149.28	149.56	0.28		40835		MDST	CARB							PARTING SAMPLE, massive, broken into disks and intermixed with bits of COAL	0
		149.56	149.90	0.34		40836		COAL	C4							Rockier, more Mdst stringers, END pg 20 & PG 21	70
		149.90	150.10	0.20		40837		MDST	CARB	VFG	DGY					FLOOR SAMPLE, part of below Carb MDST unit.	0
		150.10	151.13	1.03				MDST	CARB	VFG	DGY					Few mm-scale coalified lenses & quartz veinlets, polished fracture surfaces	
		151.13	151.45	0.32				SST		CG	LGY					Broken core, some cm scale gouge, mm-scale quartz infilling fractures	
		151.45	151.51	0.06				ROCK LOSS								ROCK LOSS	
	2.31						152.40										
							BOX 46										
		151.51	151.60	0.09				SST		CG	LGY					As above	
70		151.60	154.50	2.90				SST		CG	LGY					Few mm-cm scale MDST laminations, one 20cm MDST dominant band.	
		154.50	154.56	0.06				ROCK LOSS								ROCK LOSS	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	3.01						155.45											
		154.56	154.84	0.28				SST		CG	LGY						As above	
							BOX 47											
		154.84	156.24	1.40				SST		CG	LGY						As above, increasing MDST content with depth, END PG 22	
		156.24	157.61	1.37				SST	MDST	MG	MGY						mm-cm scale MDST laminations	
	2.16						158.50											
		157.61	157.80	0.19				SST	MDST	MG	MGY						As above	
		157.80	158.40	0.60		40838		SST	MDST	MG	MGY						ROOF SAMPLE, part of above SST/MDST unit	0
		158.40	158.49	0.09		40839		COAL	C3		BLK						Solid ir-regular quartz veins, thin laminations of Coal & Mdst	99
		158.49	158.52	0.03				COAL LOSS									COAL LOSS	
							BOX 48											
		158.52	158.72	0.20		40839		COAL	C3		BLK						As above coal, but sheared, END PG 23	99
		158.72	158.92	0.20		40840		MDST		VFG	DGY		85				FLOOR SAMPLE, part of below MDST unit	0
		158.92	161.10	2.18				MDST		VFG	DGY		85				Fine porous cracks, cm-scale gouge band, very few SST laminations (mm-scale)	
		161.10	161.54	0.44				ROCK LOSS									ROCK LOSS	
	2.21						161.54											
		161.54	161.91	0.37				MDST		VFG	DGY						As above	
		161.91	162.12	0.21				SST		CG	LGY						Few mm scale MDST lamiantions	
							BOX 49											
75		162.12	163.56	1.44				SST		MG	LGY						Few mm-cm scale laminations	
		163.56	164.36	0.80				MDST		VFG	DGY						few mm-cm scale coalified lenses	
	2.66						164.59											
		164.36	165.29	0.93				MDST		VFG	DGY						As above	
							BOX 50											
		165.29	167.28	1.99				MDST		VFG	DGY						Few mm-scale SST laminations, END PG 24	
	2.62						167.64											
		167.28	167.53	0.25				MDST		VFG	DGY						As above	
80		167.53	168.58	1.05				SST		MG	LGY						FEW mm-cm scale MDST laminations	
							BOX 51											
		168.58	170.32	1.74				SST		MG	LGY						As above	
	1.90						170.69											
70		170.32	171.79	1.47				SST		MG	LGY						As above	
							BOX 52											
		171.79	173.25	1.46				SST		MG	LGY						As above+MDST clasts (mm-cm scale)	
	2.70						173.74											
85		173.25	175.03	1.78				SST		MG	LGY						As above	
							BOX 53											
80		175.03	176.33	1.30				SST		MG	LGY						As above	
	2.45						176.78											
		176.33	178.27	1.94				SST		MG	LGY						As above, END PG 25	
							BOX 54											
80		178.27	179.33	1.06				SST		MG	LGY						As above	
	1.43						179.83											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		179.33	179.61	0.28				SST		MG	LGY					As above, up to cm-scale quartz infilling fractures with SST fragments	
		179.61	181.17	1.56				MDST		VFG	DGY					Few, mm-cm scale quartz veinlets, few mm-cm scale SST laminations towards base of interval	
							BOX 55										
		181.17	182.18	1.01				MDST	SST	VFG	DGY					mm-cm scale SST laminations, very few mm-scale quartz veinlets	
	1.92						182.88										
65		182.18	184.17	1.99				SST		CG	LGY					cm-scale quartz infilling fractures, few mm-scale MDST laminations, END PG 26	
							BOX 56										
		184.17	185.09	0.92				SST		CG	LGY					As above	
	1.34						185.93										
70		185.09	187.30	2.21				SST		CG	LGY					As above	
							BOX 57										
80		187.30	188.09	0.79				SST	MDST	MG	MGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets	
		188.09	188.30	0.21				ROCK LOSS								ROCK LOSS	
	0.50						188.98										
70		188.30	189.18	0.88				SST	MDST	MG	MGY					As above	
		189.18	189.40	0.22		40841		COAL	C3							Sheared to bits. Mixture of dull/bright bits with MDST, last 3cm solid core, END PG 27	99
		189.40	189.77	0.37				SST		CG	LGY					mm-cm scale quartz veinlets, 10cm gouge zone	
		189.77	190.48	0.71				MDST		VFG	DGY					gouge bands are up to 10cm fine porous cracks	
							BOX 58										
		190.48	190.73	0.25				MDST		VFG	DGY					As above	
80		190.73	191.31	0.58				SST		CG	LGY					Few mm-scale quartz veinlets	
	2.13						192.02										
		191.31	192.03	0.72				SST		CG	LGY					As above	
		192.03	193.60	1.57				MDST		VFG	DGY					Few mm-scale quartz veinlets	
							BOX 59										
		193.60	194.28	0.68				MDST		VFG	DGY					As above, few fossil fragments at base of interval, slienslines on fracture surface, END PG 28	
	0.55						195.07										
		194.28	194.42	0.14				MDST		VFG	DGY						
		194.42	194.62	0.20		40842		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		194.62	195.62	1.00		40843		COAL	C2		BLK				Semi-solid, sheared to bits in places, clean coal, blocky cleavage, minor amount of pyrite blebs, otherwise clean coal	60	
		195.62	196.00	0.38		40843		COAL LOSS							COAL LOSS	60	
		196.00	196.55	0.55		40844		MDST		VFG	BLK				PARTING SAMPLE, Dark black, soft, coal beds, coal spars	0	
		196.55	196.73	0.18		40845		COAL	C2		BLK				As above COAL, END PG 29	60	
							BOX 60										
		196.73	197.23	0.50		40845		COAL	C2		BLK				As above COAL	60	
		197.23	197.42	0.19		40845		COAL LOSS							COAL LOSS	60	
		197.42	197.64	0.22		40846		MDST	CARB	VFG	DGY-BLK				FLOOR SAMPLE, Few mm-cm scale coal laminations	0	
		197.64	197.88	0.24				ROCK LOSS							ROCK LOSS		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	2.13						198.12										
60		197.88	200.23	2.35				MDST		VFG	DGY						Few mm-scale coal lenses-same with quartz, few cm-scale pyrite rich bands, few mm-scale SST bands.
							BOX 61										
		200.23	200.70	0.47				MDST		VFG	DGY						As above (no pyrite)
	2.57						201.17										
		200.70	202.50	1.80				MDST		VFG	DGY						As above, SST content increasing towards base (up to 5cm bands)-gradational contact with unit below. END PG 30
		202.50	203.47	0.97				SST		MG	LGY						Few Mdst laminations & clasts mm-cm scale)
							BOX 62										
		203.47	203.77	0.30				SST		MG	LGY						As above, cm-scale quartz veinlets
	2.41						204.22										
60		203.77	205.74	1.97				SST		MG	LGY						As above
60		205.74	206.60	0.86				SST		CG	LGY		30 QTZ				Few mm-cm scale quartz veinlets
							BOX 63										
		206.60	206.81	0.21				SST		CG	LGY						As above
	1.44						207.26										
		206.81	208.09	1.28				SST		CG	LGY						As above
		208.09	209.66	1.57				SST		FG	LGY						5cm quartz bands 30cm zone of quartz+breccia, 5cm gouge band at base of breccia. END PG 31
							BOX 64										
		209.66	209.77	0.11				SST		MG	LGY						Few mm-scale MDST clasts. Quartz veinlets
	1.65						210.31										
		209.77	210.32	0.55				SST		MG	LGY						As above few MDST laminations
45		210.32	212.72	2.40				MDST	SST	FG	DGY						mm-cm scale SST laminations, mm-scale quartz veinlets, polished fracture surfaces
							BOX 65										
	2.24						213.36										
35		212.72	215.67	2.95				MDST		VFG	DGY		35	40			Few mm-cm scale SST laminations at top of interval, 40cm band of IG SST in upper half of interval. Fine porous cracks
40																	
	1.76						216.41										
		215.67	215.97	0.30				MDST		VFG	DGY						Very few mm-scale SST laminations and quartz veinlets END PG 32
							BOX 66										
		215.97	217.70	1.73				MDST		VFG	DGY						Few mm-scale quartz veinlets, same with brecciated MDST fragments, few bivalve foss(moderate), slickenlines on fracture surfaces fossils throughout. 10cm band of coal+quartz ≈ C3 (moderate) slickenlines on surfaces, few pyrite blebs (mm-cm scale)
		217.70	218.00	0.30				SST		FG	MGY						Few bivalve fossil & fragments & slickenlines on fracture surfaces.
		218.00	218.20	0.20		40847		SST		FG	MGY						ROOF SAMPLE, part of above SST unit
		218.20	218.54	0.34		40848		COAL		C5		BLK					Hard, full of MDST, numerous mdst partings, minor amount of quartz veining
		218.54	218.76	0.22				COAL LOSS									COAL LOSS
		218.76	218.89	0.13		40849		MDST		VFG	DGY						FLOOR SAMPLE, part of above MDST unit, END PG 33

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.79						219.46											
		218.89	219.17	0.28				MDST		VFG	DGY						As above, few mm-scale SST lenses	
							BOX 67											
		219.17	219.61	0.44				MDST		VFG	DGY						As above 3 cm pyrite rich band at base of interval	
		219.61	219.81	0.20		40850		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit.	0
		219.81	220.33	0.52		40926		COAL									Very good coal (light/bright/blocky) mixed with 3 large MDST partings (5-6cm thick)	55
		220.33	220.46	0.13		40926		COAL LOSS									COAL LOSS	55
		220.46	220.66	0.20		40927		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		220.66	221.78	1.12				MDST		VFG	DGY						Few mm-scale coalified lenses, fine porous cracks, few mm-scale SST lamiantions towards base of interval	
	0.89						222.50											
50		221.78	222.19	0.41				MDST		VFG	DGY						Few mm-cm scale SST laminations, END PG 34	
							BOX 68											
40		222.19	222.90	0.71				MDST		VFG	DGY						As above	
		222.90	223.10	0.20		40928		MDST		VFG	DGY						ROOF SAMPLE, part above MDST unit.	0
		223.10	223.53	0.43		40929		COAL	C5		BLK						Very hard, 30% to 40% rock, hardly a bright band	55
		223.53	223.80	0.27		40930		MDST	Carb	VFG	BLK						PARTING SAMPLE, Massive, coal beds, coal spars, plant material	0
		223.80	224.20	0.40		40931		COAL	C4								Less MDST, more bright bands	55
		224.20	224.28	0.08		40931		COAL LOSS									COAL LOSS	55
		224.28	224.60	0.32		40932		MDST	CARB	VFG	BLK						PARTING SAMPLE, As above Carb MDST	0
		224.60	224.92	0.32		40933		COAL	C3								More bright bands, but several thick MDST partings	55
		224.92	225.00	0.08		40933		COAL LOSS									COAL LOSS, END PG 35	55
		225.00	225.20	0.20		40934		MDST	Carb	VFG	BLK						FLOOR SAMPLE, part of below Carb MDST unit.	0
		225.20	225.55	0.35				ROCK LOSS									ROCK LOSS	
	1.00						225.55											
		225.55	225.98	0.43				ROCK LOSS									ROCK LOSS	
		225.98	226.08	0.10				MDST	Carb	VFG	BLK						CARB MDST	
		226.08	226.13	0.05				MDST		VFG	DGY						MDST	
							BOX 69											
		226.13	226.27	0.14				MDST		VFG	DGY						Very few quartz veinlets (mm-scale)	
70		226.27	227.06	0.79				SST	MDST	FG	MGY							
55		227.06	227.84	0.78				SST		MG	LGY						mm-cm scale MDST laminations, END PG 36	
55		227.84	228.60	0.76				SST		CG	LGY						Few mm-scale, MDST laminations, cm-scale clasts	
	2.27						228.60											
		228.60	228.80	0.20				SST		CG	LGY						As above	
		228.80	229.24	0.44				SST		MG	LGY						As above	
							BOX 70											
55		229.24	231.65	2.41				SST		M-CG	LGY						As above	
	2.57						231.65											
55		231.65	232.19	0.54				SST		M-CG	LGY						As above	
		232.19	232.51	0.32				MDST	SST	FG	DGY						mm-scale SST laminations	
							BOX 71											
55		232.51	233.06	0.55				MDST	SST	FG	DGY						As above	
		233.06	234.42	1.36				SST		M-CG	LGY						Few mm-cm scale MDST laminations & very few mm-scale quartz veinlets, END PG 37	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		234.42	234.70	0.28				MDST		VFG	DGY					Few mm-scale SST laminations & mm-scale quartz veinlets infilling fractures	
	1.58						234.70										
70		234.70	235.77	1.07				MDST		VFG	DGY					As above	
							BOX 72										
		235.77	237.06	1.29				MDST		VFG	DGY					As above	
		237.06	237.20	0.14				COAL			BLK					Sheared bright shear surfaces, some remnant cleating	
		237.20	237.74	0.54				ROCK LOSS								ROCK LOSS	
	1.32						237.74										
		237.74	238.80	1.06				MDST		VFG	DGY					Few mm-cm scale coalified cm lenses with quartz, one band up to 10cm, very few quartz veinlets	
		238.80	239.00	0.20				COAL			BLK					With quartz & pyrite, cm-scale rock parting, bright bands, rocky, END PG 38	
		239.00	239.09	0.09				MDST		VFG	DGY					MDST	
							BOX 73										
		239.09	240.62	1.53				MDST		VFG	DGY					Very few mm-scale quartz veinlets	
		240.62	240.79	0.17				ROCK LOSS								ROCK LOSS	
	1.84						240.79										
		240.79	241.82	1.03				MDST		VFG	DGY					As above, few SST laminations towards base of interval (gradational contact)	
90		241.82	242.45	0.63				SST		CG	LGY					Few MDST laminations at top of interval, cm-scale quartz infilling fractures, up to 5cm band	
							BOX 74										
		242.45	243.84	1.39				SST		CG	LGY		0			Few mm-scale quartz veinlets	
	1.53						243.84										
		243.84	245.28	1.44				SST		CG	LGY		0			As above, END PG 39	
							BOX 75										
		245.28	246.77	1.49				SST		CG	LGY					As above 4cm quartz band with vuggy cavities at base of interval	
		246.77	246.89	0.12				ROCK LOSS								ROCK LOSS	
	1.66						246.89										
		246.89	248.39	1.50				SST		CG	LGY					As above (15cm quartz band in middle of interval)	
							BOX 76										
		248.39	248.68	0.29				ROCK LOSS								ROCK LOSS	
		248.68	249.94	1.26				SST		CG	LGY					As above	
	1.45						249.94										
		249.94	251.72	1.78				SST		CG	LGY					As above +cm-scale quartz infilling fractures throughout, few mm-scale MDST laminations	
							BOX 77										
		251.72	251.84	0.12				ROCK LOSS								ROCK LOSS	
50		251.84	252.98	1.14				SST	MDST	CG	LGY					mm-cm scale MDST lamiantions, 5cm-scale quartz infilling fractures+few mm-cm scale, 5cm band of aheared coal +material, END PG 40	
	2.12						252.98										
		252.98	253.62	0.64				SST	MDST	CG	LGY					As above	
		253.62	254.78	1.16				MDST		VFG	DGY					Few SST lamiantions (mm-cm scale) & few mm-scale) & few mm-scale quartz veinlets	
							BOX 78										
		254.78	255.56	0.78				SST	MDST	MG	MGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets with vuggy cavities	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
		255.56	255.96	0.40				SST		CG	LGY							
		255.96	256.03	0.07				ROCK LOSS									ROCK LOSS	
	1.13						256.03											
		256.03	257.67	1.64				SST		CG	LGY						As above, few vuggy cavities, 25cm band of quartz with SST breccia, few breccia fragments in other veinlets, END PG 41	
							BOX 79											
		257.67	257.90	0.23				ROCK LOSS									ROCK LOSS	
		257.90	259.08	1.18				SST		CG	LGY						As above (no breccia zone) few slicklines on fracture surfaces	
	1.29						259.08											
		259.08	260.45	1.37				SST		CG	LGY						As above	
		260.45	261.07	0.62				MDST		VFG	DGY						Very few mm-scale quartz veinlets	
							BOX 80											
		261.07	261.41	0.34				ROCK LOSS									ROCK LOSS	
		261.41	262.13	0.72				MDST		VFG	DGY						As above, few mm-scale SST laminations	
	2.29						262.13											
65		262.13	264.51	2.38				MDST		VFG	DGY						As above	
							BOX 81											
		264.51	265.18	0.67				MDST		VFG	DGY						As above	
	1.98						265.18											
		265.18	266.97	1.79				MDST		VFG	DGY						As above+few cm scale coaly bands, END PG 42	
65		266.97	267.61	0.64				SST	MDST	M-CG	MGY						mm-cm scale MDST lamiantions, 10cm MDST with dominant band. Very few mm-scale quartz veinlets	
							BOX 82											
		267.61	267.79	0.18				SST	MDST	M-CG	MGY						As above	
		267.79	268.08	0.29				SST		CG	LGY						Very few mm scale MDST lamiantions & quartz veinlets	
	2.46						268.22											
		268.08	270.88	2.80				SST		CG	LGY						As above, two 5-10cm quartz bands	
							BOX 83											
		270.88	271.13	0.25				SST		CG	LGY						As above	
	2.10						271.27											
65		271.13	274.18	3.05				SST		CG	LGY		40 QTZ				As above, middle 50cm of interval has mm-cm scale MDST laminations throughout, cm-scale vuggy cavities in quartz, END PG 43	
							BOX 44											
	2.27						274.32											
55		274.18	277.23	3.05				SST		CG	LGY						Few mm-cm scale MDST lamiantions, few mm-cm scale quartz veinlets	
	2.39						277.37											
		277.23	277.55	0.32				SST		CG	LGY						As above	
							BOX 85											
		277.55	279.32	1.77				SST	MDST	CG	MGY						mm-cm scale MDST laminations throughout, increasing MDST content with depth (gradational)	
65		279.32	280.16	0.84				MDST	SST	FG	MGY						mm-cm scale SST laminations throughout	
	2.88						280.42											
		280.16	280.84	0.68				MDST	SST	FG	MGY						As above	
							BOX 86											
		280.84	281.91	1.07				MDST	SST	FG	LGY						As above	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
65		281.91	283.26	1.35				SST		CG	LGY					Few mm-cm scale MDST lamiations, END PG 44	
	1.74						283.46										
		283.26	284.15	0.89				SST		CG	LGY					As above	
							BOX 87										
		284.15	285.69	1.54				SST		CG	LGY					As above, very few mm-scale quartz veinlets	
		285.69	285.89	0.20		40935		SST		CG	LGY					ROOF SAMPLE, part of above SST unit	0
		285.89	286.15	0.26		40936		COAL	C6		BLK					Mdst beds interbedded with dull coal	50
	0.71						286.51										
		286.15	286.25	0.10		40936		COAL	C6		BLK					As above coal	50
		286.25	286.65	0.40		40937		MDST	Carb							PARTING SAMPLE, Broken into chunks, mixed with bits of coal	0
		286.65	286.80	0.15		40938		COAL LOSS								COAL LOSS	50
		286.80	287.24	0.44		40938		COAL	C4		BLK					Sheared to bits first 10cm numerous bright bands. Fairly clean, END PG 45	50
		287.24	287.60	0.36		40938		COAL	C3		BLK					As above coal, but decreasing amount of MDST	50
		287.60	287.80	0.20		40939		SST		CG	LGY					FLOOR SAMPLE, part of below SST unit.	0
		287.80	288.24	0.44				SST		CG	LGY					cm-scale quartz infilling fractures throughout, some dolomite with quartz	
60		288.24	289.02	0.78				MDST		VFG	DGY					Few MG SST lamiations ( mm-cm scale)	
	1.98						289.56										
		289.02	289.15	0.13				MDST		VFG	DGY					Very few mm-scale quartz veinlets, possible coal band (2cm) ( but! looks like this coal just spilled here from seam below. END PG 46	
		289.15	289.28	0.13		40940		COAL								COAL	50
		289.28	289.50	0.22		40940		COAL LOSS								COAL LOSS	50
		289.50	290.01	0.51				MDST		VFG	DGY					Top 10cm -Carb MDST with few mm-scale quartz veinlets, few mm-cm scale quartz veinlets	
							BOX 89										
80		290.01	291.92	1.91				MDST	SST	FG	DGY					mm-cm scale SST lamiations through out	
	1.42						292.61										
85		291.92	292.64	0.72				SST		CG	MGY					Few mm-cm sclae MDST lamiations	
		292.64	292.74	0.10				MDST	CARB	VFG	DGY					CM-scale coaly bands throughout mm-sclae quartz veinlets, END PG 47	
		292.74	293.02	0.28				MDST		VFG	DGY					cm scale pyrite rich band at top of interval	
							BOX 90										
65		293.02	294.52	1.50				MDST		VFG	DGY					Very few mm-scale SST lamiations	
	1.70						295.66										
90		294.52	295.92	1.40				MDST		VFG	DGY					As above	
							BOX 91										
		295.92	297.61	1.69				MDST		VFG	DGY					As above, 10cm Carb band polished fracture surfaces, lower 20cm of interval has SST fragments	
	0.50						298.70										
		297.61	298.47	0.86				MDST		VFG	DGY					As above	
		298.47	298.82	0.35				SST		CG	LGY					Few mm-scale quartz veinlets infilling fractures,END PG 48	
							BOX 92										
		298.82	300.05	1.23				SST		CG	LGY					As above	
		300.05	300.36	0.31				MDST		VFG	DGY					Few mm-scale quartz veinlets	
		300.36	301.16	0.80				MDST		VFG	DGY					As above, few Carb bands & gouge bands, polished fracture surfaces	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		301.16	301.36	0.20		40941		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		301.36	301.68	0.32		40942		COAL	C6							Poor coal very rocky, very dull SHC 80% rock & 20% coal	45
	0.96																
						301.75											
						BOX 93											
		301.68	302.21	0.53		40943		MDST		VFG	DGY					PARTING SAMPLE, as above MDST	0
		302.21	302.53	0.32		40944		COAL	C4							As below COAL	45
		302.53	302.82	0.29		40944		COAL	C4		BLK					Sheared to bits, bits of dull & bright mixed in with , END PG 49	45
		302.82	302.90	0.08		40945		MDST	CARB	VFG	DGY					FLOOR SAMPLE, broken core	0
		302.90	303.02	0.12		40945		SST		CG	LGY					FLOOR SAMPLE, part of below SST unit.	0
		303.02	304.16	1.14				SST		CG	LGY					Very few mm-scale quartz veinlets, 1cm pyrite rich band near top of interval.	
	0.74																
		304.16	305.31	1.15				SST		CG	LGY					As above (no pyrite)	
								BOX 94									
		305.31	306.89	1.59				SST		CG	LGY					As above	
	0.00							307.85									
		306.89	307.85	0.95				SST		CG	LGY					few cm-scale gouge bands, few slickenlines	
								BOX 95									
		307.85	308.14	0.29				SST		CG	LGY					As above, brecciated with quartz & SST + MDST fragments	
		308.14	309.68	1.54				MDST		VFG	DGY					Few mm-scale quartz veinlets, few 90cm SST bands, very broken, some gouge, END PG 50	
	0.74							310.90									
		309.68	310.44	0.77				MDST		VFG	DGY					As above (no SST)	
								BOX 96									
		310.44	312.48	2.04				MDST		VFG	DGY		75			Very few mm-scale quartz veinlets, fine porous cracks	
	1.22							313.94									
		312.48	313.60	1.12				MDST		VFG	DGY					As above, possible fold closure in quartz	
								BOX 97									
		313.60	315.27	1.67				MDST		VFG	DGY					As above, 25cm band of rubble+Carb coaly material	
	0.49							316.99									
		315.27	316.15	0.88				MDST		VFG	DGY					As above wavy bedding with horizontal (0°)	
								BOX 98									
		316.15	318.00	1.84				MDST		VFG	DGY					As above, moderately broken, END PG 51	
	0.00							320.04									
60		318.00	318.73	0.74				MDST		VFG	DGY					As above, few mm-scale SST laminations	
								BOX 99									
		318.73	319.91	1.18				MDST		VFG	DGY					As above, up to cm scale quartz veinlets infilling fractures, 3cm coalified+quartz band at base of interval	
		319.91	322.40	2.49				SST		FG	LGY					cm-scale quartz infilling fractures	
		322.40	322.55	0.15		40946		COAL	C6							Very poor sample, 80% rock & 20% coal, sheared to bits, mostly rock, the bottom contact is with a 10cm clay band	99
	1.05							323.09									
		322.55	322.70	0.15		40946		COAL	C6							Part of above COAL	99
		322.70	322.80	0.10				CLAY		VFG	DGY					Very sticky black clay, END PG 52	
		322.80	323.27	0.47				SST		CG	LGY					Few mm-scale quartz veinlets, 5cm quartz band at top of interval	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 100										
		323.27	324.00	0.73				SST		CG	LGY					As above (no quartz band)	
	1.01						326.14										
		324.00	324.86	0.85				SST		CG	LGY					As above	
							BOX 101										
		324.86	327.22	2.36				SST		CG	LGY					As above	
50		327.22	327.74	0.52				SST		FG	MGY					Few mm-cm scale MDST lamiantions	
	0.28						329.18										
		327.74	328.11	0.37				SST		FG	MGY					As above	
		328.11	328.48	0.38				MDST		VFG	DGY		20			Low angle fractures, END PG 53	
							BOX 102										
		328.48	329.11	0.62				MDST		VFG	DGY					few mm-scale quartz infilling fractures	
		329.11	329.54	0.44				MDST	CARB							Carb MDST	
		329.54	330.43	0.89				MDST		VFG	DGY					Top 0.5m is sheared Carb MDST with mm-scale coaly laminations very broken, very few mm-scale quartz veinlets	
		330.43	331.08	0.65				SST		FG	LGY					cm-scale quarts infilling fractures with brecciated SST fragments	
	0.15						332.23										
		331.08	331.47	0.39				MDST		VFG	DGY					Very few mm-scale quartz veinlets, very broken, low angle fractures, END PG 54	
							BOX 103										
		331.47	332.99	1.52				MDST		VFG	DGY					Moderately broken, polished fracture surfaces, 15cm quartz breccia zone near top of interval+botttom of interval	
		332.99	333.19	0.20		40947		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		333.19	333.39	0.20		40948		COAL								COAL	40
		333.39	333.69	0.30		40948		COAL LOSS								COAL LOSS	40
		333.69	334.21	0.52		40949		MDST		VFG	DGY					PARTING SAMPLE, mm-cm scale quartz infilling fractures, some dolomite	0
		334.21	334.56	0.35		40950		COAL								COAL	40
		334.56	334.68	0.12		40950		COAL LOSS								COAL LOSS, END PG 55	40
	1.09						335.28										
		334.68	334.78	0.10		AT10132		MDST		VFG	DGY					FLOOR SAMPLE	0
							BOX 104										
		334.78	334.88	0.10		AT10132		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		334.88	335.57	0.69				MDST		VFG	DGY					Top 5cm-CARB, few mm-scale quartz veinlets, 5cm quartz band, very broken, few mm-scale SST laminations towards base of interval.	
75		335.57	336.57	1.00				SST		FG	MGY		75			Few mm-cm scale MDST laminations	
70		336.57	337.64	1.07				MDST		VFG	DGY					Few mm-scale quartz veinlets	
		337.64	337.80	0.16				ROCK LOSS								ROCK LOSS	
	0.81						338.33										
		337.80	337.86	0.06				MDST		VFG	DGY					As above	
							BOX 105										
60		337.86	338.71	0.85				MDST		VFG	DGY					As above few mm-cm scale, coalified+quartz laminations, 0.5cm pyrite rich band near top of interval, END PG 56	
		338.71	338.91	0.20		AT10133		MDST		VFG	DGY					ROOF SAMPLE, part of MDST unit.	0
		338.91	339.31	0.40		AT10134		COAL								Solid clean ligh only a minor amount of quartz	40

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		339.31	339.44	0.13				COAL LOSS								COAL LOSS	
		339.44	339.64	0.20		AT10135		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
60		339.64	340.81	1.17				MDST		VFG	DGY					Few mm-cm scale quartz veinlets, few SST laminations (mm-scale)	
	0.93						341.38										
		340.81	341.02	0.20				MDST		VFG	DGY					As above	
							BOX 106										
		341.02	341.41	0.40				MDST		VFG	DGY					Few SST laminations (mm-cm scale)	
85		341.41	343.89	2.48				SST	MDST	FG	MGY					mm-cm scale quartz infilling fractures, quartz band with same CG SST (5cm), mm-cm scale MDST laminations, END PG 57	
	2.18						344.42										
		343.89	344.05	0.15				SST	MDST	FG	MGY					As above (decreasing quartz content)	
							BOX 107										
		344.05	347.04	3.00				SST		FG	LGY		0 QTZ			Few mm-cm scale MDST lamiantions, few mm-scale quartz veinlets	
	2.15						347.47										
		347.04	347.44	0.40				SST		FG	LGY					As above, 5cm quartz band at base of interval	
							BOX 108										
		347.44	350.07	2.63				SST		FG	LGY					As above, 5cm quartz band in middle of interval with some brecciated SST	
	2.54						350.52										
		350.07	350.92	0.85				SST		FG	LGY					SST, END PG 58	
							BOX 109										
		350.92	351.31	0.39				SST		MG	LGY					Few mm-cm scale MDST laminations	
		351.31	352.18	0.87				MDST		VFG	DGY					Few SST lamiantions (mm-scale) very few cm scale quartz veinlets, one cm scale coalified band with quartz+pyrite	
80		352.18	353.22	1.04				SST		FG	MGY						
	1.15						353.57										
		353.22	353.32	0.10				SST		FG	MGY					As above	
		353.32	353.78	0.46				MDST		VFG	DGY					Few mm-scale SST laminations, one cm-scale quartz band at base of interval	
		353.78	353.88	0.10				COAL			BLK					Sheared, some quartz, infill mostly bright+rubble	
		353.88	354.26	0.38				MDST		VFG	DGY					Few mm-scale SST laminations, END PG 59	
							BOX 110										
		354.26	355.48	1.22				MDST		VFG	DGY					Few mm-scale SST lamiantions	
		355.48	355.68	0.20		AT10136		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		355.68	356.15	0.47		AT10137		COAL	C2							First 30cm sheared to bits, the res is solid	31
		356.15	356.23	0.08		AT10138		MDST		VFG	DGY					FLOOR SAMPLE, MDST	0
		356.23	356.35	0.12		AT10138		MDST		VFG	DGY					FLOOR SAMPLE, part of MDST unit below	0
	0.77						356.62										
		356.35	357.05	0.70				MDST		VFG	DGY					Few mm-cm scale SST laminations	
		357.05	357.42	0.37				SST		MG	LGY					Few mm-cm scale MDST laminations	
							BOX 111										
90		357.42	357.66	0.24				SST		MG	LGY					As above, END PG 60	
		357.66	359.07	1.41				MDST	SST	FG	DGY					mm-cm scale SST laminations, few mm-scale quartz veinlets	
	0.39						359.66										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		359.07	360.23	1.17				SST		FG	MGY					5cm coal band at top of interval, mm-cm scale quartz infilling fractures, some brecciation, moderately broken cm-scale gouge band	
							BOX 112										
		360.23	361.10	0.87				MDST		VFG	DGY					Few mm-scale quartz veinlets moderately broken	
		361.10	361.40	0.30				SST		MG	MGY					Few mm-scale quartz veinlets (mm-scale)	
		361.40	361.62	0.22				MDST	CARB	VFG	DGY					Sheared	
	0.00						362.71										
		361.62	361.85	0.23				MDST		VFG	DGY					Very broken, few coalified bands, 5cm gouge zone	
		361.85	362.05	0.20		AT10139		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit, END PG 61	0
		362.05	362.22	0.17		AT10140		COAL								Razza took 2cm sample at ≈ 363m	35
		362.22	362.38	0.16		AT10140		COAL LOSS								COAL LOSS	35
		362.38	362.84	0.46		AT10141		MDST	Carb	VFG	BLK					PARTING SAMPLE, Sheared to bits, crumbly mess	0
							BOX 113										
		362.84	363.84	1.00		AT10142		COAL	C4		BLK					Sheared! A mixture of coal & rock difficult to contacts	35
		363.84	364.50	0.66		AT10143		COAL	C4		BLK					As above Coal	35
		364.50	364.70	0.20		AT10143		COAL LOSS								COAL LOSS	35
		364.70	364.96	0.26		At10144		ROCK LOSS								ROCK LOSS	0
		364.96	365.70	0.74		AT10144		SST		CG	LGY					PARTING SAMPLE, Moderately broken some quartz breccia & gouge	0
	0.00						365.76										
		365.70	365.96	0.26		AT10144		SST		CG	LGY					PARTING SAMPLE, As above cm-scale coal band towards base of interval, lower 5cm is Carb MDST	0
		365.96	366.21	0.25		AT10145		COAL	C2		BLK					Sheared to bits, a mess of coal & Mdst	35
		366.21	366.40	0.19		AT10145		COAL	C2		BLK					As above COAL unit, END PG 63	35
							BOX 114										
		366.40	366.78	0.38		AT10146		MDST		VFG	DGY					PARTING SAMPLE, MDST	0
		366.78	367.25	0.47		AT10147		COAL	C4		BLK					Solid coal, but with more Mdst partings then above coal	35
		367.25	367.30	0.05		AT10147		COAL LOSS								COAL LOSS	35
		367.30	367.50	0.20		AT10148		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		367.50	367.98	0.48				MDST		VFG	DGY					Very few mm-scale coalified lenses	
		367.98	368.25	0.27				SST		CG	LGY						
	0.72						368.81										
		368.25	368.88	0.63				SST		CG	LGY					Few mm-scale quartz veinlets, slickenslies on fracture surfaces, END PG 64	
							BOX 115										
		368.88	369.41	0.53				SST		CG	LGY					As above, very few mm-scale MDST lamiantions	
		369.41	369.61	0.20		AT10149		SST		CG	LGY					ROOF SAMPLE, part of above SST unit.	0
		369.61	370.61	1.00		AT10150		COAL	C2		BLK					Light, clean, sheared into uneven chunks (RQD 0%). Very thin lamination of coal very minor amounts of MDST partings, trace quartz. A "graphite" sheen over the entire interval. Blocky cleavage and 1/4cm on face cleats, 1/8cm on butt cleat	35
		370.61	371.61	1.00		AT10151		COAL	C2		BLK					As above COAL	35
							BOX 116										
		371.61	372.61	1.00		AT10152		COAL	C2		BLK					As above COAL	35
		372.61	373.61	1.00		AT10153		COAL	C2		BLK					As above COAL	35
		373.61	374.61	1.00		AT10154		COAL	C2		BLK					As above COAL	35
							BOX 117										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		374.61	375.59	0.98		AT10155		COAL	C2		BLK					As above COAL	35
		375.59	376.14	0.55		AT10156		MDST		VFG	LGY					PARTING SAMPLE, massive, solid, hard, not carbaceous	0
		376.14	376.24	0.10		AT10157		COAL	C1		BLK					As above coal, END PG 65,67 & 68	35
							BOX 118										
		376.24	376.54	0.30		AT10157		COAL	C2		BLK					As above coal	35
	1.25						377.95										
		376.54	377.54	1.00		AT10158		COAL	C2		BLK					As above coal	35
		377.54	378.37	0.83		AT10159		COAL	C2		BLK					As above coal, END PG 68	35
		378.37	378.57	0.20		AT10160		MDST		VFG	DGY					FLOOR SAMPLE, part of below unit.	0
		378.57	378.95	0.38				MDST		VFG	DGY					Few mm-scale quartz veinlets & SST laminations	
							BOX 119										
		378.95	380.56	1.60				SST		CG	LGY					Few mm-cm scale MDST laminations at top few mm-cm scale quartz veinlets-some with vuggy cavities	
	1.76						381.00										
70		380.56	382.28	1.73				SST		CG	LGY			20		As above, few cm-scale MDST clasts	
							BOX 120										
		382.28	383.61	1.33				SST	MDST	CG	LGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets	
	0.60						384.05										
80		383.61	383.88	0.27				SST	MDST	CG	LGY					As above	
65		383.88	384.67	0.79				MDST		VFG	DGY			65		Few mm-cm scale SST laminations & quartz veinlets	
		384.67	384.88	0.21		AT10161		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit. END PG 69	0
		384.88	385.39	0.51		AT10162		COAL								COAL	35
							BOX 121										
		385.39	385.63	0.24		AT10162		COAL								COAL	35
		385.63	386.63	1.00		AT10163		COAL								COAL, END PG 70	35
		386.63	386.74	0.11		AT10164		MDST		VFG	DGY					FLOOR SAMPLE, polished fracture surface	0
	1.73						387.10										
		386.74	386.83	0.09		AT10164		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0
		386.83	388.72	1.89				MDST		VFG	DGY					As above, few mm-scale quartz veinlets, few SST laminations towards base of interval	
							BOX 122										
		388.72	389.74	1.02				MDST		VFG	DGY					As above	
	2.61						390.14										
90		389.74	391.92	2.18				MDST	SST	VFG	DGY					mm-scale SST laminations throughout	
							BOX 123										
		391.92	392.66	0.74				MDST	SST	VFG	DGY					As above	
	1.25						393.19										
80		392.66	393.02	0.36				MDST	SST	VFG	DGY					As above	
		393.02	393.23	0.21		AT10164		COAL	C3		BLK					Solid, heavy Mdst partings, quartz veins	99
		393.23	393.40	0.17		AT10164		COAL LOSS								COAL LOSS, END PG 71	99
70		393.40	395.29	1.89				MDST	SST	VFG	DGY					Few mm-scale quartz veinlets, mm-scale SST laminations throughout, 30cm SSR dominant band quartz infilling fractures, few pyrite blebs toward top of interval	
							BOX 124										
		395.29	395.78	0.49				MDST		VFG	DGY					Few mm-cm scale quartz veinlets and few mm-scale SST laminations	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.88						396.24											
		395.78	397.25	1.47				SST	MDST	MG	MGY							mm-cm scale MDST laminations & bands. Few mm-cm scale quartz veinlets
		397.25	397.47	0.22				COAL										Solid, clean coal
		397.47	397.60	0.13				COAL LOSS										COAL LOSS, END PG 72
		397.60	398.47	0.87				MDST		VFG	DGY							Very few quartz veinlets & coaly lenses (mm-scale) at top of interval
							BOX 125											
		398.47	398.96	0.49				MDST		VFG	DGY							Few mm-scale SST laminations
	2.72						399.29											
85		398.96	401.73	2.77				MDST		VFG	DGY							As above, 10cm coal band with quartz in middle of interval with 5cm pyrite rich band on top of coal
							BOX 126											
		401.73	402.01	0.28				MDST		VFG	DGY							Few mm-scale SST laminations
	2.66						402.34											
85		402.01	404.99	2.98				MDST		VFG	DGY							As above few cm-scale coal+quartz bands in middle of interval
	2.27						405.38											
		404.99	405.05	0.06				MDST		VFG	DGY							As above (no coaly bands), END PG 73
							BOX 127											
		405.05	405.31	0.26				ROCK LOSS										ROCK LOSS
80		405.31	408.32	3.01				SST	MDST	CG	MGY							mm-cm scale MDST laminations and clasts, few mm-cm scale quartz veinlets-some with vuggy cavities
	1.28						408.43											
		408.32	408.68	0.36				SST	MDST	CG	LGY							As above
							BOX 128											
90		408.68	411.17	2.49				SST	MDST	CG	LGY							As above, 30cm MDST dominant zone
		411.17	411.74	0.57				ROCK LOSS										ROCK LOSS
	1.80						411.48											
		411.74	412.06	0.32				SST	MDST	CG	LGY							As above, no MDST dominant zone
		412.06	412.43	0.37				MDST	SST	VFG	DGY							mm-cm scale SST laminations. 7cm band of quartz with MDST breccia
							BOX 129											
80		412.43	414.63	2.20				MDST	SST	VFG	DGY							As above (no quartz band), END PG 74
		414.63	414.79	0.16				ROCK LOSS										ROCK LOSS
	1.95						414.53											
80		414.79	415.84	1.05				MDST	SST	VFG	DGY							As above
							BOX 130											
		415.84	417.87	2.03				MDST		VFG	DGY							Very few SST lamiantions (mm-scale) & quartz veinlets
	1.69						417.58											
		417.87	418.81	0.94				MDST		VFG	DGY							As above
							BOX 131											
75		418.81	420.62	1.81				MDST		VFG	DGY							As above, 5cm band of coal with 2cm pyrite rich band on top of coal
	0.00						420.62											
		420.62	421.62	1.00				MDST		VFG	DGY							As above, quite broken
							BOX 132											
		421.62	422.21	0.59				MDST		VFG	DGY							As above, 10cm CG SST band with quartz veinlets, some dolomite in quartz, up to cm-scale quartz, very broken

Descriptive Core Logs DDH-GH-12-11

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA		
		422.21	423.67	1.46				ROCK LOSS								ROCK LOSS	
							423.67									EOH 423.67, END PG 75	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-12
Drilling Start Date	6-Oct-12
Drilling Finish Date	8-Oct-12
Confirmed Easting	541850.4391
Confirmed Northing	6306912.2364
Elevation	1087.5279
Azimuth	
Dip	-90
Depth	306.32
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	541854
PreCollar Northing	6306914
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	11th & 12th October 2012
Coal Logger	RP & BVDB
Coal Logging Dates	
Comments	



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		0.00	6.10	6.10			BOX 1												OVB, CASING MARKER		
	0.00						6.10														
		6.10	6.38	0.28				SST		CG	LGY								Rubble		
		6.38	7.62	1.24				ROCK LOSS											ROCK LOSS		
	0.00						7.62														
		7.62	8.42	0.80				SST		CG	LGY								As above few mm-scale MDST laminations		
		8.42	10.67	2.25				ROCK LOSS											ROCK LOSS		
	0.28						10.67														
		10.67	11.67	1.00				SST		CG	LGY								As above		
		11.67	11.97	0.30				MDST		VFG	DGY								Soft Mud, possible gouge		
								BOX 2													
		11.97	13.62	1.65				ROCK LOSS											ROCK LOSS		
		13.62	13.72	0.10				MDST		VFG	DGY								As above		
	0.74						13.72														
		13.72	16.52	2.80				SST		CG	LGY								Top 15cm is soft & crumbly few cm-scale gouge bands, END PG 1		
		16.52	16.76	0.24				ROCK LOSS											ROCK LOSS		
	0.28						16.76														
								BOX 3													
		16.76	18.96	2.20				SST		CG	MGY								Few mm-cm scale MDST bands, cm-scale quartz infilling fractures, lower 1/2 of interval is very broken (rubble) some vuggy cavities in quartz		
		18.96	19.11	0.15				MDST		VFG	DGY								Soft, rubble		
		19.11	19.81	0.70				ROCK LOSS											ROCK LOSS		
	0.00						19.81														
		19.81	20.99	1.18				ROCK LOSS											ROCK LOSS		
								BOX 4													
		20.99	21.37	0.38				MDST		VFG	DGY								As above, some quartz		
		21.37	21.55	0.18		40885		COAL	C4		BLK								Rubble, few rock fragments	88	
		21.55	21.78	0.23		40885		COAL	C4										Minor quartz, sheared	88	
		21.78	22.12	0.34		40885		COAL LOSS											COAL LOSS	88	
		22.12	22.86	0.74				ROCK LOSS											ROCK LOSS		
	0.00						22.86														
		22.86	24.02	1.16				MDST		VFG	DGY								10 cm rubble, soft gouge bands, few mm-scale SST laminations		
		24.02	25.91	1.89				ROCK LOSS											ROCK LOSS		
	0.00						25.91														
		25.91	26.71	0.80				MDST		VFG	DGY								As above, END PG 2		
								BOX 5													
		26.71	26.97	0.26				ROCK LOSS											ROCK LOSS		
		26.97	27.50	0.53				MDST		VFG	DGY								As above cm scale gouge bands, lower 10cm of interval is Carb MDST with mm-scale coaly laminations		
		27.50	27.70	0.20		40886		MDST		VFG	DGY								ROOF SAMPLE, part of above MDST unit.	0	
		27.70	28.32	0.62		40887		COAL	C3										Mostly crushed, zones of very well developed brigh cleats	87	
		28.32	28.52	0.20		40888		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
		28.52	28.96	0.44				MDST		VFG	DGY								Few mm-scale coaly laminations in Carb MDST in top 10cm of interval, 5cm gouge band, few mm-scale SST laminations		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	0.85						28.96											
		28.96	30.09	1.13				SST		FG	MGY							Few mm-scale MDST lamiantions and quartz veinlets. END PG 3
							BOX 6											
		30.09	31.68	1.59				SST		FG	MGY							As above
	1.75						32.00											
		31.68	32.96	1.28				SST		FG	MGY							As above
							BOX 7											
		32.96	33.54	0.58				ROCK LOSS										ROCK LOSS
		33.54	35.05	1.51				SST		FG	MGY							As above
	2.19						35.05											
		35.05	36.52	1.47				SST		FG	MGY							As above, few MG bands
							BOX 8											
		36.52	38.04	1.52				SST		FG	MGY		40					As above, Quartz veinlets are at 40°
	2.26						38.10											
		38.04	38.32	0.28				SST		FG	MGY							As above
85		38.32	39.86	1.54				SST	MDST	FG	MGY							mm-cm scale MDST laminations, very few mm-scale quartz veinlets, END PG 4
							BOX 9											
		39.86	40.15	0.29				ROCK LOSS										ROCK LOSS
		40.15	41.15	1.00				MDST		VFG	DGY							Few mm-scale SST laminations
	2.14						41.15											
		41.15	43.24	2.09				MDST		VFG	DGY							As above
							BOX 10											
		43.24	44.05	0.81				MDST		VFG	DGY							As above
		44.05	44.20	0.15				ROCK LOSS										ROCK LOSS
	2.87						44.20											
		44.20	44.63	0.43				MDST		VFG	DGY							As above
		44.63	46.69	2.06				SST		MG	LGY							Very few mm-scale quartz veinlets
							BOX 11											
		46.69	47.24	0.55				SST		MG	LGY							As above
	2.64						47.24											
		47.24	49.99	2.75				SST		MG	LGY							As above+few cm-scale quartz+dolomite bands towards the base of interval, END PG 5
							BOX 12											
		49.99	50.24	0.25				SST		MG	LGY							As above
	0.70						50.29											
		50.24	51.97	1.73				SST		MG	LGY							As above, moderately broken, 15cm gouge band, quartz veining throughout
		51.97	52.76	0.79				SST	MDST	FG	DGY							mm-cm scale MDST laminations, moderately broken, few quartz veinlets
							BOX 13											
		52.76	53.18	0.42				ROCK LOSS										ROCK LOSS
		53.18	53.34	0.16				SST		FG	LGY							Few mm-scale MDST laminations
	0.93						53.34											
		53.34	54.93	1.59				SST		FG	LGY							As above, few mm-5cm scale quartz veinlets
		54.93	55.05	0.12				ROCK LOSS										ROCK LOSS
		55.05	56.12	1.07				MDST		VFG	DGY							Very few mm-scale quartz veinlets, END PG 6
							BOX 14											

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes				Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA			
		56.12	56.29	0.17		40889		MDST	CARB	VFG	DGY						ROOF SAMPLE, Few mm-cm scale coalified laminations with quartz	0
		56.29	56.44	0.15		40890		COAL	C3								Abundant quartz	85
	0.48						56.39											
		56.44	56.56	0.12		40890		COAL	C3								As above	85
		56.56	57.37	0.81		40890		COAL	C4								Broken, mainly dull, sheared, END PG 7	85
		57.37	57.57	0.20		40891		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		57.57	58.10	0.53				MDST		VFG	DGY						5cm gouge band near top of interval	
60		58.10	58.87	0.77				SST	MDST	FG	MGY						mm-cm scale MDST laminations, few mm-scale quartz veinlets	
		58.87	59.44	0.57				ROCK LOSS									ROCK LOSS	
	0.84						59.44											
		59.44	59.59	0.15				SST	MDST	FG	MGY						As above	
								BOX 15										
50		59.59	61.23	1.64				SST	MDST	FG	MGY						As above	
		61.23	61.85	0.62				MDST		VFG	DGY						Very few mm-scale quartz veinlets	
		61.85	62.48	0.63				ROCK LOSS									ROCK LOSS	
	0.21						62.48											
		62.48	63.12	0.64				ROCK LOSS									ROCK LOSS	
		63.12	63.84	0.72				MDST		VFG	DGY						As above slickensides on fracture surface, few cm-scale gouge bands, & few mm-scale coalified lenses.	
								BOX 16										
		63.84	65.31	1.47				MDST		VFG	DGY						As above	
		65.31	65.51	0.20		40892		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit. END PG 8	0
	0.28						65.53											
		65.51	65.58	0.07		40892		MDST	CARB	VFG	DGY						PARTING SAMPLE, Carb MDST	0
		65.58	66.05	0.47		40893		COAL	C4								Broken, sheared	85
		66.05	66.37	0.32		40894		COAL	C5								Core is broken, sheared & mixed with MDST	85
								BOX 17										
		66.37	66.97	0.60		40594		COAL	C5								As above	85
		66.97	67.84	0.87				COAL LOSS									COAL LOSS, END PG 9	
		67.84	68.04	0.20		40895		SST		FG	LGY						FLOOR SAMPLE, part of below SST unit.	0
		68.04	68.15	0.11				SST		FG	LGY						As above, few MDST clasts	
		68.15	68.58	0.43				ROCK LOSS									ROCK LOSS	
	1.43						68.58											
		68.58	70.52	1.94				SST		CG	LGY						As above, few cm-scale MDST clasts	
								BOX 18										
		70.52	70.57	0.05				SST		CG	LGY						As above	
70		70.57	71.55	0.98				SST	MDST	FG	MGY						mm-cm scale MDST laminations throughout, few mm-scale quartz veinlets	
		71.55	71.63	0.08				ROCK LOSS									ROCK LOSS	
	1.80						71.63											
70		71.63	71.97	0.34				SST	MDST	FG	MGY						As above	
		71.97	73.30	1.33				MDST		VFG	DGY						Few mm-scale quartz veinlets & pyrite blebs	
		73.30	73.63	0.33				SST	MDST	FG	MGY						mm-cm scale MDST laminations, few mm-scale quartz veinlets, END PG 10	
		73.63	73.72	0.09				ROCK LOSS									ROCK LOSS	
								BOX 19										
		73.72	74.68	0.96				SST	MDST	FG	MGY						As above	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
	1.95						74.68											
		74.68	75.04	0.36				SST	MDST	FG	MGY						As above	
80		75.04	76.79	1.75				MDST		VFG	DGY						Few mm-scale SST laminations at top of interval, fine porous cracks	
							BOX 20											
		76.79	76.88	0.09				ROCK LOSS									ROCK LOSS	
		76.88	77.72	0.84				MDST		VFG	DGY						As above	
	2.29						77.72											
		77.72	78.02	0.30				MDST		VFG	DGY						As above+many bivalve fossil fragments	
		78.02	80.22	2.20				SST		MG	LGY						FEW bivalve fossil fragments at top of interval, very few mm-scale MDST laminations & quartz veinlets	
							BOX 21											
		80.22	80.77	0.55				SST		MG	LGY						As above (no fossils), END PG 11	
	0.99						80.77											
		80.77	81.52	0.75				SST		MG	LGY						As above	
		81.52	83.44	1.92				MDST		VFG	DGY						Fine porous cracks, mm-scale pyrite at upper contact, few mm-cm scale quartz infilling fractures	
							BOX 22											
		83.44	83.54	0.10				ROCK LOSS									ROCK LOSS	
		83.54	83.82	0.28				MDST		VFG	DGY						Few SST laminations	
	1.63						83.82											
		83.82	84.61	0.79				MDST	SST	FG	DGY						mm-cm scale SST laminations, few mm-cm scale quartz veinlets	
90		84.61	86.71	2.10				SST	MDST	CG	MGY						mm-cm scale MDST laminations & quartz veinlets	
							BOX 23											
		86.71	86.87	0.16				SST	MDST	CG	MGY						As above, END PG 12	
	0.91						86.87											
		86.87	86.93	0.06				ROCK LOSS									ROCK LOSS	
		86.93	87.25	0.32				SST	MDST	FG	MGY						As above	
		87.25	88.00	0.75				MDST		VFG	DGY						Few mm-scale coalified lenses	
		88.00	88.20	0.20		40896		MDST		VFG	DGY						ROOF SAMPLE, part of above MDST unit.	0
		88.20	88.30	0.10		40897		COAL	C3								Solid, abundant quartz	80
		88.30	88.34	0.04		40897		COAL	C5								COAL	80
		88.34	88.42	0.08		40897		COAL	C4								COAL	80
		88.42	88.51	0.09		40897		MDST	CARB	VFG	DGY						PARTING SAMPLE, CARB MDST	0
		88.51	88.60	0.10		40897		COAL	C4								COAL	80
		88.60	88.65	0.05		40897		COAL	C3								COAL	80
		88.65	88.84	0.19		40897		MDST	CARB	VFG	DGY						PARTING SAMPLE, CARB MDST	0
		88.84	89.20	0.36		40897		COAL	C4								COAL, END PG 13	80
		89.20	89.40	0.20		40898		MDST		VFG	DGY						FLOOR SAMPLE, part of below MDST unit.	0
		89.40	89.57	0.17				MDST		VFG	DGY						Few mm-scale coalified lenses	
		89.57	89.92	0.35				ROCK LOSS									ROCK LOSS	
	1.65						89.92											
							BOX 24											
		89.92	91.04	1.12				MDST		VFG	DGY						As above, some SST bands (up to 5cm-scale), 10cm band of cm-scale coalified + quartz bands	
85		91.04	92.71	1.67				SST		CG	LGY						Very few MDST lamiantions & quartz veinlets (mm-scale)	
		92.71	92.96	0.25				ROCK LOSS									ROCK LOSS	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
	2.54						92.96														
		92.96	93.32	0.36				SST		CG	LGY									As above	
							BOX 25														
		93.32	94.64	1.32				SST		CG	LGY									As above	
85		94.64	96.00	1.37				MDST	SST	FG	DGY									mm-cm scale SST lamiantions throughout	
	1.34						96.01														
		96.00	96.27	0.27		40899		COAL												COAL	78
		96.27	96.49	0.22				MDST		VFG	DGY									Few mm-cm scale, coaly lenses at top of interval	
							BOX 26														
		96.49	98.22	1.73				MDST		VFG	DGY									As above, quartz associations with coaly laminations	
		98.22	98.88	0.66				SST		CG	LGY									Few mm-scale quartz infilling fractures very few MDST laminations (mm-scale)	
		98.88	99.06	0.18				ROCK LOSS												ROCK LOSS	
	2.49						99.06														
		99.06	99.69	0.63				SST		CG	LGY									As above	
							BOX 27														
85		99.69	100.20	0.51				SST		CG	LGY									As above, END PG 15	
		100.20	100.60	0.40		40900		COAL	C4											Quartz on bedding	75
		100.60	101.85	1.25				MDST		VFG	DGY										
		101.85	102.11	0.26				ROCK LOSS												ROCK LOSS	
	2.72						102.11														
		102.11	103.26	1.15				MDST		VFG	DGY									Very few mm-scale SST laminations	
							BOX 28														
90		103.26	105.16	1.90				MDST	SST	VFG	DGY									mm-cm scale SST laminations, END PG 16	
	2.66						105.16														
		105.16	106.42	1.26				MDST	SST	FG	DGY									As above, cm-scale quartz veinlst with vuggy cavities	
							BOX 29														
		106.42	108.20	1.78				MDST	SST	FG	DGY									As above	
	2.72						108.20														
		108.20	109.81	1.61				MDST	SST	FG	DGY									As above	
							BOX 30														
		109.81	111.20	1.39				MDST	SST	FG	DGY									As above	
		111.20	111.25	0.05				ROCK LOSS												ROCK LOSS	
	2.15						111.25														
80		111.25	113.17	1.92				MDST	SST	FG	DGY									As above	
							BOX 31														
		113.17	114.30	1.13				SST	MDST	MG	MGY		5							mm-cm scale MDST laminations	
	1.58						114.30														
85		114.30	116.35	2.05				SST	MDST	MG	MGY		5							As above, END PG 17	
							BOX 32														
		116.35	116.51	0.16				ROCK LOSS												ROCK LOSS	
		116.51	117.35	0.84				SST	MDST	MG	MGY									As above	
	1.88						117.35														
80		117.35	119.53	2.18				SST	MDST	MG	MGY									As above	
							BOX 33														
		119.53	120.40	0.87				MDST	SST	FG	MGY									mm-cm scale SST laminations, fine porous cracks	
	2.79						120.40														
		120.40	122.91	2.51				MDST		VFG	DGY									Few mm-cm scale SST laminations, fine porous cracks	
							BOX 34														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		122.91	123.40	0.49				MDST		VFG	DGY								As above		
	0.72						123.44														
		123.40	124.20	0.80				MDST		VFG	DGY								As above		
		124.20	124.40	0.20		40901		MDST		VFG	DGY								ROOF SAMPLE, part of above MDST unit. END PG 18	0	
		124.40	125.30	0.90		40902		COAL	C2										Solid but friable, well cleated, minor thin MDST laminae > cm	70	
		125.30	126.20	0.90		40903		COAL	C2										As above, slightly more muddy bands	70	
	1.20						126.49														
							BOX 35														
		126.20	126.30	0.10		40903		COAL	C2										As above	70	
		126.30	126.78	0.48		40903		COAL LOSS											COAL LOSS	70	
		126.78	126.98	0.20		40904		COAL	C4										COAL	70	
		126.98	127.33	0.35		40904		MDST		VFG	DGY								PARTING SAMPLE, MDST	0	
		127.33	127.55	0.22		40904		COAL	C4										As above, END PG 19	70	
		127.55	127.75	0.20		40905		MDST	CARB	VFG	DGY								FLOOR SAMPLE, part of below Carb MDST unit.	0	
		127.75	128.76	1.01				MDST	CARB	VFG	DGY								mm-cm scale coaly bands & laminations with some pyrite + some quartz slickensides on fracture surfaces		
		128.76	129.71	0.95				SST	MDST	CG	MGY								mm-cm scale MDST laminations & bands, few mm-scale quartz infilling fractures		
80		129.71	130.02	0.31				MDST	SST	FG	DGY								mm-scale SST laminations		
		130.02	130.03	0.01				ROCK LOSS											ROCK LOSS		
	1.77						129.54														
		130.03	130.33	0.30				MDST	SST	FG	DGY								As above		
							BOX 36														
80		130.33	132.99	2.66				MDST	SST	FG	DGY								As above, 45cm SST dominant zone in middle of interval, vuggy cavities in quartz		
	0.75						132.59														
		132.99	133.46	0.47				MDST	SST	FG	DGY								mm-scale SST laminations, END PG 20		
							BOX 37														
90		133.46	134.97	1.51				MDST	SST	FG	DGY								As above		
		134.97	135.92	0.95				MDST		VFG	DGY								Few mm-scale coalified laminations		
		135.92	135.97	0.05				ROCK LOSS											ROCK LOSS		
	2.05						135.64														
		135.97	136.59	0.62				MDST		VFG	DGY								As above		
							BOX 38														
		136.59	138.98	2.39				MDST		VFG	DGY								As above, slickensides on fracture surface		
		138.98	139.67	0.69				MDST		VFG	DGY								As above 17cm band of SST in middle of interval & mm-scale SST laminations towards base of interval (gradational contact with SST below)		
							BOX 39														
80		139.67	141.82	2.15				SST		CG	LGY								MDST laminations towards top of interval, few mm-cm scale MDST clasts, END PG 21		
	1.15						141.73														
		141.82	142.71	0.89				SST		CG	LGY								Few mm-scale quartz veinlets		
							BOX 40														
		142.71	144.61	1.90				SST		CG	LGY								As above		
		144.61	144.71	0.10				ROCK LOSS											ROCK LOSS		
							144.78														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		144.71	145.90	1.19				SST		CG	LGY					As above	
							BOX 41										
		145.90	146.07	0.17				SST		CG	LGY					As above	
		146.07	147.88	1.81				MDST		VFG	DGY					Moderately broken few mm-cm scale gouge-filled fractures	
	1.56						147.83										
		147.88	148.30	0.42				MDST		VFG	DGY					As above (no gouge), fwwq mm-cm scale quartz+coalified lenses	
		148.30	148.50	0.20		40906		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		148.50	148.98	0.48		40907		COAL	C3							aAbundant Quartz & Pyrite especially near top	65
		148.98	149.04	0.06		40908		COAL	C5							Pyrite & Quartz rich bands, mudstone bands, gradational contact with base, END PG 22	65
							BOX 42										
		149.04	149.60	0.56		40908		COAL	C5							As above	65
		149.60	149.80	0.20		40909		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit	0
		149.80	150.88	1.08				MDST		VFG	DGY					Very few mm-scale quartz veinlets & coalified lense	
	1.89						150.88										
		150.88	151.47	0.59				MDST		VFG	DGY					As above	
90		151.47	151.80	0.33				SST	MDST	MG	MGY					mm-scale MDST laminations	
		151.80	152.00	0.20		40910		SST	MDST	MG	MGY					ROOF SAMPLE, part of above SST unit.	0
		152.00	152.22	0.22		40911		COAL	C2							Pyrite, END PG 23	65
							BOX 43										
		152.22	152.30	0.08		40912		COAL	C3							COAL	65
		152.30	152.42	0.12		40912		MDST	CARB							PARTING SAMPLE, coaly bands & stringers	0
		152.42	152.82	0.40		40912		COAL	C4							COAL	65
		152.82	153.02	0.20		40913		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		153.02	153.92	0.90				MDST		VFG	DGY						
	2.57						153.92										
		153.92	154.23	0.31				MDST		VFG	DGY					few mm-scale SST laminations	
		154.23	155.63	1.40				SST		CG	LGY		0			Very few cm scale MDST bands	
							BOX 44										
		155.63	157.04	1.41				SST		CG	LGY					As above	
	2.31						156.97										
		157.04	158.95	1.91				SST		CG	LGY					As above, END PG 24	
							BOX 45										
		158.95	160.02	1.07				SST		CG	LGY					As above+few cm-scale MDST clasts few mm-scale quartz veinlets	
	1.46						160.02										
		160.02	161.32	1.30				SST		CG	LGY					As above	
90		161.32	162.19	0.87				SST	MDST	MG	MGY					mm-cm scale MDST laminations, few mm-scale quartz veinlets	
							BOX 46										
		162.19	163.07	0.88				SST	MDST	MG	MGY		20			As above	
	2.68						163.07										
		163.07	165.52	2.45				MDST		VFG	DGY		30			Very few mm-scale quartz lenses	
							BOX 47										
		165.52	166.12	0.60				MDST		VFG	DGY					As above	
	2.73						166.12										
		166.12	168.90	2.78				MDST		VFG	DGY					As above, END PG 25	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 48											
		168.90	169.16	0.26				MDST		VFG	DGY					As above		
	2.77						169.16											
		169.16	169.27	0.11				ROCK LOSS								ROCK LOSS		
		169.27	172.21	2.94				MDST		VFG	DGY					As above, few mm-scale SST laminations towards base of interval		
	2.83						172.21											
		172.21	172.30	0.09				MDST		VFG	DGY					cm-scale quartz bands		
							BOX 49											
		172.30	173.29	0.99				MDST		VFG	DGY					Very few mm-scale quartz veinlets		
		173.29	175.26	1.97				SST		FG	MGY					ery few MDST laminations		
	2.98						175.26											
		175.26	175.68	0.42				SST		FG	MGY					As above		
							BOX 50											
		175.68	178.31	2.63				SST		FG	MGY					As above, END PG 26		
	2.92						178.31											
		178.31	179.11	0.80				SST		FG	MGY					As above		
							BOX 51											
90		179.11	181.36	2.25				SST		FG	MGY					As above		
	2.82						181.36											
		181.36	182.37	1.01				SST		FG	MGY					As above		
							BOX 52											
90		182.37	184.40	2.03				SST		CG	LGY					Few MDST laminations (mm-cm scale)		
	2.78						184.40											
		184.40	185.69	1.29				SST		CG	LGY					As above		
							BOX 53											
		185.69	186.58	0.89				SST		CG	LGY					As above, pyrite+quartz bands @ base of interval		
		186.58	186.78	0.20		40914		SST		CG	LGY					ROOF SAMPLE, part of above SST unit.		0
		186.78	187.42	0.64		40915		COAL	C1							Well Solid cleated, conchoidal breakage patter, 4cm of sample taken by BRAD		60
	2.40						187.45											
		187.42	187.59	0.17		40916		COAL	C5							Qtartz infilled		60
		187.59	187.65	0.06		40916		MDST	CARB	VFG	DGY					PARTING SAMPLE, Carb MDST		0
		187.65	188.15	0.50		40917		COAL	C2							COAL		60
		188.15	188.38	0.23		40917		COAL	C4							COAL		60
		188.38	188.69	0.31		40918		MDST	SLT	VFG	DGY					PARTING SAMPLE, Coaly lenses		0
		188.69	189.59	0.90		40919		COAL	C2							Box 54 is after 20cm so 188.69+.20=188.89		60
		189.59	190.09	0.50		40920		MDST	SLT	VFG	DGY					carbonaceous, gradational base contact		0
		190.09	190.49	0.40		40921		COAL	C3							Solid, well cleated on bright bands, quartz predominantly on cleat		60
	2.60						190.50									END PG 28		
		190.49	191.00	0.51		40921		COAL	C3							Well cleated. Quartz minor on bedding, END PG 29		60
		191.00	191.20	0.20		40922		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.		0
		191.20	192.23	1.03				MDST		VFG	DGY					Few mm-scale quartz+coalified lenses, few SST laminations at base of interval.		
							BOX 55											
		192.23	193.55	1.32				SST		CG	LGY					Few mm-scale MDST laminations, some MG SST		
	2.90						193.55											
		193.55	195.64	2.09				SST		CG	LGY					As above		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 56										
		195.64	196.60	0.96				SST		CG	LGY					As above many mm-cm scale MDST clast, few mm-scale coalified lenses, END PG 30	
	2.73						196.60										
		196.60	198.84	2.24				SST		CG	LGY					Very few mm-scale MDST laminations	
							BOX 57										
		198.84	199.61	0.77				SST		CG	LGY					As above	
	2.52						199.64										
		199.61	200.45	0.84				SST		CG	LGY		35			As above+few mm-5cm scale MDST clasts @ base of interval	
80		200.45	202.08	1.63				SST	MDST	MG	MGY					mm-cm scale MDST laminations	
							BOX 58										
		202.08	202.61	0.53				MDST	SST	FG	DGY					mm-cm scale SST laminations	
	2.28						202.69										
		202.61	203.19	0.58				MDST	SST	FG	DGY					As above	
75		203.19	205.38	2.19				SST	MDST	MG	MGY					mm-cm scale MDST laminations, END PG 31	
							BOX 59										
		205.38	205.69	0.31				MDST		VFG	DGY					Few mm-scale quartz veinlets	
	2.55						205.74										
70		205.69	207.90	2.21				MDST		VFG	DGY					As above, few mm-cm scale SST laminations	
		207.90	208.10	0.20		40923		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		208.10	208.56	0.46		40924		COAL	C4						Abundant quartz on top, MDST laminae	55	
							BOX 60										
		208.56	208.74	0.18		40924		COAL	C4						As above Quartz lenses	55	
	2.33						208.79										
		208.74	208.86	0.12		40924		COAL	C4						As, above, END PG 32	55	
		208.86	209.06	0.20		40925		MDST		VFG	DGY				FLOOR SAMPLE, part of below MDST unit	0	
70		209.06	211.70	2.64				MDST		VFG	DGY				Few mm-scale coalified laminations & quartz veinlets, one 20cm band of quartz+dolomite with vuggy cavities, few cm-scale bands of quartz+breccia, few mm-cm scale SST laminations, 20cm band in upper 1/3 of interval with cm scale coal+quartz bands		
		211.70	211.84	0.14				ROCK LOSS							ROCK LOSS		
	1.95						211.84										
							BOX 61										
		211.84	213.99	2.15				MDST	SST	VFG	DGY				mm-cm scale SST laminations, few mm-scale quartz veinlets-some with vuggy cavities, 10cm quartz band with vugs near top of interval		
		213.99	214.88	0.89				SST	MDST	FG	MGY				mm-cm scale MDST laminations mm-scale quartz veinlets with vuggy cavities & some breccia, END PG 33		
	1.73						214.88										
							BOX 62										
80		214.88	217.93	3.05				SST	MDST	MG	MGY				mm-cm scale MDST laminations moderately broken, cm-scale gouge band		
	2.40						217.93										
							BOX 63										
		217.93	218.26	0.33				SST	MDST	MG	MGY				As above		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
75		218.26	220.87	2.61				SST		CG	LGY					Very few mm-scale MDST lamiantions, few mm-scale quartz veinlets, two 10cm bands of quartz+ dolomite with vuggy cavities	
		220.87	220.98	0.11				ROCK LOSS								ROCK LOSS	
	2.16					220.98											
		220.98	221.28	0.30				SST		CG	LGY					As above (no 10cm quartz)	
								BOX 64									
80		221.28	222.08	0.80				SST		MG	LGY					Few mm-cm scale MDST laminations, 10cm scale quartz band at top of interval-(possible fold hinge), END PG 34	
		222.08	222.57	0.49				MDST		VFG	DGY					Few coaly lamiantions with quartz towards base of interval	
		222.57	223.00	0.43	AT10104			COAL	C3							Cleats well developed, some pyrite at base, not very shiny	50
		223.00	223.92	0.92				MDST	SST	FG	DGY						
		223.92	224.03	0.11				ROCK LOSS								ROCK LOSS	
	1.79					224.03											
		224.03	224.50	0.47				MDST	SST	FG	DGY					As above	
								BOX 65									
		224.50	227.13	2.63				MDST	SST	FG	DGY					As above+few mm-scale coalified lenses	
	2.54					227.08											
90		227.13	227.89	0.76				MDST	SST	FG	DGY					As above, END PG 35	
								BOX 66									
		227.89	230.02	2.13				MDST	SST	FG	DGY					As above	
	2.52					230.20											
		230.02	230.80	0.78				MDST	SST	FG	DGY					As above	
		230.80	231.15	0.35				SST	MDST	MG	MGY					mm-scale MDST laminations	
								BOX 67									
		231.15	233.05	1.90				MDST		VFG	DGY					Few, mm-cm scale SST laminations	
	2.06					233.17											
		233.05	233.94	0.89				MDST		VFG	DGY					As above	
85		233.94	234.41	0.47				SST		MG	MGY					Few mm-cm scale MDST laminations	
								BOX 68									
		234.41	234.64	0.23				SST		MG	MGY						
		234.64	236.06	1.42				MDST		VFG	DGY					Very few mm-scale SST laminations & quartz veinlets, END PG 36	
	2.76					236.22											
		236.06	237.62	1.56				MDST		VFG	DGY					As above	
								BOX 69									
		237.62	239.21	1.59				MDST		VFG	DGY					As above	
	2.28					239.27											
		239.21	240.86	1.65				MDST		VFG	DGY					As above	
								BOX 70									
35		240.86	242.21	1.35				MDST		VFG	DGY					As above	
	1.62					242.32											
40		242.21	244.09	1.88				MDST		VFG	DGY		40			As above	
								BOX 71									
		244.09	244.72	0.63				MDST		VFG	DGY					As above	
		244.72	244.92	0.20	AT10105			MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		244.92	245.20	0.28		AT10106		COAL	C4											Dull, MDST mixed, END PG 37	45
	1.59						245.36														
		245.20	246.55	1.35		AT10107		COAL	C3											Brighter than above, solid, some pyrite. END PG 38	45
		246.55	246.75	0.20		AT10108		MDST		VFG	DGY									FLOOR SAMPLE, part of below MDST unit.	0
50		246.75	247.17	0.42				MDST		VFG	DGY									Very few mm-scale SST laminations, few mm-cm scale quartz infilling fractures.	
								BOX 72													
		247.17	248.41	1.24				SST	MDST	FG	MGY									mm-cm scale MDST laminations	
	2.44						248.41														
60		248.41	249.78	1.37				SST	MDST	FG	MGY									As above	
		249.78	250.56	0.78				SST		CG	LGY									mm-cm scale Mdst clast @ top of interval, very few MDST laminations & clsts throughout	
								BOX 73													
60		250.56	251.46	0.90				SST		CG	LGY									As above+few mm-scale quartz veinlets	
	0.89						251.46														
		251.46	253.61	2.15				SST		CG	LGY									As above 5cm quartz band; parallel to core axis in center of interval, END PG 39	
								BOX 74													
		253.61	254.25	0.64				SST		CG	LGY									As above	
		254.25	254.51	0.26				ROCK LOSS												ROCK LOSS	
	1.31						254.51														
		254.51	255.97	1.46				SST		CG	LGY		50							As above	
		255.97	257.08	1.11				SST		MG	LGY									Very few mm-scale quartz veinlets & MDST laminations	
								BOX 75													
		257.08	257.56	0.48				SST		MG	LGY									As above	
	1.54						257.56														
		257.56	257.99	0.43				SST		MG	LGY									As above	
		257.99	258.09	0.10				ROCK LOSS												ROCK LOSS	
80		258.09	258.59	0.50				SST	MDST	FG	MGY									mm-cm scale MDST lamination, very few scale quartz veinlets	
		258.59	259.99	1.40				MDST		VFG	DGY									Few lenses mm-cm scale quartz infilling fractures, few mm-scale quartz+coalified	
		259.99	260.19	0.20		AT10109		MDST		VFG	DGY									ROOF SAMPLE, part of above MDST, END PG 40	0
								BOX 76													
		260.19	260.46	0.27		AT10110		COAL	C3											Cleats well developed	40
		260.46	260.56	0.10		AT10110		COAL LOSS												COAL LOSS	40
	1.54						260.60														
		260.56	260.90	0.34		AT10110		COAL	C3											As above, quartz veinlets	40
		260.90	261.41	0.51		AT10111		MDST	CARB	VFG	DGY									PARTING SAMPLE, Some sand layers, gouge, quartz, coalified lenses	0
		261.41	262.48	1.07		AT10112		COAL	C2											Well developed cleats, bands of MDST very few dull bands, quartz at the end	40
		262.48	263.40	0.92		AT10113		MDST		VFG	DGY									PARTING SAMPLE. Pyrite lenses, quartz abnd 10cm, gouge like material very soft, clay like	0
		263.40	263.50	0.10		AT10114		COAL	C4											COAL, END PG 41	40
								BOX 77													
		263.50	263.72	0.22		AT10114		COAL	C4											As above	40
	2.01						263.65														
		263.72	263.90	0.18		AT10114		COAL	C4											As above	40

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		263.90	264.75	0.85		AT10115		COAL	C2										Well developed cleats solid, minor pyrite & quartz, competent but signs of shearing	40	
		264.75	265.72	0.97		AT10116		COAL	C2										As above, END PG 42	40	
		265.72	265.92	0.20		AT10117		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
50		265.92	266.70	0.78				MDST		VFG	DGY								Few mm-scale coalified lenses		
							BOX 78														
	2.82						266.70														
		266.70	269.75	3.05				MDST		VFG	DGY								As above few mm-scale SST laminations		
	2.30						269.75														
		269.75	269.97	0.22				MDST		VFG	DGY								As above		
							BOX 79														
45		269.97	272.66	2.69				MDST	SST	VFG	DGY								mm-scale coalified lenses		
		272.66	272.80	0.14				ROCK LOSS											ROCK LOSS		
	2.68						272.80														
		272.80	273.46	0.66				MDST	SST	VFG	DGY								As above		
							BOX 80														
		273.46	275.84	2.38				MDST	SST	VFG	DGY								As above		
	2.63						275.84														
		275.84	276.69	0.85				MDST	SST	VFG	DGY								As above, END PG 43		
							BOX 81														
		276.69	278.93	2.24				MDST	SST	VFG	DGY								As above few mm-scale quartz veinlets		
	2.71						278.89														
		278.93	279.98	1.05				MDST	SST	VFG	DGY								As above		
							BOX 82														
		279.98	281.95	1.97				MDST	SST	VFG	DGY								As above		
	2.94						281.94														
40		281.95	283.29	1.34				SST	MDST	FG	DGY								mm-scale laminations, few mm-scale coalified lenses		
							BOX 83														
		283.29	284.98	1.69				SST	MDST	FG	DGY								As above		
	2.63						284.99														
		284.98	286.65	1.67				SST	MDST	FG	DGY								As above		
							BOX 84														
		286.65	287.10	0.45				SST	MDST	FG	DGY								As above, END PG 44		
30		287.10	288.04	0.94				MDST		VFG	DGY								Few mm-scale quartz veinlets		
	2.84						288.04														
35		288.04	289.96	1.92				MDST		VFG	DGY								As above, few cm-scale FG SST laminations		
							BOX 85														
		289.96	291.20	1.24				MDST	SST	VFG	DGY								mm-cm scale laminations		
	2.58						291.08														
		291.20	293.24	2.04				MDST	SST	VFG	DGY								As above		
							BOX 86														
		293.24	294.17	0.93				SST		FG	MGY								Few mm-cm scale MDST laminations		
	2.15						294.13														
		294.17	294.73	0.56				SST		FG	MGY								As above		
		294.73	296.53	1.80				MDST		VFG	DGY								Few mm-cm scale quartz veinlets, END PG 45		
							BOX 87														
		296.53	297.18	0.65				MDST		VFG	DGY								MDST		
	2.26						297.18														
		297.18	299.74	2.56				MDST		VFG	DGY								MDST		

		Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes				Seam
BCA	RQD	From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 88											
		299.74	300.14	0.40				MDST		VFG	DGY						MDST	
		300.14	300.23	0.09				ROCK LOSS									ROCK LOSS	
	2.50						300.23											
		300.23	303.00	2.77				MDST		VFG	DGY						Few mm-scale quartz veinlets, 2cm pyrite rich band, few SST laminations towards base of interval	
		303.00	303.07	0.07				ROCK LOSS									ROCK LOSS	
							BOX 89											
		303.07	303.37	0.30				MDST		VFG	DGY						As above	
	2.30						303.28											
65		303.37	306.32	2.95				MDST	SST	VFG	DGY						As above+mm-cm scale SST laminations	
							306.32										EOH 306.32, END PG 46	

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-14
Drilling Start Date	9-Oct-12
Drilling Finish Date	13-Oct-12
Confirmed Easting	546094.4536
Confirmed Northing	6306432.7708
Elevation	1193.6460
Azimuth	
Dip	-90
Depth	397.30
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	546123
PreCollar Northing	6306454
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	13th to 15th October 2012
Coal Logger	EP
Coal Logging Dates	
Comments	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		0.00	8.20	8.20												OVB casing marker	
							BOX 1										
	1.54						8.40										
		8.20	8.45	0.25				SST		CG	LGY					some rubble	
65		8.45	11.08	2.63				MDST		VFG	DGY					Few mm-scale SST laminations	
	1.19						11.28										
		11.08	11.22	0.14				MDST		VFG	DGY					As above	
							BOX 2										
60		11.22	12.68	1.46				MDST		VFG	DGY					As above, fine porous cracks	
		12.68	12.88	0.20	AT10167			MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit	0
		12.88	13.23	0.35	AT10168			COAL	C3						Alternating bright/dull bands well cleated	80	
		13.23	13.40	0.17	AT10168			COAL LOSS							COAL LOSS	80	
		13.40	13.57	0.17	AT10169			ROCK LOSS							ROCK LOSS	0	
		13.57	14.08	0.51	AT10169			MDST	CARB	VFG	BLK				PARTING SAMPLE, Massive MDST with one 14cm coal bed, END PG 1	0	
		14.08	14.18	0.10	AT10170			COAL	C3						As above COAL	80	
		14.18	14.35	0.17	AT10170			COAL LOSS							COAL LOSS	80	
	0.10						14.33										
		14.35	14.65	0.30	AT10170			COAL	C3						As above COAL	80	
							BOX 3										
		14.65	15.00	0.35	AT10170			COAL	C3						As above COAL, END PG 2	80	
		15.00	15.20	0.20	AT10171			MDST		VFG	DGY				FLOOR SAMPLE, part of below MDST	0	
70		15.20	17.19	1.99				MDST		VFG	DGY				Few mm-scale SST laminations, fine porous cracks		
		17.19	17.27	0.08				ROCK LOSS							ROCK LOSS		
	2.53						17.37										
		17.27	17.55	0.28				MDST		VFG	DGY				As above		
							BOX 4										
		17.55	17.58	0.03				MDST		VFG	DGY				As above		
		17.58	20.19	2.61				SST		CG	LGY				Few MDST laminations (mm-scale) & few cm-scale clasts		
	2.76						20.42										
		20.19	20.84	0.65				SST		CG	LGY				As above		
							BOX 5										
		20.84	21.44	0.60				SST		CG	LGY				As above few MDST bands (5cm)		
		21.44	21.97	0.53				SST		MG	LGY				Few laminated MDST bands		
60		21.97	23.26	1.29				MDST	SST	FG	DGY				mm-cm scale SST laminations, END PG 3		
	2.47						23.47										
		23.26	24.04	0.78				SST	MDST	CG	LGY				mm-cm scale MDST bands		
							BOX 6										
65		24.04	24.91	0.87				SST	MDST	CG	LGY				As above		
		24.91	26.20	1.29				MDST		VFG	DGY				Few SST laminations at top of interval (mm-cm) 20cm sandy band in middle of interval		
	1.81						26.52										
		26.20	26.45	0.25	AT10172			COAL	C3		BLK				Broken into semi-solid chunks light/bright, END PG 4	99	
60		26.45	27.11	0.66				MDST		VFG	DGY				Few mm-scale coaly laminations, very few mm-scale SST laminations & quartz veinlets		
							BOX 7										
		27.11	28.41	1.30				MDST		VFG	DGY				As above, 1cm pyrite band near base of interval		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		28.41	28.82	0.41				MDST	CARB	VFG	DGY					Few mm-sm scale coaly bands, some with quartz 5cm pyrite rich band of MDST in middle.	
		28.82	29.11	0.29				SST		CG	MGY					Few mm-scale MDST laminations	
		29.11	29.57	0.46				ROCK LOSS								ROCK LOSS	
	2.25					29.57											
		29.57	29.89	0.32				SST		CG	MGY					As above	
		29.89	30.60	0.71				MDST		VFG	DGY					Moderately broken, END PG 5	
							BOX 8										
		30.60	31.20	0.60				MDST		VFG	DGY					MDST	
		31.20	31.42	0.22				ROCK LOSS								ROCK LOSS	
60		31.42	32.61	1.19				SST	MDST	MG	MGY					mm-cm scale MDST laminations, polished fracture surfaces	
	0.89					32.61											
		32.61	32.92	0.31				SST	MDST	MG	MGY					As above	
		32.92	33.99	1.07				MDST		VFG	DGY					Few mm-cm scale coal laminations towards base of interval, lower 15cm is soft mud (gouge?)	
							BOX 9										
		33.99	34.14	0.15				MDST	CARB	VFG	DGY					cm-scale coalified+quartz bands	
		34.14	35.17	1.03				SST		CG	LGY					Moderately broken, very few mm-scale quartz veinlets, 20cm MDST bands in lower part of interval. END PG 6	
		35.17	35.66	0.49				ROCK LOSS								ROCK LOSS	
	1.77					35.66											
		35.66	35.71	0.05				ROCK LOSS								ROCK LOSS	
		35.71	36.95	1.24				MDST		VFG	DGY		60			polished fracture surfaces with slickenlines	
70		36.95	37.27	0.32				SST	MDST	MG	MGY					mm-cm scale MDST laminations, very few mm-scale quartz veinlets	
							BOX 10										
60		37.27	38.41	1.14				SST	MDST	MG	MGY					As above	
		38.41	38.71	0.30				SST		CG	LGY					Few cm scale MDST bands (rounded)	
	2.33					38.71											
60		38.71	40.52	1.81				SST		CG	LGY					As above	
							BOX 11										
		40.52	41.80	1.28				SST		CG	LGY					As above	
	2.54					41.76											
		41.80	41.92	0.12				SST		CG	LGY					As above, END PG 7	
55		41.92	43.62	1.70				SST	MDST	MG	MGY					mm-cm scale MDST laminations, 20cm MDST dominant band	
							BOX 12										
50		43.62	44.81	1.19				SST	MDST	MG	MGY					As above	
	2.19					44.81											
65		44.81	46.81	2.00				SST		CG	LGY					Few cm scale MDST bands	
							BOX 13										
60		46.81	47.40	0.59				SST		CG	LGY					As above	
		47.40	47.78	0.38				MDST		VFG	DGY					Few mm-scale SST laminations	
		47.78	47.85	0.07				ROCK LOSS								ROCK LOSS	
	1.54					47.85											
55		47.85	49.86	2.01				MDST	SST	VFG	DGY					mm-cm scale MG SST laminations	
							BOX 14										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		49.86	50.78	0.92				MDST	SST	VFG	DGY					As above, END PG 8	
		50.78	50.90	0.12													
	1.33						50.90										
60		50.90	53.10	2.20				MDST	SST	VFG	DGY					As above, 20cm gouge band bear middle of interval	
							BOX 15										
		53.10	53.41	0.31				ROCK LOSS								ROCK LOSS	
		53.41	53.75	0.34				MDST		VFG	DGY					Very few mm-scale SST laminations 7 coalified lenses	
		53.75	53.95	0.20		AT10173		MDST		VFG	DGY					ROOF SAMPLE, part above MDST unit	0
	1.16						53.95										
		53.95	54.08	0.13		AT10174		COAL LOSS								COAL LOSS	70
		54.08	54.36	0.28		AT10174		COAL								Chunks of voal, numerous vitrain/clrain bands with micro cleating	70
		54.36	54.53	0.17		AT10174		COAL LOSS								COAL LOSS	70
		54.53	54.73	0.20		AT10175		MDST	CARB	VFG	DGY					FLOOR SAMPLE, part of below MDST unit. END PG 9	0
		54.73	55.34	0.61				MDST	CARB	VFG	DGY					Top, 25cm is soft muddy gouge, few cm-scale coal bands few mm-scale coal & pyrite lenses	
80		55.34	56.34	1.00				SST	MDST	CG	MGY					mm-cm scale MDST laminations	
		56.34	56.88	0.54				SST		CG	LGY					Very few mm-cm scale MDST laminations	
							BOX 16										
		56.88	57.08	0.20				SST		CG	LGY					As above	
	2.44						57.00										
55		57.08	60.05	2.97				SST		VCG	LGY					As above, cm-scale quartz infilling fracture with breccia	
	2.25						60.05										
							BOX 17										
55		60.05	63.09	3.04				SST		VCG	LGY					As above	
	0.87						63.09										
		63.09	63.35	0.26				SST		VFG	LGY					As above	
							BOX 18										
55		63.35	64.76	1.41				MDST	VFG	DGY						Very few scale quartz with vuggy cavities infilling fractures, fine porous cracks	
		64.76	64.96	0.20		AT10176		MDST	VFG	DGY						ROOF SAMPLE, part of MDST unit, END PG 10	0
		64.96	65.54	0.58		AT10177		COAL	C3		BLK					Semi-solid quartz veining along cleats	70
		65.54	65.73	0.19		AT10177		COAL LOSS								COAL LOSS	70
		65.73	65.93	0.20		AT10178		MDST		VFG	DGY					FLOOR SAMPLE, few mm-scale quartz infilling fractures	0
		65.93	66.16	0.23				MDST		VFG	DGY					Few mm-scale quartz infilling fractures	
	1.07						66.14										
		66.16	66.59	0.43				MDST		VFG	DGY					As above	
							BOX 19										
		66.59	66.88	0.29				MDST		VFG	DGY					Few mm-scale coaly laminations	
45		66.88	67.88	1.00				SST		CG	LGY					Few mm-cm scale MDST laminations, soft, END PG 11	
		67.88	68.96	1.08				MDST		VFG	DGY					Fine porous cracks, 10cm gouge band in middle of interval, slickenlines, cm-scale coal band at base of interval	
		68.96	69.19	0.23				ROCK LOSS								ROCK LOSS	
	0.84						69.19										
		69.19	70.06	0.87				MDST	SST	VFG	DGY					Very soft sand cm-scale bands with laminations, fine porous cracks	
							BOX 20										



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
40		70.06	72.24	2.18				MDST		VFG	DGY			50				Few cm-scale coal bands, few mm-cm scale SST laminations, fine porous cracks, polished fracture surfaces
	0.61						72.24											
		72.24	72.94	0.70				MDST		VFG	DGY							
							BOX 21											
		72.94	73.31	0.37				MDST		VFG	DGY							
55		73.31	74.47	1.16				MDST	SST	FG	MGY							
		74.47	75.23	0.76				ROCK LOSS										
	1.23						75.29											
		75.23	76.00	0.77				MDST		VFG	DGY							
		76.00	76.35	0.35				MDST										
		76.35	76.76	0.41				MDST		VFG	DGY							
							BOX 22											
		76.76	78.08	1.32				MDST		VFG	DGY							
	1.70						78.33											
55		78.08	79.28	1.20				MDST		VFG	DGY							
		79.28	79.48	0.20		AT10179		MDST		VFG	DGY							0
		79.48	79.60	0.12		AT10180		COAL	C6		BLK							99
		79.60	80.12	0.52		AT10181		MDST		VFG	BLK							0
		80.12	80.36	0.24		AT10182		COAL	C6		BLK							99
							BOX 23											
		80.36	80.56	0.20		AT10183		MDST		VFG	DGY							0
		80.56	81.19	0.63				MDST		VFG	DGY							
		81.19	81.24	0.05				ROCK LOSS										
	1.52						81.38											
48		81.24	83.27	2.03				MDST		VFG	DGY							
							BOX 24											
		83.27	84.20	0.93				MDST		VFG	DGY							
	1.28						84.43											
45		84.20	85.63	1.43				MDST		VFG	DGY							
		85.63	85.83	0.20		AT10184		MDST		VFG	DGY							0
		85.83	85.93	0.10		AT10185		COAL										99
		85.93	86.33	0.40				COAL LOSS										
							BOX 25											
		86.33	86.53	0.20		AT10186		MDST		VFG	DGY							0
		86.53	86.80	0.27				MDST		VFG	DGY							
		86.80	87.17	0.37				MDST		VFG	DGY							
		87.17	87.48	0.31				ROCK LOSS										
	0.90						87.48											
45		87.48	88.83	1.35				MDST		VFG	DGY							
		88.83	89.03	0.20				COAL										
		89.03	89.59	0.56				MDST		VFG	DGY							
							BOX 26											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		89.59	89.81	0.22				MDST		VFG	DGY					As above	
		89.81	90.08	0.27				ROCK LOSS								ROCK LOSS	
		90.08	90.53	0.45				SST		MG	MGY					Few mm-scale MDST laminations & quartz veinlets	
	1.32						90.53										
		90.53	91.61	1.08				SST		MG	MGY					As above, few 5cm gouge bands, moderately broken.	
40		91.61	92.75	1.14				MDST		VFG	DGY					Few mm-cm scale SST laminations, fine porous cracks	
							BOX 27										
		92.75	92.92	0.17				ROCK LOSS								ROCK LOSS	
		92.92	93.52	0.60				MDST		VFG	DGY					As above	
	2.89						93.57										
45		93.52	96.12	2.60				MDST		VFG	DGY					As above, END PG 17	
							BOX 28										
		96.12	96.57	0.45				MDST		VFG	DGY					As above	
	2.18						96.62										
		96.57	99.42	2.85				MDST		VFG	DGY		50			As above, few cm-scale bivalve fossils	
							BOX 29										
		99.42	99.57	0.15				MDST		VFG	DGY					As above	
	0.60						99.67										
		99.57	102.54	2.97				MDST		VFG	DGY					As above+mm-cm scale bivalve fossils throughout, 60cm sandy with fossils in middle of interval, mm-scale pyrite blebs & lenses in lower half of interval	
	0.73						102.72										
							BOX 30										
45		102.54	103.50	0.96				MDST		VFG	DGY					Few mm-scale SST laminations & pyrite laminations, 2cm pyrite ban at base of interval.	
		103.50	103.70	0.20		AT10187		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit. END PG 18	0
		103.70	104.45	0.75		AT10188		COAL		C4						1/4 rock, sheared to bits in the middle, all dull coal	68
		104.45	104.55	0.10		AT10188		COAL LOSS								COAL LOSS	68
		104.55	104.75	0.20		AT10189		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		104.75	104.99	0.24				MDST		VFG	DGY					Few mm-cm scale coal lenses at top of interval	
		104.99	105.60	0.61				SST		CG	LGY					Few mm-cm scale MDST laminations	
	1.91						105.77										
		105.60	105.78	0.18				MDST		VFG	DGY					Fine porous cracks, END PG 19	
							BOX 31										
45		105.78	108.57	2.79				MDST		VFG	DGY					Few cm-scale SST bands	
	2.71						108.81										
		108.57	109.61	1.04				MDST		VFG	DGY					As above	
							BOX 32										
		109.61	110.38	0.77				SST		MG	LGY					Few mm-scale MDST layers	
35		110.38	111.57	1.19				MDST	SST	VFG	DGY					5cm-scale sandy bands	
	0.80						111.86										
		111.57	112.03	0.46				MDST		VFG	DGY					Few mm-scale coalified lenses	
							BOX 33										
		112.03	112.45	0.42				MDST	CARB	VFG	DGY					mm-cm scale coaly lenses, cm scale quartz bands, infilling fractures, pyrite mineralization, sheared, polished fracture surfaces.	
		112.45	112.65	0.20		AT 10190		MDST	CARB	VFG	DGY					ROOF SAMPLE, part of above Carb MDST unit.END PG 20	0

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		112.65	113.29	0.64		AT10191		COAL	C6		BLK								Interbedded MDST & COAL, minor pyrite & quartz veining	68	
		113.29	113.40	0.11		AT10191		COAL LOSS											COAL LOSS	68	
		113.40	113.60	0.20		AT10192		MDST	Carb	VFG	BLK								FLOOR SAMPLE, part of below Carb MDST unit.	0	
		113.60	113.97	0.37				MDST	Carb	VFG	BLK								Massive, thin coal beds over entire interval, quartz veining pyrite beds END PG 21		
		113.97	114.42	0.45				MDST	CARB	VFG	DGY-BLK								mm-cm scale coal bands& lenses, few mm-scale quartz veinlets		
		114.42	114.60	0.18				ROCK LOSS											ROCK LOSS		
	0.12						114.91														
		114.60	114.99	0.39				MDST	CARB	VFG	DGY-BLK								As above		
		114.99	115.19	0.20				COAL											COAL		
		115.19	115.23	0.04				MDST		VFG	DGY								Soft fine porous cracks		
							BOX 34														
		115.23	115.60	0.37				MDST		VFG	DGY								As above, mm-cm scale quartz band		
		115.60	117.62	2.02				SST	MDST	MG	MGY								Soft fine porous cracks, mm-cm scale MDST laminations, END PG 22		
	1.22						117.96														
50		117.62	118.43	0.81				SST	MDST	MG	MGY								As above, few mm-scale coaly lenses towards base of interval		
							BOX 35														
		118.43	119.34	0.91				MDST	CARB	VFG	DGY								mm-cm scale coaly bands throughout cm-scale gouge band		
		119.34	119.54	0.20		AT10193		MDST	CARB	VFG	DGY								ROOF SAMPLE, part of above Carb MDST unit	0	
		119.54	119.98	0.44		AT10194		COAL	C5		BLK								Solid core, MDST partings up to 1cm, quartz veining along bedding, pyrite beds	68	
		119.98	120.15	0.17		AT10194		COAL LOSS											COAL LOSS	68	
		120.15	120.35	0.20		AT10195		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
		120.35	121.02	0.67				MDST		VFG	DGY								upper half is Carb MDST with many mm-scale coaly laminations, few throughout interval		
	2.62						121.01														
		121.02	122.05	1.03				MDST		VFG	DGY								Few mm-scale coalified lenses, END PG 23		
							BOX 36														
		122.05	123.24	1.19				MDST		VFG	DGY								Few mm-scale sandy lenses		
		123.24	124.05	0.81				MDST	SST	VFG	DGY								mm-cm scale SST laminations		
	1.95						124.05														
		124.05	124.61	0.56				MDST	SST	VFG	DGY								As above		
60		124.61	125.31	0.70				SST	MDST	MG	MGY								mm-cm scale MDST laminations, very few mm-scale quartz veinlets		
							BOX 37														
		125.31	125.39	0.08				ROCK LOSS											ROCK LOSS		
60		125.39	127.10	1.71				SST		CG	LGY								Few mm-cm scale MDST laminations & few cm-scale rounded MDST clasts.		
	1.88						127.10														
70		127.10	128.62	1.52				SST		CG	LGY								As above		
							BOX 38														
		128.62	129.96	1.34				SST		CG	LGY								As above, END PG 24		
55		129.96	130.15	0.19				SST		MG	MGY								Few mm-cm scale MDST laminations		
	1.94						130.15														

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		130.15	131.75	1.60				SST		MG	MGY								As above		
							BOX 39														
		131.75	133.20	1.45				SST	MDST	MG	MGY								mm-cm scale MDST laminations throughout		
	2.24						133.20														
		133.20	134.62	1.42				SST	MDST	MG	MGY								As above, few mm scale quartz veinlets		
		134.62	135.10	0.48				SST		MG	MGY								Very few mm-scale MDST laminations		
							BOX 40														
		135.10	135.80	0.70				SST		MG	MGY								As above		
		135.80	136.25	0.45				MDST		VFG	DGY								Few mm-scale quartz veinlets, some gouge, END PG 25		
	0.88						136.25														
		136.25	136.57	0.32				MDST	Carb										Carb MDST		
		136.57	137.65	1.08				MDST		VFG	DGY								Few mm-scale quartz veinlets, few mm-scale coaly laminations at base of interval		
		137.65	137.98	0.33		AT10196		COAL	C6										Stone coal & rock very poor coal	65	
		137.98	138.25	0.27				MDST	Carb	VFG	BLK								Massive with numerous coal beds		
							BOX 41														
		138.25	139.07	0.82				MDST		VFG	DGY								mm-cm scale quartz infilling fractures throughout-vuggy cavities in quartz, pyrite mineralization throughout		
		139.07	139.19	0.12				ROCK LOSS											ROCK LOSS		
	1.16						139.29														
		139.19	139.50	0.31		AT10197		COAL			BLK								Stone coal & rock very poor coal	65	
		139.50	141.38	1.88				MDST		VFG	DGY								Few mm-scale coalified lenses & quartz veinlets, few pyrite rich laminations		
		141.38	141.50	0.12				ROCK LOSS											ROCK LOSS		
							BOX 42														
		141.50	141.70	0.20		AT10243		MDST		VFG	DGY								ROOF SAMPLE, as above, END PG 27	0	
		141.70	141.80	0.10		AT10284		COAL	C4										Dull, very few cleats, some pyrite & quartz	65	
		141.80	141.95	0.15		AT10284		MDST	Carb	VFG	DGY								PARTING SAMPLE, Quartz veins, soft clay like	0	
		141.95	142.22	0.27		AT10284		COAL	C4										As above	65	
		142.22	142.32	0.10		AT10284		COAL	C3										well developed cleats, abundant quartz, very solid & competent	65	
	1.14						142.34														
		142.32	142.52	0.20		AT10285		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
		142.52	143.72	1.20				MDST		VFG	DGY								Few mm-scale coal laminations near top of interval		
70		143.72	144.60	0.88				SST	MDST	MG	MGY								mm-cm scale MDST laminations END PG 28		
							BOX 43														
		144.60	145.16	0.56				SST	MDST	MG	MGY								As above		
		145.16	145.39	0.23				ROCK LOSS											ROCK LOSS		
	2.84						145.39														
		145.39	146.11	0.72				SST	MDST	MG	MGY								As above		
60		146.11	147.21	1.10				SST		CG	LGY								Few cm-scale MDST bands		
		147.21	148.08	0.87				MDST		VFG	DGY								Fine porous cracks		
							BOX 44														
		148.08	148.49	0.41				SST		CG	LGY								Few mm-cm scale MDST bands		
	2.60						148.44														
65		148.49	149.58	1.09				SST		CG	LGY								As above		

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		149.58	151.46	1.88				MDST	SST	VFG	DGY					mm-cm scale SST laminations few mm-scale quartz veinlets	
							BOX 45										
		151.46	151.53	0.07				MDST	SST	VFG	DGY					As above, END PG 29	
	2.18						151.49										
70		151.53	154.54	3.01				MDST	SST	VFG	DGY					As above, gouge+slicklines on fracture surface	
	0.63						154.53										
		154.54	154.75	0.21				MDST	CARB	VFG	DGY					cm-scale quartz infilling fractures, cm-scale coaly+quartz bands	
							BOX 46										
		154.75	157.64	2.89				MDST		VFG	DGY					Few SST bands few 5cm gouge bands, mm-cm scale quartz infilling fractures throughout moderately broken	
	0.83						157.58										
							BOX 47										
		157.64	159.14	1.50				MDST		VFG	DGY					As above+mm-cm scale coalified lenses	
		159.14	160.62	1.48				SST		MG	LGY					Few MDST bands, one 20cm, few mm-scale quartz veinlets, END PG 30	
	2.17						160.63										
							BOX 48										
		160.62	163.15	2.53				SST	MDST	MG	MGY					Vertical contact between MDST & SST (ie. BCA-0°). Few mm-cm scale quartz infilling fractures-some quartz+dolomite with vuggy cavities, few cm scale gouge bands	
		163.15	163.50	0.35				MDST		VFG	DGY					Few mm-scale quartz veinlets	
	1.73						163.68										
							BOX 49										
		163.50	163.88	0.38				SST		FG	LGY					mm-scale quartz veinlets	
		163.88	166.50	2.62				MDST		VFG	DGY					Few mm-cm scale coalified lenses+quartz veinlets, few cm-scale gouge bands, 30xm FG SST band in lower 1/2 of interval, END PG 31	
	1.27						166.73										
		166.50	166.61	0.11				SST		FG	MGY					Slickenlines on fracture surfaces, few mm-scale quartz infilling fractures, few MDST laminations	
							BOX 50										
		166.61	167.46	0.85				SLT	MDST	FG	MGY-BRN					mm-cm scale MDST laminations, very few mm-scale quartz infilling fractures.	
		167.46	169.57	2.11				MDST		VFG	DGY					Few mm-cm scale coalified lenses+bands-some with quartz, cm-scale gouge band, few mm-scale quartz veinlets	
	2.34						169.77										
		169.57	169.82	0.25				MDST		VFG	DGY					As above	
							BOX 51										
		169.82	169.87	0.05				MDST		VFG	DGY					As above, END PG 32	
		169.87	172.42	2.55				SST		CG	LGY					Very few mm-scale MDST laminations	
		172.42	172.57	0.15				MDST		VFG	DGY					Quartz on fracture surface	
		172.57	172.76	0.19				ROCK LOSS								ROCK LOSS	
	1.53						172.82										
		172.76	173.03	0.27				MDST		VFG	DGY					As above few cm-scale coalified lenses	
		173.03	173.15	0.12				BENT		VFG	LGY					Soft clayey material possible gouge? Or bentonite	
							BOX 52										

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
		173.15	173.62	0.47				MDST	CARB	VFG	DGY					Top 10cm is gouge, few mm-scale quartz veinlets & coalified lenses, fine porous cracks	
60		173.62	175.38	1.76				SST	MDST	FG	MGY					mm-cm scale MDST laminations throughout increasing MDST content with depth lower 10cm has cm-scale coal lenses+3cm pyrite band, END PG 33	
		175.38	175.59	0.21		AT10198		COAL	C6							Mostly rock, very poor coal sample	99
		175.59	175.87	0.28				ROCK LOSS								ROCK LOSS	
	2.79						175.87										
		175.87	175.97	0.10				MDST	CARB	VFG	DGY					Carb MDST	
		175.97	176.48	0.51				SST		CG	LGY					Very few rounded MDST clasts (mm-cm scale)	
							BOX 53										
70		176.48	178.96	2.48				SST		CG	LGY					As above+4cm quartz band near top of interval, END PG 34	
	2.84						178.92										
		178.96	179.76	0.80				SST		CG	LGY					As above (no quartz band)	
							BOX 54										
80		179.76	180.49	0.73				SST		CG	LGY					As above, increasing MDST with depth (gradational contact with MDST unit below)	
		180.49	181.96	1.47				MDST		VFG	DGY					Few SST laminations at top of unit	
	2.34						181.97										
		181.96	182.48	0.52				MDST		VFG	DGY					Few mm-cm scale coalified lenses	
		182.48	182.79	0.31				MDST		VFG	DGY					MDST with a few coal beds	
		182.79	182.92	0.13				SST		MG	MGY					Few cm-scale bivalve fossils, top 1cm of interval is pyrite rich cm scale quartz veinlet, END PG 35	
							BOX 55										
85		182.92	185.02	2.10				SST	MDST	CG	LGY					cm scale MDST bands throughout, quartz veinlet & bivalve fossils at top of interval	
	2.39						185.01										
		185.02	185.31	0.29				SST	MDST	CG	LGY					As above (no fossils)	
		185.31	186.26	0.95				SST		VCG	LGY					Few cm-scale MDST bands & rounded clasts, few cm-scale quartz veinlets	
							BOX 56										
		186.26	186.93	0.67				SST		VCG	LGY					As above	
90		186.93	188.03	1.10				MDST		VFG	DGY					Few mm-scale SST laminations, quartz veinlets	
	2.50						188.06										
		188.03	189.48	1.45				MDST		VFG	DGY					As above+few mm-cm scale coalified lenses, END PG 36	
							BOX 57										
		189.48	190.84	1.36				SST		VCG	LGY					Few cm-scale rounded MDST clsts	
		190.84	191.09	0.25				MDST		VFG	DGY					Few SST laminations (mm-scale)	
	1.83						191.11										
		191.09	192.82	1.73				MDST		VFG	DGY					As above+few mm-cm scale quartz infilling fractures, few mm-5cm coalified bands-some with quartz 2cm pyrite band in lower part of interval	
							BOX 58										
60		192.82	194.14	1.32				MDST		VFG	DGY					As above, no pyrite	
	2.39						194.16										
		194.14	195.28	1.14				MDST		VFG	DGY					Very few mm-scale quartz veinlets, lower 10cm is rubble	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		195.28	196.12	0.84				SST		CG	LGY								Few mm-scale quartz veinlets with vuggy cavities. END PG 37		
							BOX 59														
		196.12	197.21	1.09				MDST		VFG	DGY								Few mm-cm scale SST lamiantions, very few quartz veinlets, 10cm SST band at base of interval		
	2.40						197.21														
		197.21	198.58	1.37				SST	MDST	CG	LGY								mm-5cm MDST bands throughout, lower 5cm contains cm-scale fossils		
		198.58	198.88	0.30		AT10242		COAL	C4 to C5										Competent, Mdst bands	99	
		198.88	199.45	0.57				MDST		VFG	DGY								Few mm-cm scale coaly bands. Very few mm-scale quartz veinlets		
							BOX 60														
		199.45	200.20	0.75				MDST		VFG	DGY								As above+few sandy laminations, END PG 38		
	2.73						200.25														
		200.20	200.52	0.32				MDST		VFG	DGY								As above gradational contact with SST unit below		
85		200.52	202.79	2.27				SST		CG	LGY								Few mm-scale MDST laminations at top of interval.		
							BOX 61														
		202.79	203.18	0.39				SST		CG	LGY								few rounded (ablate) clasts		
		203.18	203.30	0.12				ROCK LOSS											ROCK LOSS		
	2.14						203.30														
		203.30	204.26	0.96				SST		CG	LGY								Few mm-scale MDST laminations & Clasts		
		204.26	204.43	0.17				COAL			BLK								quartz infilling throughout, some pyrite minerization, dull coal		
		204.43	204.72	0.29				MDST		VFG	DGY								Few mm-scale coalified laminations, cm-scale pyrite bleb, END PG 39		
65		204.72	205.71	0.99				SST	MDST	MG	MGY								mm-cm scale MDST laminations		
		205.71	206.12	0.41				MDST		VFG	DGY								Few mm-scale quartz veinlets, lower 15cm of interval has coalified bands with quartz		
		206.12	206.24	0.12				SST		CG	LGY								Very few mm-scale quartz veinlets		
							BOX 62														
		206.24	206.40	0.16				SST		CG	LGY								As above		
	2.45						206.35														
60		206.40	209.38	2.98				SST		CG	LGY								As above few mm-scale MDST laminations		
	1.71						209.40														
							BOX 63														
		209.38	211.14	1.76				SST		CG	LGY								As above		
		211.14	211.36	0.22		AT10267		MDST		VFG	DGY								ROOF SAMPLE, quartz infilling fractures throughtout (mm-scale), END PG 40	0	
		211.36	211.60	0.24		AT10268		COAL	C6		BLK								Bone Coal, very dull, very hard	99	
		211.60	211.84	0.24		AT10269		MDST	SST	VFG	DGY								Top 15cm is MDST+SST breccia with quartz infill polished fracture surfaces	0	
		211.84	212.10	0.26		AT10270		COAL	C6		BLK								Bone Coal, END PG 41	99	
		212.10	212.18	0.08		AT10271		MDST	SST	VFG	DGY								Some breccia with quartz infill, mm scale SST laminations	0	
	1.46						212.45														
							BOX 64														
		212.18	212.30	0.12		AT10271		SST		CG	LGY								FLOOR SAMPLE, part of below SST unit,	0	
60		212.30	213.77	1.47				SST		CG	LGY								Few MDST laminations (mm-scale) few mm-scale quartz veinlets		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		213.77	214.61	0.84				MDST		VFG	DGY								Few mm-scale SST laminations, mm-cm scale quartz infilling fractures, cm-scale gouge few cm-scale coaly laminations		
		214.61	214.79	0.18				COAL											mm-scale quartz infill & pyrite mineralization mostly dull		
		214.79	215.14	0.35				SST		CG	LGY								Mostly gouge few with cm-scale MDST bands & quartz infill, END PG 42		
		215.14	215.21	0.07				MDST		VFG	DGY								gouge on fracture surface		
	1.97						215.49														
		215.21	215.34	0.13				MDST		VFG	DGY								Carb gouge, slickenlines on fracture surface cm-scale SST fragments		
								BOX 65													
		215.34	216.58	1.24				MDST		VFG	DGY								As above, 8cm gouge band at top of interval, majority of unit is brecciated with angular MDST+SST fragments & quartz infill		
45		216.58	218.35	1.77				SST		CG	LGY								Some soft+sand, mm-cm scale quartz veinlets, some with vuggy cavities, very few MDST laminations (mm-scale) few rounded cm-scale MDST clasts		
	1.97						218.54														
		218.35	218.73	0.38				SST		CG	LGY								As above, END PG 43		
								BOX 66													
55		218.73	221.41	2.68				SST		CG	LGY								As above		
	1.15						221.59														
		221.41	222.05	0.64				SST		CG	LGY								As above		
								BOX 67													
		222.05	223.81	1.76				SST		CG	LGY								As above, 15cm zone of brecciated SST with quartz infill, 40cm zone of soft SST gouge with MDST bands		
		223.81	224.48	0.67				MDST	SST	VFG	DGY								mm-cm scale SST laminations throughout some polished fracture surfaces soft with fine porous cracks		
	0.18						224.64														
70		224.48	225.05	0.57				MDST	SST	VFG	DGY								As above		
								BOX 68													
		225.05	225.77	0.72				MDST	SST	VFG	DGY								As above, END PG 44		
		225.77	226.30	0.53				MDST		VFG	DGY										
		226.30	226.50	0.20		AT10239		MDST		VFG	DGY								ROOF SAMPLE, part of above MDST unit.	0	
		226.50	227.12	0.62		AT10240		COAL											Strongly sheared, mushed, broken, some pyrite & quartz	60	
		227.12	227.32	0.20		AT10241		MDST		VFG	DGY								FLOOR SAMPLE. Part of below MDST unit.	0	
		227.32	227.40	0.08				MDST		VFG	DGY								Few mm-scale coalified lenses		
		227.40	227.63	0.23				ROCK LOSS											ROCK LOSS		
	0.80						227.69														
		227.63	228.41	0.78				MDST		VFG	DGY								As above		
								BOX 69													
		228.41	229.93	1.52				MDST		VFG	DGY								As above, one cm scale coalified band with quartz pyrite, END PG 45		
		229.93	229.98	0.05				COAL											Strongly crushed, abundant MDST, geophysical logs show that it is less than 30cm & was picked for sampling		
		229.98	230.45	0.47				MDST		VFG	DGY								Few mm-cm scale coalified lenses		
	0.92						230.73														
		230.45	231.26	0.81				MDST		VFG	DGY								As above		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 70										
		231.26	233.56	2.30				MDST		VFG	DGY					As above, some polished fracture surfaces, 5cm SST band with vuggy quartz, END PG 46	
	0.45						233.78										
		233.56	234.22	0.66				MDST		VFG	DGY					As above	
							BOX 71										
		234.22	235.48	1.26				MDST		VFG	DGY					As above	
		235.48	235.71	0.23				SST		CG	LGY					Soft fine porous crack, very few mm-scale MDST laminations	
		235.71	235.79	0.08		AT10236		SST		CG	LGY					ROOF SAMPLE, part of SST unit	0
		235.79	235.91	0.12		AT10236		MDST		VFG	DGY					Few mm-scale quartz veinlets	0
		235.91	236.40	0.49		AT10237		COAL	C4							Listric surfaces, moderately sheared, some quartz	99
		236.40	236.50	0.10		AT10237		COAL LOSS								COAL LOSS	99
		236.50	236.70	0.20		AT10238		MDST		VFG	DGY					FLOOR SAMPLE, Fine porous cracks	0
	1.35						236.83										
		236.70	237.50	0.80				MDST		VFG	DGY					As above slickenlines on fracture surface, few mm-scale coalified lenses	
							BOX 72										
		237.50	238.33	0.83				MDST		VFG	DGY					As above 20cm zone of coaly bands with quartz & pyrite	
		238.33	239.84	1.51				SST		CG	LGY					Very few mm-scale MDST laminations	
	1.95						239.88										
		239.84	240.75	0.91				SST		CG	LGY					As above, few cm-scale MDST bands at base of interval	
							BOX 73										
55		240.75	242.93	2.18				SST		CG	LGY					As above, few cm-scale soft sand bands, END PG 48	
	2.46						242.93										
		242.93	244.06	1.13				SST		CG	LGY					As above	
							BOX 74										
65		244.06	245.92	1.86				SST		C-MG	LGY					Few mm-cm scale MDST bands, increasing MDST content with depth	
	2.73						243.97										
65		245.92	247.41	1.49				SST	MDST	M-FG	MGY					mm-cm scale MDST laminations throughout	
							BOX 75										
65		247.41	248.98	1.57				SST	MDST	M-FG	MGY					As above	
	2.64						249.02										
60		248.98	250.81	1.83				SST	MDST	M-FG	MGY					As above, increasing MDST content with depth	
							BOX 76										
		250.81	251.90	1.09				MDST		VFG	DGY					Few cm-scale SST laminations, END PG 49	
	1.98						252.07										
55		251.90	254.12	2.22				MDST		VFG	DGY					As above few mm-scale quartz veinlets	
							BOX 77										
		254.12	255.01	0.89				MDST		VFG	DGY					As above (no quartz)	
	1.80						255.12										
		255.01	257.39	2.38				MDST		VFG	DGY					As above, few bivalve fossils throughout, 17cm sandy band with many fossils, coalified laminations towards base of interval.	
							BOX 78										
		257.39	258.08	0.69				MDST		VFG	DGY					Fine porous cracks	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	1.01						258.17										
65		258.08	259.20	1.12				MDST		VFG	DGY					As above, very few mm-scale SST laminations, mm-scale quartz veinlet in lower 5cm of interval.	
		259.20	259.62	0.42		AT10232		COAL								Strongly sheared, bright bands with cleats	99
		259.62	260.43	0.81				MDST		VFG	DGY					Very few mm-scale quartz lenses with vuggy cavities at top of unit. Few mm-scale SST laminations	
50		260.43	260.71	0.28				SST		MG	LGY					Few MDST laminations	
								BOX 79									
		260.71	261.05	0.34				SST		MG	LGY					As above, END PG 51	
	2.01						261.21										
		261.05	262.65	1.60				MDST		VFG	DGY					Few SST bands (5cm scale) fine porous cracks	
55		262.65	263.86	1.20				SST		CG	LGY					mm-15cm scale MDST bands	
								BOX 80									
		263.86	264.05	0.20				SST		CG	LGY					As above	
	1.66						264.26										
50		264.05	266.97	2.92				SST		CG	LGY					As above few soft SST bands	
								BOX 81									
		266.97	267.33	0.36				SST		CG	LGY					As above lower 10cm is gouge	
		267.33	268.72	1.38				MDST		VFG	DGY					Few mm-cm scale pyrite blebs fine porous cracks throughout, mm-5cm coalified bands-few with quartz & pyrite, END PG 52	
		268.72	269.19	0.47				MDST								MDST mixed with coal bands, interbedded	
		269.19	269.39	0.20		AT10233		MDST								ROOF SAMPLE, part of above MDST unit.	0
		269.39	269.99	0.60		AT10234		COAL	C4							Abundant muddy bands, solid, END PG 53	55
		269.99	270.09	0.10		AT10235		MDST		VFG	DGY					Sheared Fracture Surfaces	0
		270.09	270.22	0.13				ROCK LOSS								ROCK LOSS	
	0.22						270.36										
		270.22	270.32	0.10		AT10235		MDST		VFG	DGY					As above+few mm-scale coalified laminations	0
								BOX 82									
		270.32	272.00	1.68				MDST		VFG	DGY					As above	
		272.00	272.20	0.20		AT10199		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		272.20	272.60	0.40		AT10244		COAL	C5							Solid, dull coal with numerous Mdst bands	55
		272.60	272.80	0.20		AT10245		MDST	CARB	VFG	BLK					PARTING SAMPLE, Massive Mdst, that is very Carb towards the bottom	0
		272.80	273.36	0.56		AT10246		COAL	C6							Stone coal & rock, END PG 54	55
		273.36	273.48	0.12		AT10247		MDST		VFG	DGY					FLOOR SAMPLE, Few mm-scale coaly laminations	0
	0.30						273.41										
		273.48	273.56	0.08		AT10247										FLOOR SAMPLE, part of below MDST unit.	0
		273.56	273.77	0.21				MDST		VFG	DGY					As above	
								BOX 83									
		273.77	274.02	0.25				MDST		VFG	DGY					As above	
		274.02	274.29	0.27		AT10248		COAL	C6							Mostly rock with bone coal	55
		274.29	274.55	0.26				MDST		VFG	DGY					Massive MDST with quartz veining, END PG 55	
		274.55	276.45	1.90				MDST		VFG	DGY					Few mm-scale coaly laminations at top of interval, few mm-cm scale SST laminations throughout fine porous cracks, few soft bands	
	1.60						276.45										
70		276.45	276.85	0.40				MDST		VFG	DGY					As above, few mm-scale quartz veinlets & 4cm coaly band.	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 84											
		276.85	277.26	0.41				MDST		VFG	DGY							Few mm-cm scale quartz veinlets with brecciated MDST
40		277.26	279.51	2.25				MDST	SST	VFG	DGY							mm-cm scale SST laminations throughout very few mm-scale quartz veinlets
	2.06						279.50											
50		279.51	280.18	0.67				MDST	SST	VFG	DGY							As above, END PG 56
							BOX 85											
50		280.18	282.55	2.37				SST	MDST	C-MG	LGY							mm-cm scale MDST bands throughout
	1.44						282.55											
60		282.55	282.72	0.17				SST	MDST	M-CG	LGY							As above
		282.72	283.48	0.76				SST		CG	LGY							Few mm-cm scale MDST bands & clasts, few mm-scale quartz veinlets
							BOX 86											
		283.48	285.50	2.02				SST		CG	LGY							As above, 40cm zone in lower half of interval & many cm-scale gouge bands.
		285.50	285.60	0.10				ROCK LOSS										ROCK LOSS
	2.60						285.60											
50		285.60	286.75	1.15				SST	MDST	FG	MGY							mm-cm scale MDST laminations throughout. Very few mm-scale quartz veinlets
							BOX 87											
		286.75	288.68	1.93				SST		FG	MGY							Few mm-cm scale MDST laminations & few mm-scale quartz veinlets. END PG 57
	2.68						288.65											
55		288.68	290.09	1.41				SST		FG	MGY							As above
							BOX 88											
50		290.09	291.63	1.54				SST		FG	MGY							As above
		291.63	291.70	0.07				ROCK LOSS										ROCK LOSS
	2.17						291.69											
		291.70	292.50	0.80				SST		FG	MGY							As above
50		292.50	293.43	0.93				SST	MDST	FG	MGY							mm-cm scale MDST laminations throughout
							BOX 89											
		293.43	294.74	1.31				MDST	SST	VFG	DGY							mm-cm scale SST laminations
	2.19						294.74											
50		294.74	296.67	1.93				MDST		VFG	DGY							Few FG SST laminations (mm-scale), cm-scale pyrite bleb, one cm band of quartz+dolomite, END PG 58
							BOX 90											
		296.67	297.25	0.58				MDST		VFG	DGY							mm-scale quartz veinlets
		297.25	297.62	0.37				SST		FG								mm-scale quartz infilling fractures throughout
		297.62	297.79	0.17				COAL										Soft, few bright bands, mm-scale quartz
	0.00						297.79											
		297.79	297.87	0.08				ROCK LOSS										ROCK LOSS
		297.87	299.79	1.92				MDST		VFG	DGY							Few 5cm gouge bands, few mm-scale quartz veinlets infilling fractures, cmscale sheared coaly band
							BOX 91											
		299.79	300.00	0.21				MDST		VFG	DGY							mm-cm scale quartz infilling fractures, moderately broken cm-scale pyrite bleb.
		300.00	300.20	0.20		AT10261		MDST		VFG	DGY							ROOF SAMPLE, part of above MDST unit. END PG 59
		300.20	300.89	0.69		AT10262		COAL	C3		BLK							Sheared to bits, chunks of coal showing cleating. Interbedded bright & dull

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
	1.91						300.84										
		300.89	301.08	0.19		AT10262		COAL	C3		BLK					As above coal	50
		301.08	301.16	0.08		AT10262		COAL LOSS								COAL LOSS, END PG 60	50
		301.16	301.36	0.20		AT10263		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		301.36	301.84	0.48				MDST		VFG	DGY					Few mm-scale coalified laminations near top of interval, very few mm-scale quartz veinlets 5cm gouge band with quartz in middle of interval, fine porous cracks, few sanfy laminations towards base of interval.	
75		301.84	303.09	1.25				SST	MDST	FG	MGY					mm-cm scale MDST laminations throughout, few mm-scale quartz veinlets	
							BOX 92										
		303.09	303.91	0.82				SST	MDST	CG	MGY					As above	
		303.91	303.92	0.01				ROCK LOSS								ROCK LOSS	
	2.26						303.89										
80		303.92	306.35	2.43				SST	MDST	CG	MGY					As above	
							BOX 93										
		306.35	306.93	0.58				SST		CG	LGY					Few m-cm scale MDST laminations, END PG 61	
	2.61						306.93										
75		306.93	308.39	1.46				SST		CG	LGY					As above	
		308.39	309.72	1.33				MDST		VFG	DGY					Few mm-scale SST laminations & quartz veinlets (very few)	
							BOX 94										
		309.72	309.98	0.26				MDST		VFG	DGY					MDST	
	1.05						309.98										
		309.98	312.95	2.97				MDST		VFG	DGY					Very few mm-scale quartz veinlets, polished fracture surfaces	
							BOX 95										
		312.95	313.03	0.08				MDST		VFG	DGY					As above	
	0.35						313.03										
		313.03	313.16	0.13				ROCK LOSS								ROCK LOSS	
		313.16	313.40	0.24		AT10264		MDST		VFG	DGY					Majority of interval is gouge, 5cm pyrite band at base of interval, END PG 62	0
		313.40	314.28	0.88		AT10265		COAL								Sheared to bits, almost powder in places, pyrite beds, irregular quartz veins in places. Odd MDST bands, END PG 63	45
		314.28	314.48	0.20		AT10266		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		314.48	316.01	1.53				MDST		VFG	DGY					Few mm-scale gouge bands, few sandy laminations (mm-scale)	
		316.01	316.08	0.07				ROCK LOSS								ROCK LOSS	
	0.98						316.08										
		316.08	316.12	0.04				MDST		VFG	DGY					MDST	
							BOX 96										
		316.12	316.30	0.18				MDST		VFG	DGY					Few mm-scale SST laminations	
80		316.30	317.28	0.98				SST	MDST	MG	MGY					Few mm-scale MDST laminations, three 10cm soft sandy zones	
		317.28	319.21	1.93				SST		CG	LGY					Few mm-cm scale quartz infilling fractures & veinlets some with vuggy cavities & angular SST fragments, low angle fractures	
	0.53						319.13										
		319.21	319.45	0.24				SST		CG	LGY					As above, END PG 64	

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To	Drilled	True							FCD	FCA	BCD	FCA			
							BOX 97											
		319.45	321.15	1.70				SST		CG	LGY		15					As above-quartz on fracture surfaces, some gouge on fracture surface, few MDST laminations towards base of unit (gradational contact with Mdst below)
		321.15	322.14	0.99				MDST		VFG	DGY							Few mm-cm scale quartz+dolomite veinlets, few mm-cm scale coalified laminations, soft sandy band (2cm)
	1.51						322.17											
		322.14	322.41	0.27				MDST		VFG	DGY							As above
							BOX 98											
		322.41	322.69	0.28				MDST		VFG	DGY							As above, lower 3cm is soft/gouge
65		322.69	324.22	1.53				SST		CG	LGY							Few cm-scale MDST bands+clasts (rounded), some soft sand & gouge
		324.22	324.97	0.75				MDST		VFG	DGY							Few mm-scale SST laminations, END PG 65
		324.97	325.24	0.27				SST		CG	LGY							Quartz+slickenslines on fracture surfaces, few mm-scale MDST laminations and clasts. Mostly soft sand.
	1.81						325.22											
65		325.24	325.67	0.43				SST		CG	LGY							Few cm-scale MDST bands, cm-scale soft sand bands
							BOX 99											
		325.67	328.37	2.70				SST		CG	LGY							Few mm-cm scale MDST bands & laminations, few mm-scale quartz veinlets
	0.91						328.27											
70		328.37	329.04	0.67				SST		CG	LGY							As above
							BOX 100											
70		329.04	331.13	2.09				SST		CG	LGY							As above, few soft SST bands, some gouge, END PG 66
		331.13	331.38	0.25				MDST	CARB	VFG	DGY							Mostly rubble & gouge few mm-scale quartz veinlets some coaly fragments
	0.23						331.32											
		331.38	332.24	0.86				MDST		VFG	DGY							Few mm-scale quartz veinlets infilling fractures
							BOX 101											
65		332.24	333.38	1.14				MDST		VFG	DGY							As above, few cm-scale SST laminations towards base of interval, (gradational contact with unit below).
		333.38	334.40	1.02				SST		CG	LGY		30					Few MDST laminations at top of interval, few mm-scale quartz veinlets
	0.48						334.37											
		334.40	335.16	0.76				SST		CG	LGY							As above
							BOX 102											
		335.16	336.65	1.49				SST		CG	LGY		25	0				As above, END PG 67
		336.65	336.96	0.31				ROCK LOSS										ROCK LOSS, CAVE
		336.96	337.41	0.45				MDST	SST	FG	DGY							Mostly SST at base of interval
	0.80						337.41											
		337.41	338.24	0.83				SST		MG	MGY							Few mm-cm scale MDST bands moderately broken
							BOX 103											
		338.24	340.42	2.18				SST		F-MG	MGY							Thoroughly fractured with many gouge zones and quartz+dolomite infill up to 15xm, polished, fracture surfaces.
	0.00						340.46											
		340.42	341.05	0.63				SST		F-MG	MGY							As above
							BOX 104											

BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA						
		341.05	341.88	0.83				SST	MDST	FG	MGY								Majority of unit is gouge, some SST & quartz & rubble near top of interval, few MDST bands towards base of interval. END PG 68		
		341.88	342.12	0.24				MDST		VFG	DGY								MDST		
		342.12	342.32	0.20				COAL	CLAY	C6									Bits of sheared coal mixed with black clay. 60% clay & 40% coal		
		342.32	343.51	1.19				MDST		VFG	DGY								cm-scale gouge bands throughout, few mm-scale quartz + infilling fractures.		
	0.00							343.51													
		343.51	344.23	0.72				MDST		VFG	DGY								As above		
								BOX 105													
		344.23	346.56	2.33				MDST		VFG	DGY								As above, few SST bands. Fault Zone ~ 339-346m, END PG 69		
	0.98							346.56													
		346.56	347.48	0.92				MDST		VFG	DGY								As above unit		
								BOX 106													
		347.48	349.57	2.09				MDST		VFG	DGY								As above cm-scale coaly lense at top of interval. Decreasing presence of gouge with depth.		
	0.12							349.61													
75		349.57	350.73	1.16				MDST		VFG	DGY								As above (no coal)		
								BOX 107													
		350.73	352.61	1.88				MDST		VFG	DGY								As above, few coalified lenses (mm-scale) towards base of interval, 10cm coal band in lower 1/2 of interval, polished fracture surfaces		
	1.13							352.65													
		352.61	352.81	0.20		AT10258		COAL											Very rocky, full of quartz	40	
		352.81	352.93	0.12				COAL LOSS											COAL LOSS		
		352.93	353.38	0.45				MDST		VFG	DGY								As above+gouge zone 20cm in middle of interval		
		353.38	353.62	0.24		AT10259		COAL											As above COAL	40	
		353.62	354.10	0.48				MDST		VFG	DGY								As above MDSTEND PG 70		
								BOX 180													
		354.10	355.71	1.61				MDST		VFG	DGY								Few mm-scale quartz veinlets & SST lamiantions, some fine porous cracks		
	0.55							355.70													
		355.71	356.30	0.59				MDST		VFG	DGY								Few 5cm gouge zones, mm-scale quartz infilling fractures, cm-scale quartz bands near top of interval, 3cm pyrtie rich zone near top of interval, cm-scale coaly bands throughout		
		356.30	356.50	0.20		AT10249		MDST		VFG	DGY								ROOF SAMPLE. Part of above MDST unit.	0	
		356.50	357.00	0.50		AT10250		COAL	C3		BLK								Broken into chunks/sheared but fairly clean	40	
		357.00	357.24	0.24		AT10251		MDST		VFG	BLK								PARTING SAMPE, massive, carb	0	
		357.24	357.72	0.48		AT10252		COAL	C6		BLK								Boney, hard coal, with a large amount of pyrite	40	
								BOX 109													
		357.72	357.91	0.19		AT10253		MDST		VFG	BLK								PARTING SAMPLE, As above MDST	0	
		357.91	358.20	0.29		AT10254		COAL	C3		BLK								As above C3 Coal	40	
		358.20	358.51	0.31		AT10255		MDST		VFG	BLK								PARTING SAMPLE,As above MDST	0	
		358.51	358.90	0.39		AT10256		COAL	C3		BLK								As above C3 COAL, END PG 71 &72	40	
	1.67							358.75													
		358.90	359.10	0.20		AT10257		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST	0	
		359.10	360.40	1.30				MDST		VFG	DGY								mm-scale coalified laminations throughout		



BCA	RQD	Unit		Thickness		Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To	Drilled	True							FCD	FCA	BCD	FCA		
							BOX 110										
80		360.40	361.82	1.42				MDST		VFG	DGY						Few mm-scale coalified laminations & quartz & lenses
	1.79						361.80										
		361.82	363.66	1.84				MDST		VFG	DGY						As above
							BOX 111										
90		363.66	364.81	1.15				MDST		VFG	DGY						Few SST lamiantions (mm-cm scale)END PG 73
	2.44						364.85										
90		364.81	367.03	2.22				MDST	SST	FG	DGY						1-10cm scale SST bands
							BOX 112										
		367.03	367.86	0.83				SST		CG	LGY						Few cm-scale MDST bandsm some silt
	1.56						367.89										
		367.86	370.36	2.50				SST		CG	LGY		30				As above, lower 30cm of interval is soft sand
							BOX 113										
		370.36	370.90	0.54				SST		CG	LGY		20				Few mm-scale MDST lamiantions, low angle fractures
	1.51						370.94										
90		370.90	373.58	2.68				SST		CG	LGY		40				As above, cm-scale gouge band in middle of interval
							BOX 114										
		373.58	374.10	0.52				SST		CG	LGY						As above (no gouge) END PG 74
	1.38						373.99										
85		374.10	376.95	2.85				SST		CG	LGY		20				As above, 5cm gouge band in upper half of interval, 30cm & 15cm MDST bands in lower half of interval, gouge band (CM) in 30cm MDST+quartz infill.
							BOX 115										
		376.95	377.18	0.23				SST		CG	LGY						Low angle fracture with vuggy quartz infill
	1.14						377.04										
70		377.18	379.96	2.78				SST		CG	LGY						As above unit few mm-cm scale MDST bands, few mm-scale quartz veinlets
							BOX 116										
		379.96	380.09	0.13				SST		CG	LGY						As above, some quartz+ dolomite
	2.11						380.09										
80		380.09	383.05	2.96				SST		CG	LGY						As above, END PG 75
	1.22						383.13										
		383.05	383.25	0.20				SST		CG	LGY						As above
							BOX 117										
		383.25	386.07	2.82				SST		CG	LGY						As above 5cm gouge zone
	2.31						386.18										
70		386.07	386.59	0.52				SST		CG	LGY						As above (no gouge)
							BOX 118										
70		386.59	389.14	2.55				SST		CG	LGY						As above quartz+dolomite bands up to cm scale
	1.78						389.23										
		389.14	389.88	0.74				SST		CG	LGY						As above, quartz+dolomite up to 5cm
							BOX 119										
		389.88	392.25	2.37				SST		CG	L-MGY						As above
	2.21						392.28										
75		392.25	393.17	0.92				SST		CG	LGY						As above, few 5cm MDST bands. END PG 76
							BOX 120										
90		393.17	395.33	2.16				SST		CG	L-MGY						As above
							395.33										END OF HOLE 395.33, END PG 77

### Cover Sheet

Project Name	Groundhog Anthracite Project
Proposed DH ID	
Actual DH ID	DDH-GH-12-15
Drilling Start Date	13-Oct-12
Drilling Finish Date	14-Oct-12
Confirmed Easting	6299380.3921
Confirmed Northing	547444.4566
Elevation	911.0133
Azimuth	
Dip	-90
Depth	340.46
Grid and Zone	UTM NAD 83 Zone 9
Pre Collar Easting	547433
PreCollar Northing	6299387
Drilling Company	Driftwood Diamond Drilling
Drill Type	3000
Core Diameter	HQ
Lith and Geotech Logger	JG
Lith and Geotech Logging Dates	15th to 17th October 2012
Coal Logger	RP & BVDB
Coal Logging Dates	
Comments	



BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To								FCD	FCA	BCD	FCA		
	0.00	0.00	4.06	4.06											OVB	
						Box 1										
		4.06	4.33	0.27			SST	MDST	CG	LGY					Rubble SST lower 12cm is MDST few mm-scale quartz veinlets.	
	0.00					4.57									Casing Marker	
		4.33	4.90	0.57			MDST		VFG	DGY					Few mm-cm scale SST laminations	
		4.90	4.94	0.04			ROCK LOSS								ROCK LOSS	
	0.00					5.18										
50°		4.94	6.67	1.73			MDST		VFG	DGY					As above, 1-5cm scale gouge bans throughout polished fracture surfaces	
						Box 2										
		6.67	7.33	0.66			MDST		VFG	DGY					As above	
	0.00					8.23										
		7.33	8.80	1.47			MDST		VFG	DGY						
		8.80	9.00	0.20	AT10118		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit.	0
		9.00	9.65	0.65	AT10119		COAL LOSS								COAL LOSS	85
		9.65	9.80	0.15	AT10119		COAL	C2							Very strongly broken, core loss, END PG 1	85
50°		9.80	10.00	0.20	AT10120		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		10.00	10.16	0.16			MDST		VFG	DGY					Few mm-scale coalified laminations & quartz veinlets	
		10.16	11.28	1.12			ROCK LOSS								ROCK LOSS	
	0.00					11.28										
		11.28	11.39	0.11			MDST		VFG	DGY					As above	
						Box 3										
		11.39	12.47	1.08			MDST		VFG	DGY					As above, bottom 10cm of interval is gouge.	
		12.47	13.62	1.15			SST		FG	MGY		0°			Few MDST laminations, vertical bedding in middle of interval, top 20cm is gouge few mm-scale quartz+dolomite infilling fractures, majority of interval is rubble.	
		13.62	14.33	0.71			ROCK LOSS								ROCK LOSS	
	0.00					14.33										
		14.33	14.78	0.45			SST		FG	MGY					As above-lower 15cm is gouge	
		14.78	15.02	0.24			MDST		FG	MGY					Very few mm-scale coalified lenses. & pyrite blebs END PG 2	
						Box 4										
80°		15.02	16.35	1.33			MDST		FG	MGY					Few mm-scale SST laminations & quartz infilling fractures, lower 1/3 of interval is rubble	
		16.35	17.37	1.02			ROCK LOSS								ROCK LOSS	
	0.00					17.37										
		17.37	18.60	1.23			SST		CG	LGY					Top 5cm is gouge, slickenslines on fracture surfaces, mmscale quartz infilling fractures, 5cm gouge band towards base of interval.	
						Box 5										
		18.60	19.72	1.12			SST		CG	LGY					As above, no gouge, some rubble.	
		19.72	20.42	0.70			ROCK LOSS								ROCK LOSS	
						20.42										
		20.42	21.86	1.44			SST		CG	LGY					As above few cm-scale gouge bands	
						Box 6										
		21.86	22.35	0.49			SST		CG	LGY					As above, END PG 3	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To								FCD	FCA	BCD	FCA		
30°		22.35	22.97	0.62			MDST		VFG	DGY						
		22.97	23.47	0.50			ROCK LOSS								ROCK LOSS	
						23.47										
		23.47	24.78	1.31			SST		MG	M-LGY					Few mm-scale MDST lamiantions, quartz infilling fractes, some dolomite, few cm scale gouge bands, thoroughly broken	
		24.78	25.13	0.35			MDST		VFG	DGY					mm-scale quartz+dolomite infilling fractures, very few mm-scale SST lamiantions	
						Box 7										
35°		25.13	26.19	1.06			SST	MDST	MG	MGY					MDST content decreases with depth, mm-cm scale quartz infilling fractures (some dolomite), polished fracture surfaces, END PG 4	
		26.19	26.52	0.33			ROCK LOSS								ROCK LOSS	
	0.00					26.52										
		26.52	27.67	1.15			SST		MG	LGY					cm-scale gouge bands throughout, mm-cm scale quartz infilling fractures, ≈ 5cm rubble zone with possible coaly fragments.	
		27.67	29.57	1.90			ROCK LOSS								ROCK LOSS	
	0.86					29.57										
						Box 8										
		29.57	32.37	2.80			SST		MG	LGY					Few mm-cm scale MDST bands, quartz & slickenlines on fracture surfaces	
		32.37	32.61	0.24			ROCK LOSS								ROCK LOSS	
	0.51					32.61										
		32.61	32.91	0.30			SST		MG	LGY					As above, cm-scale gouge band	
						Box 9										
60°		32.91	33.29	0.37			SST		MG	LGY					As above, polished fracture surfaces	
		33.29	34.62	1.33											Few mm-5cm SST laminations with bands, polished fracture surfaces with slickenlines	
		34.62	34.82	0.20	AT10121		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit. END PG 5	0
		34.82	35.35	0.53	AT10122		COAL	C3							Sheared, strongly broken, some quartz	80
	1.91					35.66										
		35.35	35.44	0.09	AT10123		MDST	CARB	VFG	DGY					PARTING SAMPLE, Sheared	0
						Box 10										
		35.44	35.68	0.24	AT10123		ROCK LOSS								ROCK LOSS	0
		35.68	35.92	0.24	AT10124		COAL	C3							Sheared & powdered	80
		35.92	35.96	0.04	AT10124		COAL LOSS								END PG 6	80
		35.96	36.16	0.20	AT10125		MDST		VFG	DGY					FLOOR SAMPLE, part of below MDST unit.	0
		36.16	38.57	2.41			MDST		VFG	DGY					Few mm-scale coaly laminations at top of unit, few SST lamination (mm-scale) 10cm SST band towards base of interval.	
	1.15					38.71										
58°		38.57	38.82	0.25			SST	MDST	MG	LGY					mm-scale MDST lamiantions throughout	
						Box 11										
		38.82	41.61	2.79			SST		CG	LGY					mm-scale quartz infilling fractures throughout	
		41.61	41.76	0.15			ROCK LOSS								ROCK LOSS	
	2.06					41.76										
		41.76	42.10	0.34			SST		CG	LGY					As above	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To								FCD	FCA	BCD	FCA			
						Box 12											
		42.10	44.72	2.62			SST		CG	LGY					As above		
		44.72	44.81	0.09			ROCK LOSS								ROCK LOSS		
	1.55					44.81											
		44.81	45.27	0.46			SST		CG	LGY					As above, END PG 7		
						Box 13											
		45.27	45.99	0.72			SST		CG	LGY		10°			As above		
		45.99	47.85	1.86			SST		FG	MGY					Few mm-cm scale MDST bands, few mm-scale quartz veinlets		
	1.00					47.85											
		47.85	48.18	0.33			SST		FG	MGY					As above		
						Box 14											
		48.18	49.57	1.39			SST		FG	MGY		30°			As above		
		49.57	50.83	1.26			MDST		VFG	DGY					Very few mm-sclae quartz infilling fractures		
		50.83	50.90	0.07			ROCK LOSS								ROCK LOSS		
	2.54					50.90											
		50.90	51.25	0.35			MDST		VFG	DGY					As above		
						Box 15											
		51.25	53.95	2.70			MDST		VFG	DGY					As above polished fracture surfaces with slickenlines		
	2.68					53.95											
		53.95	54.33	0.38			MDST		VFG	DGY					As above END PG 8		
						Box 16											
		54.33	57.00	2.67			MDST		VFG	DGY					As above+very few cm-scale pyrite blebs.		
	0.00					57.00											
						Box 17											
		57.00	57.53	0.53			MDST		VFG	DGY					As above		
		57.53	59.98	2.45			MDST		VFG	DGY		25°			As above, few 5cm coaly bands with quartz, few SST bands.		
		59.98	60.05	0.07			ROCK LOSS								ROCK LOSS		
	0.24	60.05	60.25	0.20		60.05	SST		CG	DGY					mm-scale quartz infilling fractures, cm-scal MDST bands		
						Box 18											
		60.25	60.49	0.24			SST		CG	DGY					As above. Polished fracture surfaces		
40°		60.49	61.80	1.31			MDST		VFG	DGY		35°			mm-scale quartz infilling fractures, moderately broken		
		61.80	62.00	0.20	AT10126		MDST		VFG	DGY					ROOF SAMPLE, part of above MDST unit. END PG 9		0
		62.00	62.30	0.30	AT10127		COAL		C3						Abundant quartz near top, sheared		70
		62.30	62.40	0.10	AT10127		COAL LOSS								COAL LOSS		70
		62.40	62.75	0.35	AT10127		COAL		C5						Very sheared listric surfaces, muddy		70
		62.75	62.95	0.20	AT10128		MDST		VFG	DGY					FLOOR SAMPLE, very few coaly lamiantions & quartz infilling fractures (mm-scale)		0
		62.95	63.09	0.14			ROCK LOSS								ROCK LOSS		
	0.12					63.09											
		63.09	63.19	0.10			MDST		VFG	DGY					As above		
						Box 19											
35°		63.19	63.94	0.75			MDST		VFG	DGY					As above, cm scale gouge, END PG 10		
		63.94	66.14	2.20			ROCK LOSS								ROCK LOSS		
						66.14											

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To											
		66.14	66.42	0.28			ROCK LOSS						ROCK LOSS	
		66.42	66.52	0.10			MDST		VFG	DGY			As above	
						Box 20								
		66.52	67.31	0.79			MDST		VFG	DGY			As above	
		67.31	67.44	0.13	AT10129		COAL	C5					Blocky, dull	70
		67.44	67.61	0.17	AT10129		COAL	C4					Sheared, strongly broken	70
		67.61	67.70	0.09	AT10129		COAL LOSS						COAL LOSS	70
		67.70	68.93	1.23			SST		CG	LGY			Top 5cm is gouge, few mm-scale quartz veinlets, slickenlines on fracture surfaces, very few mm-cm scale MDST laminations	
		68.93	69.18	0.25			ROCK LOSS						ROCK LOSS	
	0.61					69.19								
						Box 21								
		69.18	70.76	1.58			SST		CG	LGY			As above END PG 11	
40°		70.76	71.76	1.00			SST	MDST	MG	MGY			mm-cm scale MDST laminations few mm-cm scale quartz infilling fractures few cm-scale rubble zones of coaly material, cm-scale gouge.	
		71.76	71.96	0.20	AT10130		SST	MDST	MG	MGY			ROOF SAMPLE, part of above SST/MDST	0
						72.24								
		71.96	72.04	0.08	AT10131		COAL	C4					Near vertical Contact with MDST	70
						Box 22								
		72.04	72.26	0.22	AT10131		COAL	C4					As above	70
		72.26	72.86	0.60	AT10131		COAL	C3					Strongly Sheared	70
		72.86	72.90	0.04	AT10131		COAL LOSS						COAL LOSS, END PG 12	70
		72.90	73.10	0.20	AT10200		MDST	CARB	VFG	DGY			FLOOR SAMPLE, part of below interval.	0
		73.10	73.41	0.31			MDST	CARB	VFG	DGY			Few SST lamiantions towards base of interval	
60°		73.41	75.01	1.60			SST		CG	LGY			mm-cm scale quartz infilling fractures throughout, cm-scale gouge, few mm-scale MDST laminations	
		75.01	75.29	0.28			ROCK LOSS						ROCK LOSS	
	0.74					75.29								
						Box 23								
60°		75.29	75.70	0.41			SST		FG	MGY			Few mm-cm scale MDST laminations, few CG SST laminations at base of unit.	
		75.70	75.90	0.20	AT10201		SST		FG	MGY			ROOF SAMPLE, part of above SST unit.	0
		75.90	76.35	0.45	AT10202		COAL	C3					Sheared & broken	70
		76.35	76.41	0.06	AT10202		MDST	SLTST	VFG	DGY			PARTING SAMPLE,	0
		76.41	76.55	0.14	AT10202		COAL	C3					As above END PG 14	70
		76.55	76.75	0.20	AT1020		MDST		VFG	DGY			FLOOR SAMPLE. Part of below MDST unit.	0
		76.75	77.11	0.36			MDST		VFG	DGY			Very few mm-scale quartz veinlets few mm-scale coalified lenses at top of interval	
		77.11	77.82	0.71			SST						As above	
	1.30					78.33								
		77.82	78.07	0.25			SST		CG	LGY			As above	
						Box 24								
		78.07	79.96	1.89			SST		FG	LGY			mm-cm scale quartz+dolomite infilling fractures, few MDST bands, moderately broken	
		79.96	81.15	1.19			MDST		VFG	DGY			Few mm-scale quartz infilling fractures, few FG SST laminations	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To											
						Box 25								
		81.15	81.38	0.23			MDST		VFG	DGY			As above, END PG 15	
	2.48					81.38								
55°		81.38	84.43	3.05			MDST		VFG	DGY			As above, few cm-scale pyrite blebs	
						Box 26								
	2.77					86.43								
		84.43	87.48	3.05			MDST		VFG	DGY			As above	
	1.48					87.48								
						Box 27								
		87.48	87.79	0.31			MDST		VFG	DGY			As above	
		87.79	89.25	1.46			MDST		VFG	DGY			As above	
		89.25	89.45	0.20	AT10204		MDST		VFG	DGY			ROOF SAMPLE, part of above MDST unit.	0
		89.45	89.57	0.12	AT10205		COAL	C4					Sheared	68
		89.57	89.62	0.05	AT10205		MDST	CARB	VFG	DGY			PARTING SAMPLE, Carb MDST	0
		89.62	89.87	0.25	AT10205		COAL	C3					Sheared, listric, crushed, END PG 16	68
	1.84					90.53								
		89.87	90.24	0.37	AT10205		COAL	C3					As above	68
		90.24	90.44	0.20	AT10206		MDST		VFG	DGY			FLOOR SAMPLE, part of below MDST unit.	0
		90.44	90.79	0.35			MDST		VFG	DGY			Few mm-scale coalified lenses, few mm-scale sandy laminations	
						Box 28								
		90.79	91.97	1.18										
		91.97	93.24	1.27			SST		CG	LGY			Few mm-scale quartz veinlets, some with vuggy cavities	
		93.24	93.57	0.33			ROCK LOSS						ROCK LOSS, END PG 17	
	1.06					93.57								
		93.57	94.26	0.69			SST		CG	LGY			As above	
						Box 29								
		94.26	96.62	2.36			SST		CG	LGY			As above	
	1.94					96.62								
		96.62	96.99	0.37			SST		CG	LGY			As above	
						Box 30								
		96.99	99.67	2.68			SST		CG	LGY			As above	
	1.44					99.67								
		99.67	100.25	0.58			SST		CG	LGY			As above	
						Box 31								
		100.25	101.80	1.55			SST		CG	LGY			As above	
		101.80	102.00	0.20	AT10207		SST		CG	LGY			ROOF SAMPLE, part of above SST unit.	0
		102.00	102.60	0.60	AT10208		COAL	C3					Sheared, strongly broken	65
		102.60	102.75	0.15	AT10208		COAL	C5					Sheared, dull, boney coal	65
		102.75	102.84	0.09	AT10208		COAL	C3					Sheared, END PG 18	65
	2.20					102.72								
		102.84	103.04	0.20	AT10209		MDST		VFG	DGY			FLOOR SMAPLE, part of below MDST/SST unit.	0
		103.04	103.14	0.10			MDST		VFG	DGY			Few mm-scale coalified lenses some with quartz some pyrite	
						Box 32								
		103.14	105.45	2.31			MDST	SST	VFG	DGY			As above, mm-cm scale SST laminations, END PG 19	
		105.45	105.77	0.32			ROCK LOSS						ROCK LOSS	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam		
		From	To								FCD	FCA	BCD	FCA								
	2.36					105.77																
70°		105.77	106.72	0.95			SST		MG	MGY										Few mm-scale MDST laminations		
						Box 33																
		106.72	108.81	2.09			SST		MG	MGY											As above, few mm-cm scale quartz veinlets, some CG SST towards base of interval, few rounded cm-scale MDST clasts towards base of interval	
	2.69					108.81																
		108.81	110.10	1.29			SST		MG	MGY											As above, MDST bands up to 10cm	
						Box 34																
		110.10	111.86	1.76			SST		MG												As above	
	1.94					111.86																
90°		111.86	113.52	1.66			SST		MG												As above END PG 20	
		113.52	114.08	0.56																		
		114.08	114.97	0.89			MDST		VFG	DGY											Few SST laminations	
85°						114.91																
		114.97	116.86	1.89			MDST	SST	VFG	DGY											mm-cm scale SST laminations	
						Box 36																
		116.86	117.96	1.10			MDST		VFG	DGY											20cm band with SST laminations	
	2.93					117.96																
		117.96	119.41	1.45			MDST		VFG	DGY											Few mm-cm scale SST laminations	
		119.41	120.21	0.80			SST		MG	MGY											Few mm-scale MDST lenses	
						Box 37																
		120.21	121.01	0.80			SST		MG	MGY											As above	
	2.73					121.01																
		121.01	123.60	2.59			SST		MG	MGY											As above, few mm-scale quartz veinlets, END PG 21	
						Box 38																
		123.60	124.05	0.45			SST		MG	MGY											As above	
	2.84					124.05																
90°		124.05	126.85	2.80			SST		MG	MGY											As above, MDST bands up to 5cm some SLTST	
						Box 39																
	2.52					127.10																
		126.85	127.10	0.25	AT10210		SST		MG	MGY											ROOF SAMPLE, as above	0
		127.10	127.53	0.43	AT10211		COAL	C2													Strongly broken, moderately sheared, good cubic cleat pieces, friable	60
		127.53	127.63	0.10	AT10211		COAL	C3													Solid	60
		127.63	127.83	0.20	AT10212		MDST		VFG	DGY											FLOOR SAMPLE, part of below MDST unit.	0
		127.83	128.06	0.23			MDST		VFG	DGY											Few mm-scale coalified lenses+ quartz lenses	
		128.06	129.97	1.91			SST		CG	LGY											SST	
		129.97	130.15	0.18			ROCK LOSS														ROCK LOSS	
	2.68					130.15																
						Box 40																
		130.15	130.31	0.16			SST		CG	LGY											SST	
		130.31	133.20	2.89			SST		CG	LGY											Very few mm-scale quartz veinlets	
	2.47					133.20																
		133.20	133.60	0.40			SST		CG	LGY											As above	
						Box 41																



BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To								FCD	FCA	BCD	FCA		
		133.60	136.25	2.65			SST		FG	LGY					Few mm-scale quartz veinlets, few cm-scale coal lenses & CG SST bands	
						136.25										
		136.25	136.95	0.70			SST		FG	LGY					As above, END PG 23	
						Box 42										
		136.95	139.28	2.33			SST		FG	LGY					As above	
	2.58					139.29										
		139.28	140.20	0.92			SST		FG	LGY					As above	
						Box 43										
		140.20	141.24	1.04			SST		FG	LGY					As above, few coalified lenses (cm-scale)	
		141.24	142.34	1.10			MDST		VFG	LGY					Few SST lamiantions (mm-scale) & quartz veinlets	
	2.50					142.34										
		142.34	143.41	1.07			MDST		VFG	LGY					As above	
						Box 44										
		143.41	145.39	1.98			SST		MG	MGY		10°			cm-scale quartz veinlets with vuggy cavities, fracture surface, few cm-scale coalified lenses. END PG 24	
	2.88					145.39										
		145.39	146.64	1.25			SST		MG	MGY					As above	
						Box 45										
		146.64	148.44	1.80			SST		MG	MGY					As above	
	1.35					148.44										
		148.44	149.97	1.53			SST		MG	MGY					As above	
						Box 46										
		149.97	151.49	1.52			SST		MG	MGY					As above	
	1.04					151.49										
80°		151.49	152.97	1.48			SST		MG	MGY					As above, increasing of MDST bands with depth	
						Box 47										
		152.97	154.33	1.36			MDST		VFG	DGY					Moderately broken low angle fractures	
	1.86					154.33										
		154.33	155.26	0.93			MDST		VFG	DGY					As above, END PG 25	
						Box 48										
		155.26	156.63	1.37			SST		FG	MGY					Very few MDST bands towards base of interval.	
		156.63	157.35	0.72			MDST	SST	VFG	DGY					mm-5cm FG SST bands	
		157.35	157.58	0.23			ROCK LOSS								ROCK LOSS	
						157.58										
		157.58	158.80	1.22			MDST	SST	VFG	DGY					As above	
						Box 49										
		158.80	160.63	1.83			SST		FG	MGY		15°			Few mm-scale MDST lamiantions and quartz veinlets	
	2.67					160.63										
		160.63	161.95	1.32			MDST	SST	VFG	DGY					mm-cm scale laminations FG SST	
						Box 50										
		161.95	163.68	1.73			MDST	SST	VFG	DGY					As above	
						163.68										
		163.68	165.11	1.43			MDST	SST	VFG	DGY					As above, END PG 26	
						Box 51										

BCA	RQD	Unit		Thickne ss (m) Drilled	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To								FCD	FCA	BCD	FCA		
		165.11	166.73	1.62			MDST	SST	VFG	DGY					Few mm-cm scale SST laminations & bands, mm-cm scale quartz veinlets & infilling fractures-some with angular MDST fragments	
	2.78					166.73										
		166.73	168.32	1.59			MDST	SST	VFG	DGY					As above (no quartz infill)	
						Box 52										
		168.32	169.70	1.38			MDST	SST	VFG	DGY					As above	
		169.70	169.77	0.07			ROCK LOSS								ROCK LOSS	
	2.45					169.77										
		169.77	171.68	1.91			MDST	SST	VFG	DGY					As above	
						Box 53										
		171.68	172.52	0.84			MDST	SST	VFG	DGY					As above	
		172.52	172.82	0.30			SST		MG	MGY					FEW mm-cm scale MDST laminations. END PG 27	
	2.80					172.82										
75°		172.82	174.96	2.14			SST		MG	MGY					As above+ MDST clasts (rounded) (mm-cm scale)	
						Box 54										
		174.96	175.85	0.89			SST		MG	MGY					As above	
	2.70					175.85										
		175.85	178.12	2.27			SST		FG	DGY					Few mm-cm scale MDST lamiantions, very few mm-scale quartz veinlets	
						Box 55										
		178.12	178.78	0.66			SST		FG	DGY					As above	
		178.78	178.92	0.14			ROCK LOSS								ROCK LOSS	
	2.90					178.92										
		178.92	181.45	2.53			SST		FG	DGY					As above	
						Box 56										
		181.45	181.97	0.52			SST		FG	DGY					As above	
	2.72					181.97										
85°		181.97	184.73	2.76			SST		FG	DGY					As above, increasing MDST content with depth END PG 28	
						Box 57										
		184.73	185.01	0.28			MSDT		VFG	DGY					Few SST lamiantions	
	2.92					185.01										
		185.01	187.61	2.60			MSDT		VFG	DGY					As above, very few cm-scale pyrite blebs with cm scale quartz veinlet	
		187.61	188.06	0.45			SST		FG	MGY					Few mm-cm scale MDST laminations	
						Box 58										
	2.60					188.06										
90°		188.06	190.74	2.68			SST		FG	MGY		10°			As above	
		190.74	191.10	0.36			MSDT		VFG	DGY					MDST	
	2.79					191.11										
		191.10	191.37	0.27			MSDT		VFG	DGY					MDST	
						Box 59										
		191.37	194.07	2.70			MSDT		VFG	DGY					Very few mm-cm scale SST laminations, END PG 29	
		194.07	194.16	0.09			ROCK LOSS								ROCK LOSS	
	2.75					194.16										
		194.16	194.81	0.65			MSDT		VFG	DGY					As above	



BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To											
						Box 60								
		194.81	197.21	2.40			MSDT		VFG	DGY			As above	
	2.06					197.21								
		197.21	198.10	0.89			MSDT		VFG	DGY		5°	As above, few cm-scale pyrite blebs	
						Box 61								
		198.10	199.20	1.10			MSDT		VFG	DGY			As above	
		199.20	199.40	0.20	AT10213		MSDT		VFG	DGY			ROOF SAMPLE, part of above MDST unit	0
		199.40	200.15	0.75	AT10214		COAL	C3					Dull to lightly shiny, solid competent	50
		200.15	200.25	0.10	AT10214		COAL LOSS						COAL LOSS	50
	1.85					200.25								
		200.25	200.40	0.15	AT10214		COAL	C3					As above	50
		200.40	201.00	0.60	AT10215		MDST		VFG	MGY			PARTING SAMPLE, Coaly lenses	0
		201.00	201.34	0.34	AT10216		COAL	C4					MDST laminae, quartz, END PG 30	50
						Box 62								
		201.34	201.39	0.05	AT10216		MDST		VFG	MGY			PARTING SAMPLE, MDST	0
		201.39	201.67	0.28	AT10216		COAL	C3					Cleats well developed in some areas	50
		201.67	201.74	0.07	AT10216		MDST		VFG	MGY			PARTING SAMPLE, MDST	0
		201.74	202.22	0.48	AT10216		COAL	C4					Quartz mixed, END PG 31 & 32	50
		202.22	202.42	0.20	AT10217		MDST		VFG	MGY			FLOOR SAMPLE, part of below MDST unit.	0
		202.42	203.22	0.80			MDST		VFG	MGY			Few mm-scale coalified lenses, cm-scale pyrite bands towards base of interval	
		203.22	203.30	0.08			ROCK LOSS						ROCK LOSS	
	2.80					203.30								
		203.30	203.81	0.51			MDST		VFG	MGY			As above, few SST laminations toward base of interval	
		203.81	204.60	0.79			SST		MG	MGY			Very few mm-scale MDST lamiantions	
						Box 63								
		204.60	206.35	1.75			SST		MG	MGY			As above+very few mm-scale quartz veinlets	
	2.72					206.35								
		206.35	207.77	1.42			SST		MG	MGY			As above	
						Box 64								
		207.77	209.40	1.63			SST		MG	MGY			As above	
	2.94					209.40								
		209.40	210.96	1.56			SST		F-MG	MGY			Few mm-scale MDST laminations, very few mm-cm scale quartz veinlets	
						Box 65								
		210.96	212.37	1.41			SST		FG	MGY			As above	
		212.37	212.45	0.08			ROCK LOSS						ROCK LOSS	
	2.96					212.45								
		212.45	214.28	1.83			SST		FG	MGY			Very mm-scale MDST laminations	
						Box 66								
		214.28	215.49	1.21			SST		FG	MGY			As above, END PG 34	
	2.93					215.49								
		215.49	217.64	2.15			SST		FG	MGY			As above	
						Box 67								
		217.64	218.54	0.90			SST		FG	MGY			As above, increasing MDST content with depth	
	1.43					218.54								
		218.54	218.66	0.12			ROCK LOSS						ROCK LOSS	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To								Drilled	FCD	FCA	BCD	FCA					
		218.66	219.40	0.74			SST		FG	MGY								As above, MDST bands up to 5cm		
		219.40	219.60	0.20	AT10218		SST		FG	MGY								ROOF SAMPLE, part of above SST unit.	0	
		219.60	220.50	0.90	AT10219		COAL	C4										Dull, sheared, significant MDST laminae	45	
		220.50	220.90	0.40	AT10220		COAL	C2										Well developed cleats	45	
						Box 68														
		220.90	221.30	0.40	AT10220		COAL	C2										As above	45	
		221.30	221.60	0.30	AT10221		MDST		VFG	DGY								PARTING SAMPLE, Carb at top, coaly lenses abundant. END PG 35	0	
						221.59														
		221.60	221.65	0.05			ROCK LOSS											ROCK LOSS		
		221.65	222.48	0.83	AT10222		MDST		VFG	DGY								PARTING SAMPLE, Abundant coal stringers and coal blebs	0	
		222.48	223.28	0.80	AT10223		COAL	C3										As above, significant amount of quartz	45	
		223.28	223.72	0.44	AT10224		COAL	C3										As above C3 COAL	45	
		223.72	223.93	0.21	AT10224		COAL	C5										Muddy, vitrinite stringers	45	
		223.93	224.07	0.14	AT10224		COAL	C3										As above C3 COAL, END PG 36 & 37	45	
						Box 69														
		224.07	224.27	0.20	AT10225		MDST		VFG	DGY								FLOOR SAMPLE, part of below MDST unit.	0	
		224.27	224.64	0.37			MDST		VFG	DGY								Few cm-scale coaly bands & quartz bands near top of interval, few mm-scale coalified lenses & SST lamiantions throughout		
	2.73					224.64														
		224.64	224.94	0.30			MDST		VFG	DGY								mm-cm scale MDST laminations through out, few cm- scale MDST clasts.		
90°		224.94	227.29	2.35			SST	MDST	MG	MGY								mm-cm scale MDST laminations through out, few cm- scale MDST clasts.		
70°																				
90°																				
						Box 70														
		227.29	227.69	0.40			SST	MDST	MG	MGY								As above		
	2.61					227.69														
85°		227.69	230.46	2.77			SST	MDST	MG	MGY								As above, few mm-cm scale quartz veinlets		
						Box 71														
		230.46	230.73	0.27			SST	MDST	MG	MGY								As above END PG 38		
	2.21					230.73														
80°		230.73	233.67	2.94			SST	MDST	MG	MGY			0°					As above, increasing MDST content with depth		
		233.67	233.78	0.11			ROCK LOSS											ROCK LOSS		
	2.61					233.78														
						Box 72														
		233.78	234.15	0.37			SST	MDST	MG	MGY								As above		
		234.15	235.00	0.85			MDST		VFG	DGY								Few SST laminations, mm-cm scale coaly bands, one mm-scale pyrite band on top of 5cm coal band		
		235.00	235.49	0.49	AT10226		COAL	C4										Solid, gradational contact, alternating MDST & vitrinite band, pyrite looks almost like , END PG 39	#N/A	
		235.49	235.76	0.27																
80°		235.76	236.83	1.07			SST		MG	LGY								Few mm-scale MDST laminations. Cm-scale quartz veinlets		
	2.53					236.83														

BCA	RQD	Unit		Thickne ss (m) Drilled	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1				J2				Notes	Seam
		From	To								FCD	FCA	BCD	FCA						
		236.83	237.18	0.35			SST		MG	LGY								As above		
						Box 73														
		237.18	239.88	2.70			SST		MG	LGY								As above		
	2.79					239.88														
		239.88	240.57	0.69			SST		MG	LGY								As above		
						Box 74														
		240.57	242.93	2.36			SST		F-MG	L-LGY								As above, grades into FG SST with depth, END PG 40		
	2.74					242.93														
		242.93	243.97	1.04			SST		FG	LGY								As above+mm-cm scale quartz veinlet, two 15cm MDST bands in lower half of interval		
						Box 75														
		243.97	245.77	1.80			SST		FG	LGY								As above+mm-cm scale quartz veinlet, two 15cm MDST bands in lower half of interval		
		245.77	245.97	0.20			ROCK LOSS											ROCK LOSS		
	2.84					245.97														
		245.97	246.41	0.44			SST		FG	LGY								As above		
		246.41	246.80	0.39			MDST		VFG	DGY								3cm pyrite band at top of interval, few sandy laminations, cm-scale coal lenses in middle of interval, few mm-scale quartz veinlets		
		246.80	247.58	0.78			SST		FG	MGY								SST		
						Box 76														
		247.58	247.91	0.33			SST		FG	MGY								SST, END PG 41		
		247.91	249.02	1.11			SST		FG	MGY								mm-cm scale MDST laminations throughout, mm-scale quartz veinlet		
						249.02														
90°		249.02	250.93	1.91			SST	MDST	MG	MGY								mm-cm scale MDST laminations throughout, mm-scale quartz veinlet		
						Box 77														
		250.93	252.07	1.14			SST		FG	LGY								Few cm-scale rounded MDST clasts cm-scale calcite veinlet on fravture plane		
	2.93					252.07														
80°		252.07	254.10	2.03			SST		MG	LGY								As above, MDST bands up to 5cm		
						Box 78														
		254.10	255.12	1.02			SST		MG	MGY								mm-5cm scale MDST bands		
	2.69					255.12														
		255.12	256.52	1.40			SST		MG	MGY								As above+quartz/calcite veinlet towards base of interval, END PG 42		
80°		256.52	257.44	0.92			SST	MDST	FG	MGY								mm-cm scale MDST lamiantions throughout. 5cm quartz/calcite band towards base of interval.		
						Box 79														
		257.44	258.17	0.73			SST	MDST	FG	MGY								As above (no quartz/calcite)		
	2.76					258.17														
90°		258.17	260.87	2.70			SST	MDST	FG	MGY								As above		
						Box 80														
		260.87	261.21	0.34			SST	MDST	FG	MGY								As above		
	2.85					261.21														
		261.21	261.46	0.25			SST	MDST	FG	MGY								As above		

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam
		From	To								FCD	FCA	BCD	FCA		
		261.46	261.56	0.10			ROCK LOSS								ROCK LOSS	
		261.56	264.26	2.70			MDST		VFG	DGY					few mm-scale SST lamiantions, very few cm-scale pyrite blebs	
						Box 81										
	2.80					264.26										
		264.26	267.31	3.05			MDST		VFG	DGY					As above+5cm band of cm-scale quartz bands, END PG 43	
	2.37					267.31										
		267.31	267.62	0.31			MDST		VFG	DGY					As above	
						Box 82										
		267.62	269.68	2.06			MDST		VFG	DGY					As above (no quartz bands)-few mm-scale veinlets	
		269.68	269.93	0.25			SST		VFG	LGY-WHT					Few mm-scale quartz veinlets	
		269.93	270.36	0.43			MDST		VFG	DGY					Few mm-scale quartz veinlets	
	2.35					270.36										
		270.36	271.07	0.71			MDST		VFG	DGY		0°			As above	
						Box 83										
		271.07	273.41	2.34			MDST		VFG	DGY					As above two cm bands of VFG LGY SST one with pyrite	
	2.33					273.41										
		273.41	274.47	1.06			MDST		VFG	DGY					As above (no SST bands)	
						Box 84										
		274.47	276.45	1.98			MDST		VFG	DGY		20°			As above, END PG 44	
	1.58					276.45										
		276.45	276.66	0.21			MDST		VFG	DGY					As above	
		276.66	277.74	1.08			SST		FG	MGY					Few MDST (MM) laminations (gradational contact with unit above) few mm-cm scale quartz veinlets, some pyrite	
						Box 85										
		277.74	279.50	1.76			SST		FG	MGY					Very few mm-scale quartz veinlets	
	2.34					279.50										
		279.50	280.97	1.47			SST		FG	MGY					As above	
						Box 86										
		280.97	282.23	1.26			SST		FG	MGY					As above	
		282.23	282.55	0.32			MDST		VFG	DGY					Few mm-scale SST laminations	
	2.30					282.55										
		282.55	284.15	1.60			MDST		VFG	DGY					As above, up to cm scale SST, END PG 45	
						Box 87										
		284.15	285.60	1.45			MDST		VFG	DGY					As above, increasing SST content with depth	
	2.47					285.60										
		285.60	287.40	1.80			MDST		VFG	DGY		10°			As above 5cm pyrite rich band towards base of interval. Few cm-scale quartz+coalified lenses at base of interval.	
						Box 88										
		287.40	287.64	0.24			MDST		VFG	DGY					As above	
		287.64	288.65	1.01			SST		MG	LGY					Very few mm-cm scale quartz bands.	

BCA	RQD	Unit		Thickne ss (m) Drilled	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1	J2	Notes	Seam
		From	To											
	2.82					288.65								
		288.65	290.68	2.03			SST		MG	LGY			4cm quartz band with vuggy cavities.	
						Box 89								
		290.68	290.87	0.19			SST		MG	LGY			Few mm-scale quartz lenses. END PG 46	
		290.87	291.69	0.82			MDST		VFG	DGY			Few mm-scale coalified laminations, few mm-cm scale quartz bands, some pyrite.	
	1.97					291.69								
		291.69	291.92	0.23			MDST		VFG	DGY			As above	
		291.92	293.90	1.98			SST		MG	LGY			Few mm-cm scale quartz veinlets & infilling fractures, some fragmented & crushed with angular SST Clasts	
						Box 90								
		293.90	294.74	0.84			SST		FG	LGY			As above (V.little quartz in this interval).	
	1.68					294.74								
		294.74	296.97	2.23			SST		FG	LGY	10°		As above (with quartz). 35cm quartz band with vuggy cavities and few cm-scale angular SST fragments, 4cm pyrite rich zone at base of quartz band. Polished fracture surface, END PG 47	
						Box 91								
		296.97	297.79	0.82			SST		FG	LGY			As above unit (quartz up to 3cm)	
	1.74					297.79								
		297.79	300.10	2.31			SST		FG	LGY			As above, 10cm broken zone with some gouge	
						Box 92								
		300.10	300.76	0.66			SST		FG	LGY			As above unit, (with quartz up to 5cm), few mm-MDST laminations	
		300.76	300.84	0.08			ROCK LOSS						ROCK LOSS	
	1.50					300.84								
		300.84	303.21	2.37									As above, increasing MDST content with depth	
		303.21	303.36	0.15									Few mm-scale SST lamiantions and quartz veinlets	
						Box 93								
		303.36	303.76	0.40									As above, few possible bivalve fossils, 4 cm pyrite band at base of interval, END PG 48	
		303.76	303.89	0.13			ROCK LOSS						ROCK LOSS	
	2.54					303.89								
		303.89	306.37	2.48			MDST		VFG	DGY			As above, few mm-scale coalified lenses & cm-scale pyrite blebs	
		306.37	306.69	0.32			SST		FG	LGY			Few mm-scale quartz lenses & vugs at top of unit	
						Box 94								
		306.69	306.93	0.24			SST		FG	LGY			As above	
	1.71					306.93								
		306.93	309.83	2.90			SST		FG	LGY			As above	
						Box 95								
		309.83	309.98	0.15			SST		FG	LGY			As above, few mm-cm scale MDST lamiantions	
	2.16					309.98								
45°		309.98	312.98	3.00			SST		FG	LGY			As above	
		312.98	313.03	0.05			ROCK LOSS						ROCK LOSS	
						313.03								
		313.03	313.15	0.12			SST		FG	LGY			As abovem END PG 49	

BCA	RQD	Unit		Thickne ss (m)	Samp #	Marker	Lith.	Mod.	Gr Size	Color	J1		J2		Notes	Seam	
		From	To								FCD	FCA	BCD	FCA			
						Box 96											
		313.15	315.53	2.38			SST		FG	LGY					As above, 20cm MDST band in lower half of interval		
		315.53	316.08	0.55			MDST		VFG	DGY					Few mm-cm scale SST laminations		
	2.43					316.08											
		316.08	316.21	0.13			MDST		VFG	DGY					As above		
						Box 97											
		316.21	319.13	2.92			MDST		VFG	DGY					As above, few cm-scale pyrite blebs.		
	2.59					319.13											
		319.13	319.51	0.38			MDST	SST	VFG	DGY					mm-cm scale SST laminations, one 5cm band		
						Box 98											
50°		319.51	321.40	1.89			MDST	SST	VFG	DGY					As above		
		321.40	322.17	0.77			SST	MDST	VFG	MGY					mm-cm scale MDST laminations, END PG 50		
						322.17											
		322.17	322.64	0.47			SST	MDST	VFG	MGY					As above		
						Box 99											
		322.64	325.22	2.58			SST		FG	MGY					Few mm-scale MDST laminations & quartz veinlets		
	2.14					325.22											
		325.22	325.91	0.69			SST		FG	MGY					As above + few mm-scale coalified lenses with quartz		
						Box 100											
		325.91	328.27	2.36			SST		FG	MGY					As above		
						328.27											
		328.27	329.22	0.95			SST		FG	MGY					As above		
						Box 101											
		329.22	329.44	0.22			SST		FG	MGY					As above		
		329.44	331.32	1.88			MDST		VFG	DGY					Few mm-cm scale sandy fragments, END PG 51		
						331.32											
		331.32	332.55	1.23			MDST		VFG	DGY					As above		
						Box 102											
		332.55	334.37	1.82			MDST		VFG	DGY					As above, few mm-scale quartz veinlets		
	2.70					334.37											
		334.37	335.81	1.44			MDST		VFG	DGY					As above		
						Box 103											
		335.81	337.34	1.53			MDST		VFG	DGY					As above		
		337.34	337.41	0.07			ROCK LOSS								ROCK LOSS		
	2.38					337.41											
		337.41	338.57	1.16			MDST		VFG	DGY					As above		
		338.57	338.92	0.35			SST		FG	LGY					Contact with MDST is 50°		
		338.92	339.13	0.21			MDST		VFG	DGY					Few mm-scale quartz veinlets		
						Box 104											
		339.13	340.46	1.33			MDST		VFG	DGY					As above, EOH-340.46m, END PG 52		

## Appendix 4 - Raw Coal Quality Results

Appendix 4 contains coal quality data and remains confidential under the terms of the *Coal Act Regulation*, Section 2(1). It has been removed from the public version.

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/free/10\\_251\\_2004#section2](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/free/10_251_2004#section2)



## Appendix 5 - Composite Coal Quality Results

Appendix 5 contains coal quality data and remains confidential under the terms of the *Coal Act Regulation*, Section 2(1). It has been removed from the public version.

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/free/10\\_251\\_2004#section2](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/free/10_251_2004#section2)

Appendix 6 contains coal quality data and remains confidential under the terms of the *Coal Act Regulation*, Section 2(1). It has been removed from the public version.

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/free/10\\_251\\_2004#section2](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/free/10_251_2004#section2)

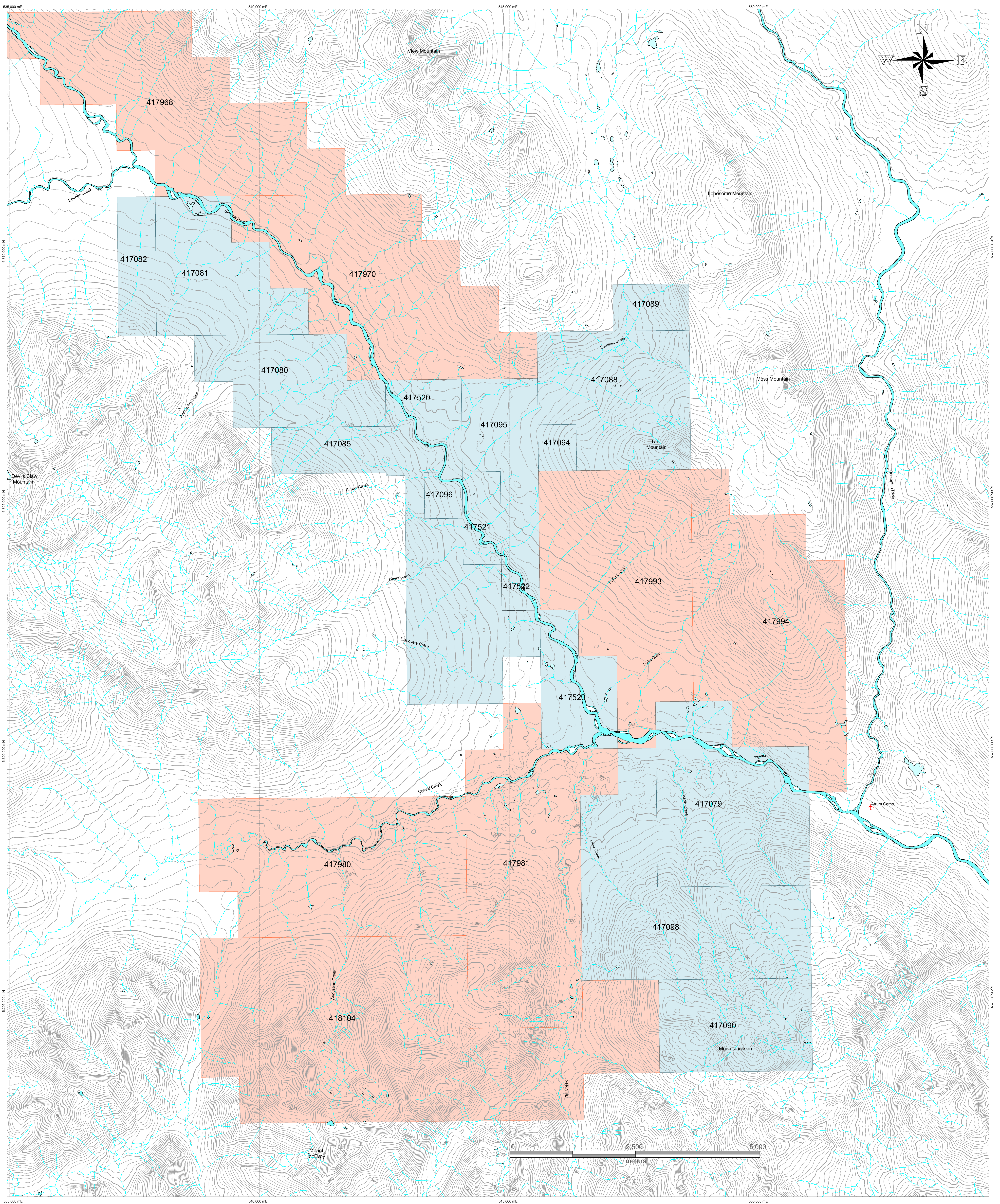
## Appendix 7 - Cost Summary Report

Exploration Work type	Comment	Days			Totals
<b>Personnel (Name) * / Position</b>	<b>Field Days (list actual days)</b>	<b>Days</b>	<b>Rate</b>	<b>Subtotal*</b>	
Brad Van Den Bussche - VP Exploration	35 days		\$0.00	\$47,250.00	
Geology Field Crew	45 days		\$0.00	\$66,997.00	
Camp Support Crew	45 days		\$0.00	\$53,037.00	
Head Office Costs (Project Related)	45 days		\$0.00	\$75,000.00	
Drillers Support Crew	45 days		\$0.00	\$38,000.00	
Environmental Monitoring Support Crew	45 days		\$0.00	\$75,890.00	
Camp Manager	45 days		\$0.00	\$15,000.00	
Expeditors and Management (CJL)	45 days		\$0.00	\$355,000.00	
Pad Builders / Core Boxes	45 days		\$0.00	\$65,400.00	
Camp Construction Crew	7 days		\$0.00	\$27,800.00	
Lyle Hobbs (COO)	22 days		\$0.00	\$45,855.00	
Moose Mountain Technical Services	45 days		\$0.00	\$172,768.00	
				\$1,037,997.00	<b>\$1,037,997.00</b>
<b>Office Studies</b>	<b>List Personnel (note - Office only, do not include field days)</b>				
Literature search			\$0.00	\$0.00	
Database compilation			\$0.00	\$0.00	
Computer modelling			\$0.00	\$14,514.00	
Reprocessing of data			\$0.00	\$0.00	
General research			\$0.00	\$0.00	
Report preparation			\$0.00	\$0.00	
Economic Analysis				\$52,327.00	
				\$66,841.00	<b>\$66,841.00</b>
<b>Airborne Exploration Surveys</b>	<b>Line Kilometres / Enter total invoiced amount</b>				
Aeromagnetics			\$0.00	\$0.00	
Radiometrics			\$0.00	\$0.00	
Electromagnetics			\$0.00	\$0.00	
Gravity			\$0.00	\$0.00	
Digital terrain modelling			\$0.00	\$0.00	
Other (specify)			\$0.00	\$0.00	
				\$0.00	<b>\$0.00</b>
<b>Remote Sensing</b>	<b>Area in Hectares / Enter total invoiced amount or list personnel</b>				
Aerial photography			\$0.00	\$0.00	
LANDSAT			\$0.00	\$0.00	
Other (specify)			\$0.00	\$0.00	
				\$0.00	<b>\$0.00</b>
<b>Ground Exploration Surveys</b>	<b>Area in Hectares/List Personnel</b>				
Geological mapping					
Regional					<i>note: expenditures here</i>
Reconnaissance					<i>should be captured in Personnel</i>
Prospect					<i>field expenditures above</i>
Underground	Define by length and width				
Trenches	Define by length and width			\$0.00	<b>\$0.00</b>
<b>Ground geophysics</b>	<b>Line Kilometres / Enter total amount invoiced list personnel</b>				
Radiometrics					
Magnetics					
Gravity					
Digital terrain modelling					
Electromagnetics					<i>note: expenditures for your crew in the field</i>
SP/AP/EP					<i>should be captured above in Personnel</i>
IP					<i>field expenditures above</i>
AMT/CSAMT					
Resistivity					
Complex resistivity					
Seismic reflection					
Seismic refraction					
Well logging	Define by total length - 4,990m			\$64,850.00	
Geophysical interpretation				\$66,050.00	
Petrophysics					
Other (specify)					
				\$130,900.00	<b>\$130,900.00</b>
<b>Geochemical Surveying</b>	<b>Number of Samples</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Drill (cuttings, core, etc.)			\$0.00	\$344,013.00	

Stream sediment			\$0.00	\$0.00	
Soil	<i>note: This is for assays or</i>		\$0.00	\$0.00	
Rock	<i>laboratory costs</i>		\$0.00	\$0.00	
Water			\$0.00	\$0.00	
Biogeochemistry			\$0.00	\$0.00	
Whole rock			\$0.00	\$0.00	
Petrology			\$0.00	\$0.00	
Other (specify)			\$0.00	\$0.00	
				\$344,013.00	<b>\$344,013.00</b>
<b>Drilling</b>	<b>No. of Holes, Size of Core and Metres</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Diamond	15 drill holes, standard core, 4,990m		\$116.61	\$581,898.87	
Reverse circulation (RC)			\$0.00	\$0.00	
Rotary air blast (RAB)			\$0.00	\$0.00	
Other (specify)			\$0.00	\$0.00	
				\$581,898.87	<b>\$581,898.87</b>
<b>Other Operations</b>	<b>Clarify</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Trenching			\$0.00	\$0.00	
Bulk sampling			\$0.00	\$0.00	
Underground development			\$0.00	\$0.00	
Engineering			\$0.00	\$5,205.00	
Environmental Studies			\$0.00	\$19,477.00	
Socio-economic Agreements			\$0.00	\$85,000.00	
				\$109,682.00	<b>\$109,682.00</b>
<b>Reclamation</b>	<b>Clarify</b>	<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
After drilling			\$0.00	\$0.00	
Monitoring			\$0.00	\$0.00	
Other (specify)			\$0.00	\$0.00	
<b>Transportation</b>		<b>No.</b>	<b>Rate</b>	<b>Subtotal</b>	
Airfare			\$0.00	\$12,958.00	
Taxi			\$0.00	\$0.00	
truck rental			\$0.00	\$6,985.00	
kilometers			\$0.00	\$0.00	
ATV			\$0.00	\$0.00	
fuel			\$0.00	\$0.00	
Helicopter (hours)			\$0.00	\$343,200.00	
Fuel (litres/hour)			\$0.00	\$111,993.00	
Other					
				\$475,136.00	<b>\$475,136.00</b>
<b>Accommodation &amp; Food</b>	<b>Rates per day</b>				
Hotel			\$0.00	\$34,560.00	
Camp			\$0.00	\$179,042.00	
Meals	day rate or actual costs-specify		\$0.00	\$0.00	
				\$213,602.00	<b>\$213,602.00</b>
<b>Miscellaneous</b>					
Telephone			\$0.00	\$22,852.00	
Other (Specify)			\$0.00	\$0.00	
				\$22,852.00	<b>\$22,852.00</b>
<b>Equipment Rentals</b>					
Field Gear (Specify)			\$0.00	\$0.00	
Other (Specify)			\$0.00	\$0.00	
				\$0.00	<b>\$0.00</b>
<b>Freight, rock samples</b>					
Laboratory Freight Charges (Coal Samples)			\$0.00	\$66,250.00	
Other (Specify)			\$0.00	\$0.00	
				\$66,250.00	<b>\$66,250.00</b>
<b>TOTAL Expenditures</b>					<b>\$3,049,171.87</b>

## Appendix 8 - Maps and Cross Sections





### Groundhog Anthracite Project Tenure Blocks

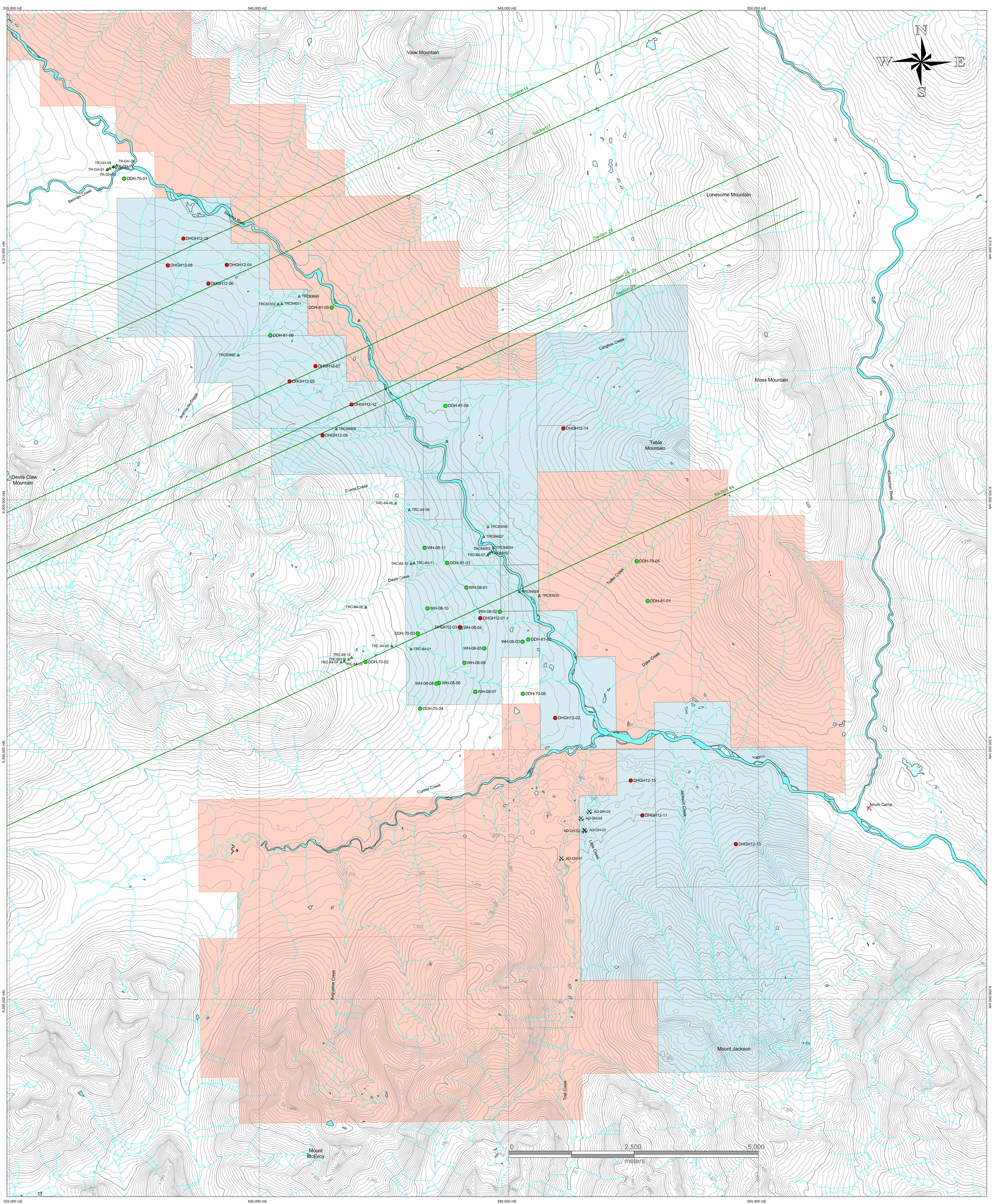
Company: Atrium Coal Groundhog Inc. | Date: 28/10/2013 | Scale: 1:25000  
 Project: Groundhog Anthracite | Author: Daniel Campbell | Projection: UTM Zone 9 (NAD 83)

### Legend

- Coal License
- Coal License Application
- Creek







## Groundhog Anthracite Project 2012 Exploration

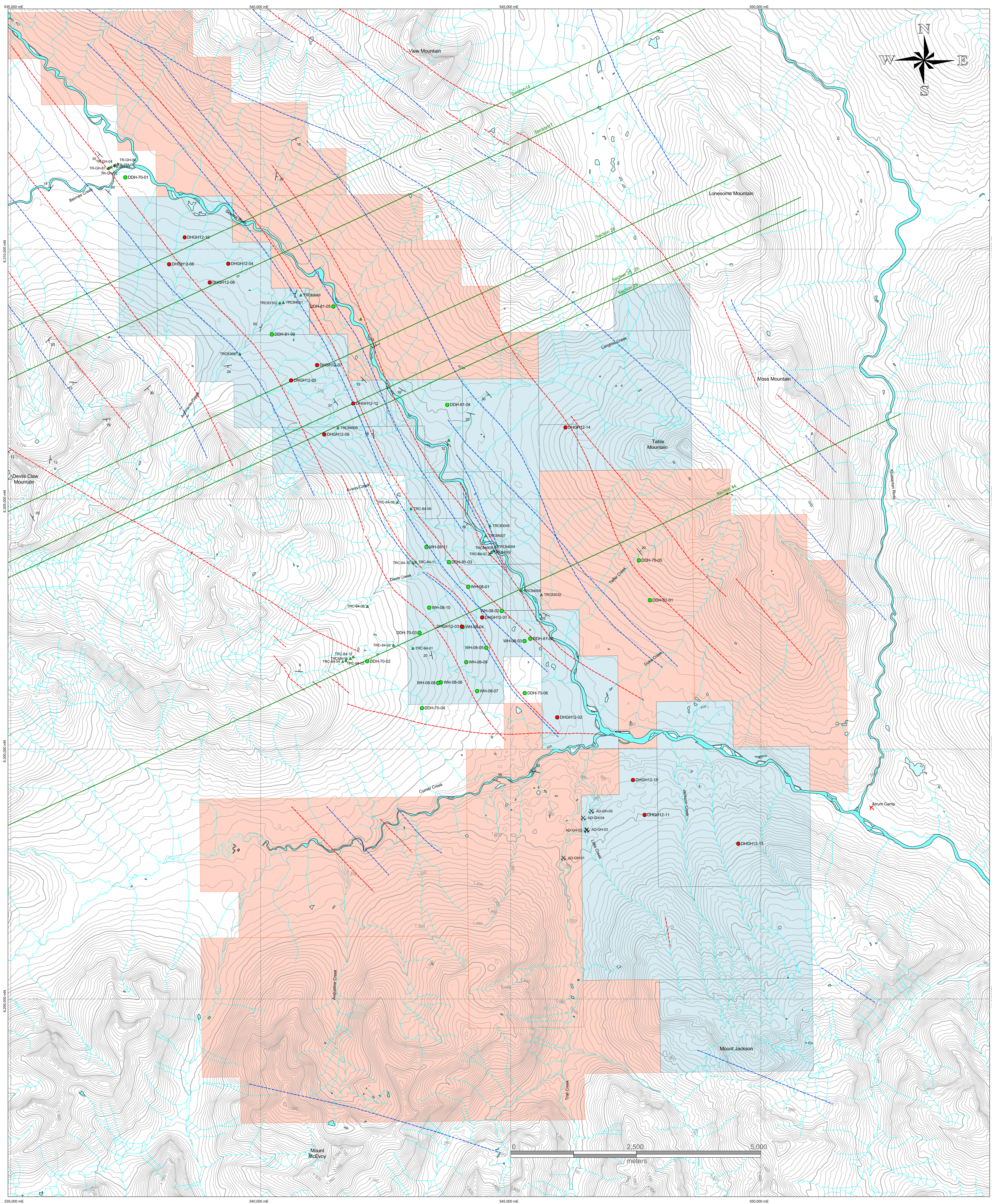
Company: Atrium Coal Groundhog Inc. | Date: 28/10/2013 | Scale: 1:25000  
 Project: Groundhog Anthracite | Author: Daniel Campbell | Projection: UTM Zone 9 (NAD 83)

### Legend

- 2012 Drillhole
- ▲ Pre-2012 Trench
- Section Line
- Coal License
- Pre-2012 Drillhole
- × Pre-2012 Adit
- Creek
- Coal License Application







## Groundhog Anthracite Project Geology and Section Lines

Company: Atrium Coal Groundhog Inc. | Date: 28/10/2013 | Scale: 1:25000  
 Project: Groundhog Anthracite | Author: Daniel Campbell | Projection: UTM Zone 9 (NAD 83)

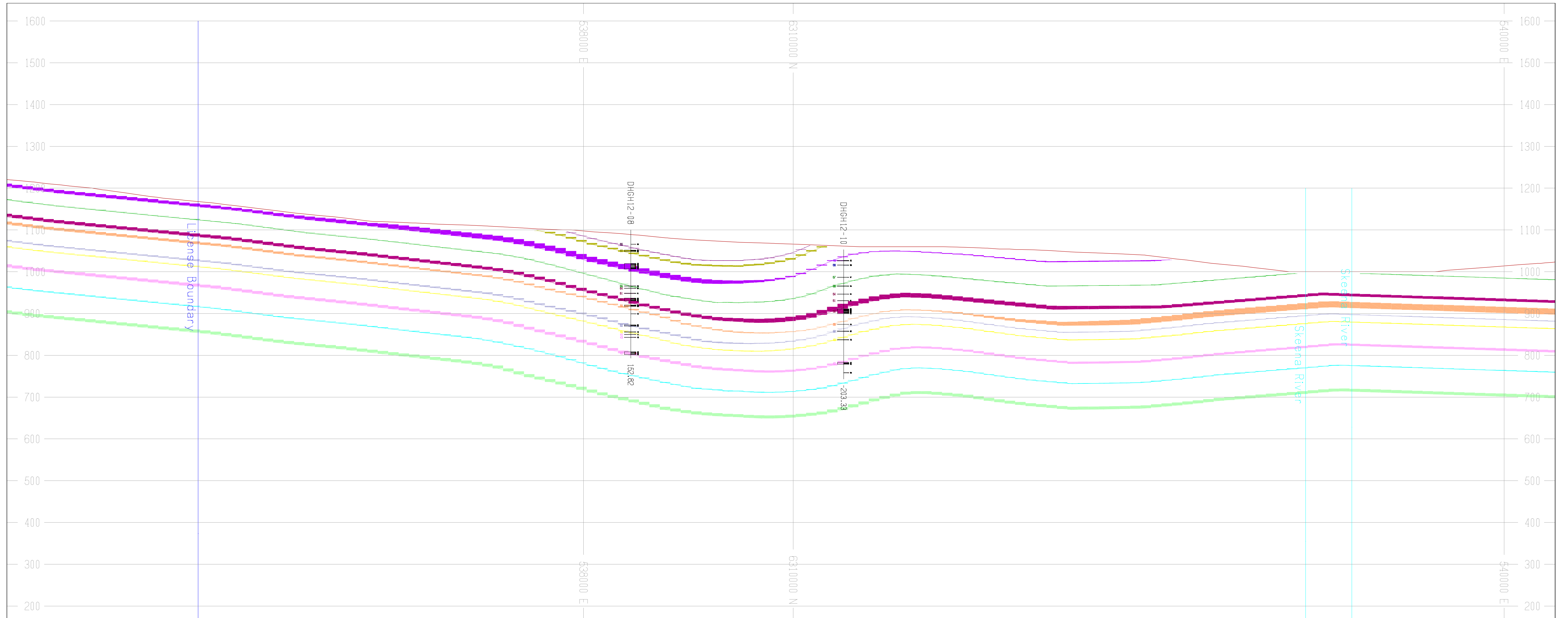
### Legend

- 2012 Drillhole
- ▲ Pre-2012 Trench
- ∕ Pre-2012 Bedding
- Anticline
- Coal License
- Pre-2012 Drillhole
- × Pre-2012 Adit
- Section Line
- Syncline
- Coal License Application
- Creek

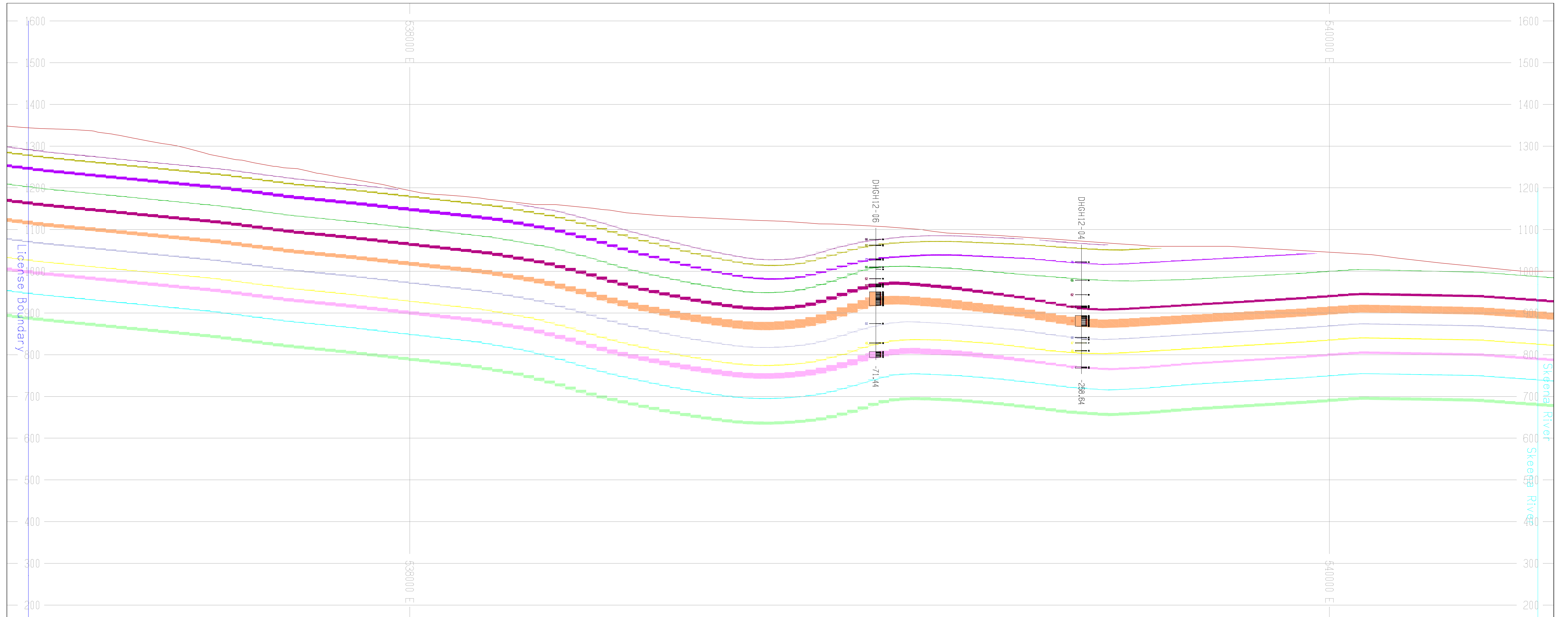
\*Surface geology is a compilation of pre-2012 assessment reports



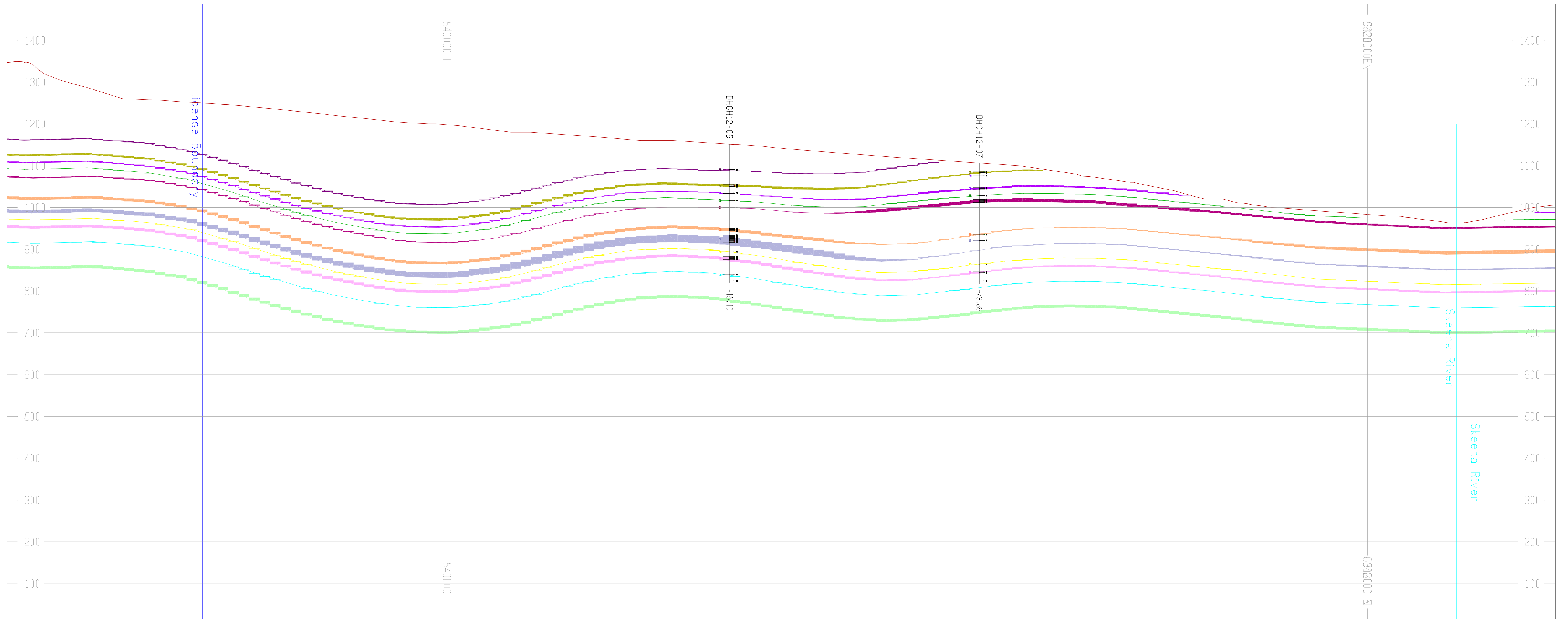





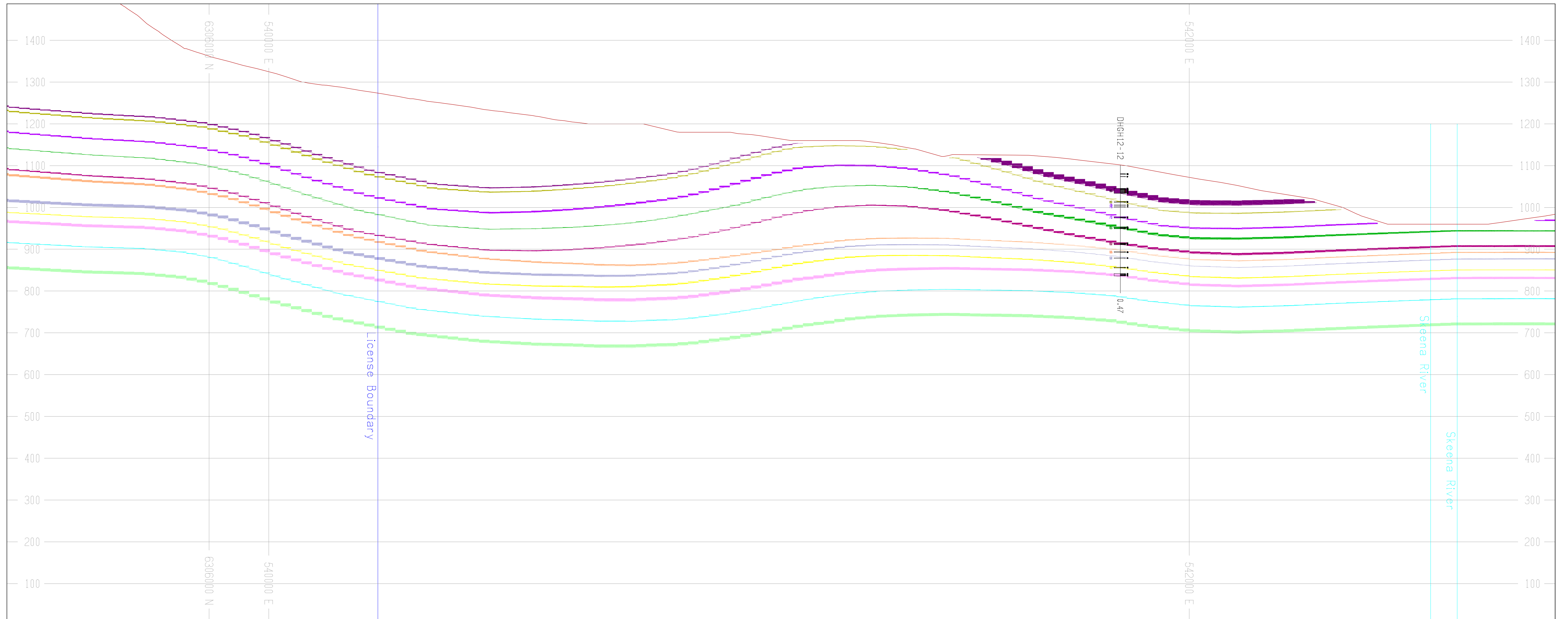
	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li>&lt; 30</li> <li>&gt;= 30</li> <li>&gt;= 35</li> <li>&gt;= 40</li> <li>&gt;= 45</li> <li>&gt;= 50</li> <li>&gt;= 54</li> <li>&gt;= 55</li> <li>&gt;= 60</li> <li>&gt;= 65</li> <li>&gt;= 68</li> <li>&gt;= 70</li> <li>&gt;= 80</li> <li>&gt;= 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	14	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	



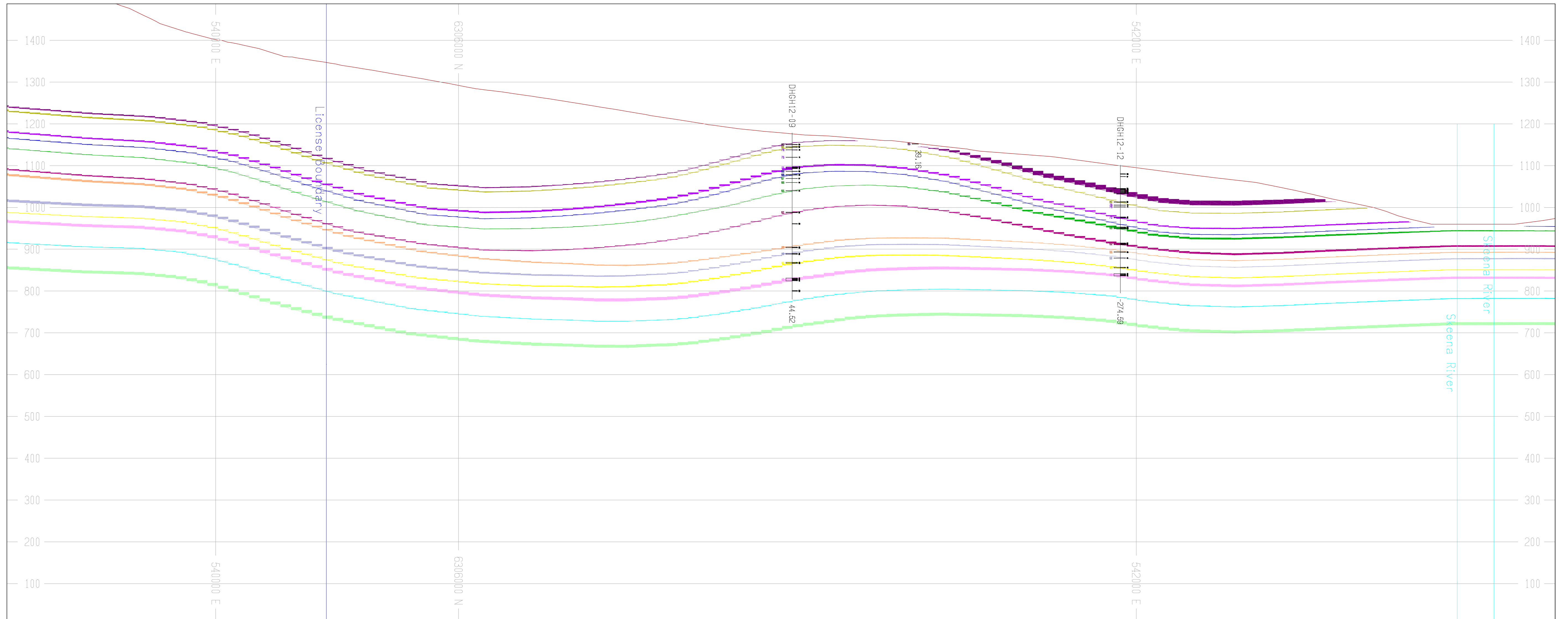
	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li>&lt; 30</li> <li>&gt;= 30</li> <li>&gt;= 35</li> <li>&gt;= 40</li> <li>&gt;= 45</li> <li>&gt;= 50</li> <li>&gt;= 54</li> <li>&gt;= 55</li> <li>&gt;= 60</li> <li>&gt;= 65</li> <li>&gt;= 68</li> <li>&gt;= 70</li> <li>&gt;= 80</li> <li>&gt;= 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	17	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	



	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #cccccc; border: 1px solid black;"></span> &lt; 30</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> &gt;= 30</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #00ffff; border: 1px solid black;"></span> &gt;= 35</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ff00ff; border: 1px solid black;"></span> &gt;= 40</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffff00; border: 1px solid black;"></span> &gt;= 45</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #999999; border: 1px solid black;"></span> &gt;= 50</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #808080; border: 1px solid black;"></span> &gt;= 54</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ffa500; border: 1px solid black;"></span> &gt;= 55</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ff0000; border: 1px solid black;"></span> &gt;= 60</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #008000; border: 1px solid black;"></span> &gt;= 65</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #0000ff; border: 1px solid black;"></span> &gt;= 68</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #ff00ff; border: 1px solid black;"></span> &gt;= 70</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #999999; border: 1px solid black;"></span> &gt;= 80</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: #800080; border: 1px solid black;"></span> &gt;= 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	25	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	

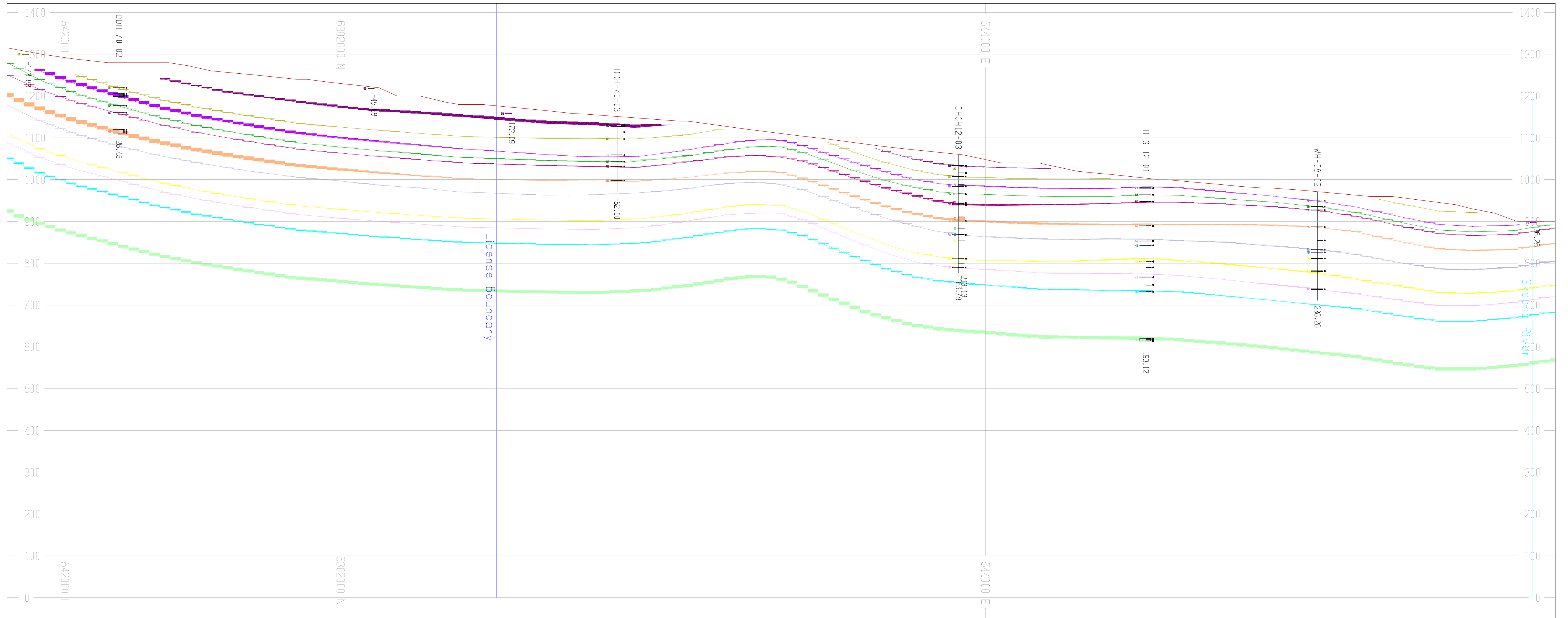


	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: grey; border: 1px solid black;"></span> &lt; 30</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: lightgreen; border: 1px solid black;"></span> &gt; 30</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: cyan; border: 1px solid black;"></span> &gt; 35</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: pink; border: 1px solid black;"></span> &gt; 40</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: yellow; border: 1px solid black;"></span> &gt; 45</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; border: 1px solid black;"></span> &gt; 50</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: brown; border: 1px solid black;"></span> &gt; 54</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: orange; border: 1px solid black;"></span> &gt; 55</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black;"></span> &gt; 60</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: green; border: 1px solid black;"></span> &gt; 65</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; border: 1px solid black;"></span> &gt; 68</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: purple; border: 1px solid black;"></span> &gt; 70</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: olive; border: 1px solid black;"></span> &gt; 80</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: darkpurple; border: 1px solid black;"></span> &gt; 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	25_29	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	



	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li>&lt; 30</li> <li>&gt; 30</li> <li>&gt; 35</li> <li>&gt; 40</li> <li>&gt; 45</li> <li>&gt; 50</li> <li>&gt; 54</li> <li>&gt; 55</li> <li>&gt; 60</li> <li>&gt; 65</li> <li>&gt; 68</li> <li>&gt; 70</li> <li>&gt; 80</li> <li>&gt; 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	29	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	





	PROJECT:	Groundhog Anthracite Project	<p>Legend Seam No</p> <ul style="list-style-type: none"> <li>&lt; 30</li> <li>&gt; 30</li> <li>&gt; 35</li> <li>&gt; 40</li> <li>&gt; 45</li> <li>&gt; 50</li> <li>&gt; 54</li> <li>&gt; 55</li> <li>&gt; 60</li> <li>&gt; 65</li> <li>&gt; 68</li> <li>&gt; 70</li> <li>&gt; 80</li> <li>&gt; 85</li> </ul>
	COMPANY:	ATRUM COAL GROUNDHOG Inc.	
	DATE:	1/10/2013	
	AZIMUTH	345	
	SECTION No:	44	
	SCALE:	X = 1mm : 5000mm	
		Y = 1mm : 5000mm	