Report
P-16-03
December 2016

Thermal data for paleoclimate calculations from boreholes at Lake Vättern

Jan Sundberg
Jens-Ove Näslund
Lillemor Claesson Liljedahl
John Wrafter
Matt O'Regan
Martin Jakobsson
Pedro Preto
Sven Åke Larson

SVENSK KÄRNBRÄNSLEHANTERING AB

SWEDISH NUCLEAR FUEL
AND WASTE MANAGEMENT CO

Box 250, SE-101 24 Stockholm
Phone +46 8 459 84 00
skb.se

SVENSK KÄRNBRÄNSLEHANTERING

ISSN 1651-4416
SKB P-16-03
ID 1523315

December 2016

Thermal data for paleoclimate calculations from boreholes at Lake Vättern

Jan Sundberg, Chalmers University of Technology, Editor

Jens-Ove Näslund, Lillemor Claesson Liljedahl,
Svensk Kärnbränslehantering AB

John Wrafter, SWECO

Matt O'Regan, Martin Jakobsson, Pedro Preto,
Stockholm University

Sven Åke Larson, Terralogica AB

December 2016

Keywords: Heat flow, Thermal conductivity, Vättern, Climate, GSTH, Borehole.

Preface

The following report describes temperature measurements and petrographical data from a drillhole located in the Lake Vättern, Sweden. The drilling of the cored borehole was performed from a barge deck. Asera mining gave permission to measure the temperature in the borehole, short before the barge deck was moved and the borehole was sealed. Further Asera mining made part of the data from the borehole available such as core mapping data, mineralogical analyses, and has also made the drill core available for sampling. The study was initiated and managed by Dr. Jan Sundberg (Chalmers University of Technology) and Prof. Jens-Ove Näslund (SKB). Jan Sundberg has been editor of the report. Jens-Ove Näslund contributed with putting the study into a SKB climate research context and with general scientific input. Matt O'Regan, Pedro Preto and Martin Jakobsson, Stockholm University, has written the parts concerning Vättern and sediments. Heat flow calculations and thermal rock properties have been written by Jan Sundberg (Chalmers) and John Wrafter (SWECO). Sven Åke Larson (Terralogica) has made the description of the samples measured and of the regional geology. The report manuscript was reviewed by Lillemor Claesson Liljedahl (SKB).

The results will be used, together with other published scientific information, for constructing future climate scenarios for SKB:s work on assessing the long-term safety of the nuclear waste repositories in Sweden.

Stockholm, December 2016

Jens-Ove Näslund
Research coordinator Climate Programme SKB

Abstract

This report presents and evaluates the results of temperature logging in the deep cored borehole Bh32012 in Lake Vättern, southern Sweden as well as thermal property measurements on drill core samples from the same borehole. The objective with the report is to present original and processed data relevant for future calculation of the ground surface temperature history based on the temperature distribution in the borehole.

The report presents the following data and results:

- Overall description on bedrock geology and sedimentology.
- Temperature logging data.
- Thermal conductivity, thermal diffusivity and heat capacity measurements on rock drill core samples.
- Thermal conductivity, thermal diffusivity and heat capacity measurements on sediment samples.
- Calculated temperature gradients.
- Calculated heat flow density.
- Boundary conditions (lake temperatures).

The 2000 m long borehole was drilled from a barge deck. The lake bottom at the drill site was at approximately 100 m. The vertical depth of the borehole is approximately 1820 m below the lake floor. At top of the borehole there is quaternary sediments followed by sandstone from approximately 155 meters depth and diorite from 341 m.

The mean thermal conductivity in the dominant diorite is estimated to 2.23 W/(m·K) and the diffusivity $1.02 \cdot 10^{-6}$ m^2/s. A downward vertical increase in Heat Flow Density (HFD) is observed. In the sandstone, at depths of 155−341 m, the calculated HFD varies from 10 to 34 mW/m^2. In the underlying diorite, HFD increases from about 35 mW/m^2 at a depth of 400 m to 47 mW/m^2 at 1800 m.

The calculated HFD values are uncorrected for influence from the lake floor surface temperature history due to climate changes. The influence on the heat flow from internal heat production in the sandstone and the diorite is small, approximately 0.1 mW/m^2 per 1000 m rock.

Sammanfattning

I denna rapport presenteras och utvärderas resultaten av en temperaturloggning i ett djupt kärnborrhål Bh32012 i Vättern i södra Sverige samt mätningar av termiska egenskaper på borrkärnor från samma borrhål. Syftet med rapporten är att presentera data som är relevanta för framtida beräkning av markytans temperaturhistoria baserad på temperaturfördelningen i borrhålet.

Rapporten presenterar följande data och resultat:

- Övergripande beskrivning på berggrundsgeologi och sedimentologi.
- Temperaturloggningsdata.
- Värmeledningsförmåga, termisk diffusivitet och värmekapacitet från mätningar på bergborrkärnor.
- Värmeledningsförmåga, termisk diffusivitet och värmekapacitet från mätningar på sedimentprover.
- Beräknade temperaturgradienter.
- Beräknat värmeflöde och variation.
- Randvillkor (sjötemperaturer).

Det 2000 m långa borrhålet borrades från ett prämdäck. Sjöns djup vid borrplatsen var cirka 100 meter. Borrhålets vertikala djup är cirka 1820 m under sjöns botten. I den övre delen av borrhålet finns kvartära sediment som följs av sandsten från cirka 155 meters djup och diorit från 341 meters djup.

Medelvärdet av värmeledningsförmågan i den dominerande dioriten uppskattas till 2.23 W/(m·K) och diffusiviteten $1.02 \cdot 10^{-6}$ m^2/s. En nedåtriktad vertikal ökning av värmeflödet kan observeras. I sandstenen, på djupet 155−341 m, varierar det beräknade värmeflödet från 10 till 34 mW/m^2. I den underliggande dioriten ökar värmeflödet från ca 35 mW/m^2 på ett djup av 400 m till 47 mW/m^2 vid 1800 m.

De beräknade värmeflödena är okorrigerade för temperaturhistorien vid sjöns botten på grund av klimatförändringar. Påverkan på värmeflödet från värmeproduktionen i sandsten och diorit är liten, cirka 0.1 mW/m^2 per 1000 m berg.

Contents

1 Introduction

This report presents and evaluates the results of temperature logging in the deep borehole Bh32012 (also called Bh 3) in Lake Vättern, southern Sweden, as well as thermal property measurements on drill core samples from the same borehole. The borehole was drilled as part of an iron ore exploration project carried out by Asera Mining AB. The location of the drill site is shown in Figure 1-1. Lake Vättern is the second-largest lake in Sweden and is 135 km long and has a maximum width of 31 km.

The cored borehole was drilled (wire line coring system) during the period June 29 to September 26, 2012. The drilling was made from a barge deck on Lake Vättern with casing from a level slightly above the barge deck, through the water and sediment, down to 207 m from barge deck (HW casing down to 108 m and PW casing down to 207 m from barge deck, drilling with HQ and NQ rods). From the barge deck the borehole was drilled to a length of 2000.4 m. The lake bottom was located 98 m below the barge deck. The borehole was surveyed on September 28 2012, from top of casing (TOC) to a borehole length of 1881 m. The geological and technical data from the borehole is shown in Appendix 1 and 3. In addition, five closely spaced sediment boreholes were drilled in November 2012, within a radius of approximately 20 m from the deep borehole.

An earlier deep drilled cored bore hole (Bh 2) is situated on the west shore of the south west part of Lake Vättern. Attempts to perform temperature logging in this hole has so far failed due to technical reasons. Coordinates for both boreholes are found in Appendix 1 and 2.

The borehole Bh32012 was logged for temperature on October 23 2012, i.e. about 4 weeks after the termination of drilling.

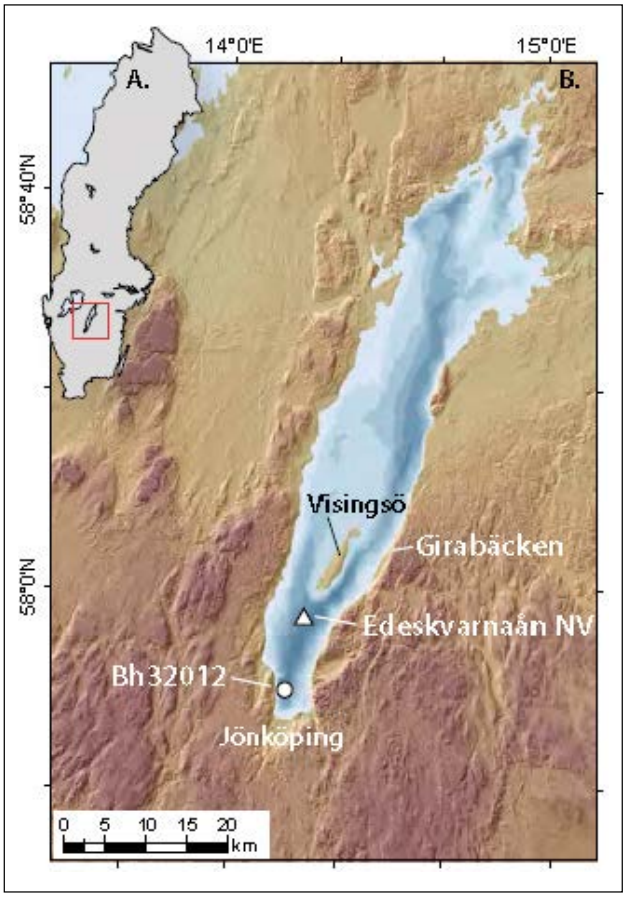


Figure 1-1. *A) Map of Sweden illustrating the location of Lake Vättern and the study site. B) Detailed view of Lake Vättern with the location of the drill site (Bh32012), and other locations discussed in the text. Made in ARC MAP based on terrestrial topography from national LiDAR digital elevation model (© Lantmäteriet), with bathymetric contours from Norrman (1964).*

2 Objective and scope

The objective with this report is to present original and processed data relevant for future calculation of the ground surface temperature history based on the temperature distribution in Bh32012 in Lake Vättern.

This report presents the following data and results for borehole Bh32012 in Lake Vättern:

- Overall description on bedrock geology and sedimentology.
- Temperature logging data.
- Thermal conductivity, thermal diffusivity and heat capacity measurements on rock drill core samples.
- Thermal conductivity, thermal diffusivity and heat capacity measurements on sediment samples.
- Calculated temperature gradients.
- Calculated heat flow density.
- Boundary conditions.

3 Lake Vättern – Geology and lake conditions

3.1 Regional bedrock geology

Approximately 700 million year old sedimentary rocks are preserved in the Vättern depression. They were formed by gravel, sand and clay which were deposited into water. The dominating rock is the yellowish sandstone the so-called Visingsö sandstone. Due to faulting along the coastline of Lake Vättern these easily weathered rocks were preserved since they were protected from erosion by the surrounding and more resistant, older granitic rocks. To the west of the lake, granitoids dominate although metagabbro and volcanics are present as well. Most of these rocks are foliated since they were deformed during several events (Larson 1994). On the eastern side of the lake, less deformed and partly massif granitoids dominate, belonging to the so-called Transscandinavian Igneous Belt. These granitoids have ages of approximately 1.7–1.8 billion years, i.e. similar in age to some of the deformed granitoids west of Lake Vättern (Larson 1994, Åhäll och Larson, 2000).

3.2 The Visingsö group

A vertical section through the sedimentary sequence can be studied at the nature reserve at Girabäcken north of Gränna town. The reserve is situated in a valley where a small stream discharges into Lake Vättern. There are several outcrops present. A reversed succession is caused by shore line parallel faults so that the youngest sedimentary layers are now exposed at the bottom of the sequence, at the shore line, whereas the oldest layers are found at higher elevations in the valley. The stratigraphy in Girabäcken is visualized in Figure 3-1.

The oldest sedimentary rock is a quartz rich sandstone which is overlain by a more feldspar rich sandstone, a so-called arkose. The younger sedimentary rocks include a carbonate rich sandstone, slate and lime-stone. Variations in composition are due to changes in the depositional environment, among others water depth. The total, original thickness of Visingsö sediments is estimated to be more than 1000 meters. The sandstone has been quarried during a restricted period in the beginning of the nineteenth century.

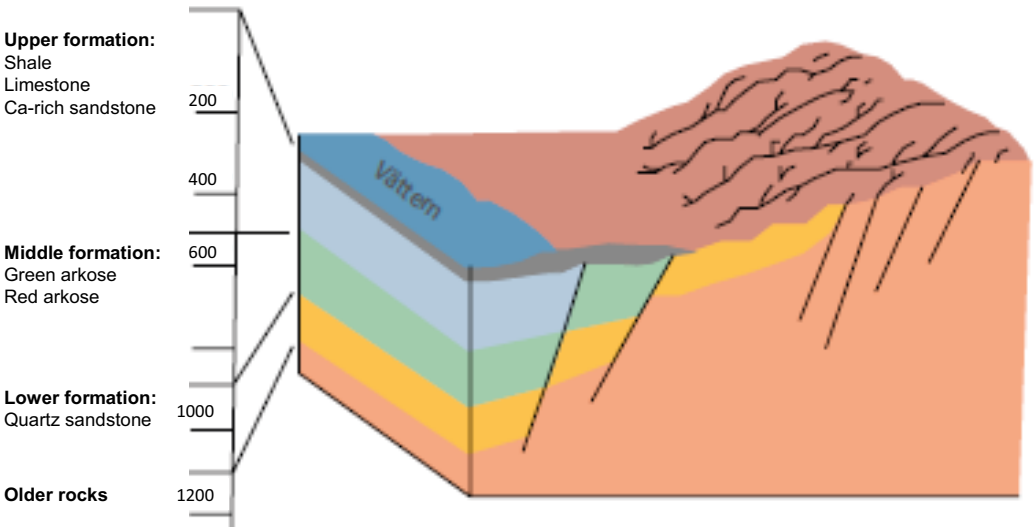


Figure 3-1. *The stratigraphy in Girabäcken. Modified from Morad and Collini (1991).*

3.3 Lake sediments

Seismic reflection profiles in southern Lake Vättern reveal more than 200 meters of glacially deposited and overidden sediments capped by c 75 m of deglacial and postglacial clays (Jakobsson et al. 2014). Across the basin, these deglacial-postglacial sediments attain highly variable thicknesses and include shore sediments, glaciofluvial ice-margin deposits, glaciofluvial suspended sediments (varved clay), postglacial to recent slope deposits and silty-clay sediments with high organic content (Gyttja clay) (Norrman and Königsson 1972).

At the drilling site, the upper 74 m of the sediment column was cored in 5 separate holes, each with variable amounts of recovery. A composite sedimentary column was constructed by integrating the recovered cores from these sites using high-resolution measurements of the sediment physical properties acquired on a multi-sensor core logger (Swärd et al. 2016). The sedimentary sequence described using three primary lithostratigraphic units (Table 3-1, Figure 3-2). No sediment cores were collected between 75−155 below the lake floor (mblf), where the drillers logs reported encountering 'sandy sediments' at 81mblf, and beginning at 113 mblf, pebble- and cobble-sized clasts of sandstone and mafic rocks were encountered. In seismic reflection data, sediments between 75−155 mblf are described by 3 different seismic units, interpreted as glacially overridden pro-glacial lake clays, glaciofluvial sediments and tills (Greenwood et al. 2015).

Table 3-1. Lithostratigraphic units and general lithology of Lake Vättern sediments from the upper 74 meters below the lake floor (mblf).

Sediment Unit	Interval (mblf)	General lithology
1	0−15	Gyttja clay
2	15−25	Post-glacial silty clay
3	25−74	Pro-glacial silty clay

Unit 3 (70−25 mblf), Pro-glacial clay

The sediments in Unit 3 are reddish- to greyish- brown clayey-silts with numerous coarser sand lenses. The unit contains the highest carbonate content and has relatively low organic carbon contents (TOC) (Figure 3-2). The sequence is laminated, with darker, higher bulk density sediments being coarser and containing more Ca than the interleaving lighter sediments. These cyclic changes are typical of varved glacial clays. The thickness of the varves changes substantially throughout the unit with decimeter scale varves present at the base, and mm-scale varves near the top. Lithostratigraphic Unit 3 is interpreted as glacial clay, deposited in a proglacial water body. An unconformity exists within Unit 3 at 54 mblf. The underlying sediments are highly deformed and overconsolidated. They are interpreted as being sediments overridden by glacial ice during an ice sheet re-advance that occurred prior to the Younger Dryas period (O'Regan et al. 2016, Greenwood et al. 2015).

Unit 2 (25−15 mblf), Post-glacial clay

The transition between Unit 3 and Unit 2 is characterized by a change from reddish-brown to sulfide laminated dark greenish-grey clayey silt. A similar colour and compositional change is reported from other lake sediments in the region, and described as the sedimentological sign for the drainage of the Baltic Ice Lake, and the transition from the Younger Dryas to the Preboreal chronozone (Strömberg 1992, Brunnberg 1995, Andrén et al. 2002). The TOC (Total Organic Carbon) content remains relatively low throughout Unit 2 (< 0.8%). Carbonate is low and comparatively stable compared to the glacial clay sequence of Unit 3. Grain size data reveals a change towards a coarser regime with increased sand and sortable silt fractions (Figure 3-2). Distinct cm-scale black sulfide laminations occur at the base of Unit 2 and become much less pronounced, and even absent, by 21 mblf.
A gradational colour change occurs through Unit 2, transitioning from the dark greenish grey clayey silt to dark grey clayey silt.

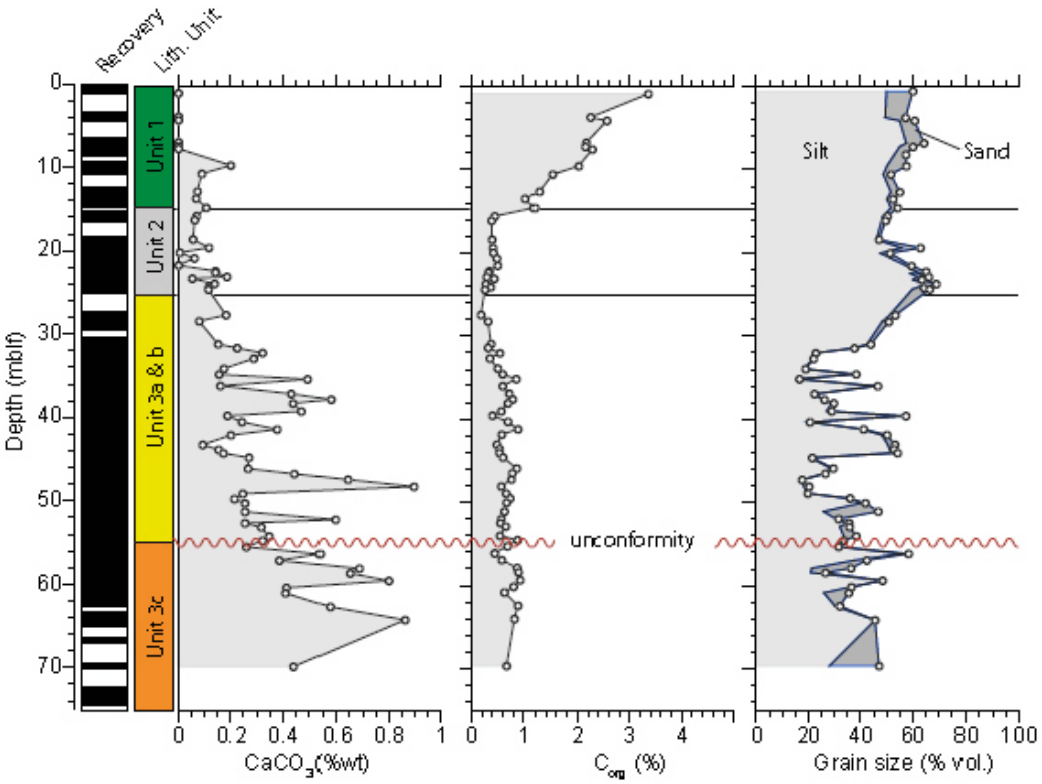


Figure 3-2. *Lithologic Units and composite recovery (black = recovered, white = gaps in record), for the 74 m of cored sediments at the Lake Vättern drill site. Discrete measurements of calcium carbonate content ($CaCO_3$), total organic carbon content (Corg), and grain size are from Swärd et al. (2016), and are shown to illustrate some of the key lithological changes between the Units. The unconformity at 54 mblf, interpreted as a glacial ice-grounding event (O'Regan et al. 2016), is shown by the red wavy line separating subunit 3c from 3a and 3b. No recognised change in sediment composition occurs across this boundary.*

Sediments at the base of Unit 2 are highly deformed, containing micro-faulted and compressed sulphide laminations. The most striking deformation structures are captured at the same interval in cores from 2 different boreholes, indicating that drilling disturbances did not cause the deformation. Instead, the deformation is attributed to one or more episodes of neotectonic seismic activity– likely in response to isostatic adjustments following the retreat of the Scandinavian ice sheet (Jakobsson et al. 2014, Swärd et al. 2016).

Unit 1 (0−15 mblf), Lacustrine Clay

The boundary between Unit 2 and Unit 1 is marked by a change from dark grey to grey and brown silty clay. The organic carbon content begins to increase steadily from the base of Unit 1 to the lake floor, but does not exceed 3.5% (Figure 3-2). At 10 mblf, fine, parallel and undisturbed mm-scale sulphide laminations become clearly visible in the recovered gyttja clay. Unit 1 is interpreted as lacustrine clays, deposited in an isolated lake environment (Swärd et al. 2016).

3.4 Lake floor temperature boundary conditions

Measurements of water column temperatures in Lake Vättern are available for the period between 1972 and 2003 from the Edeskvarnaån NV site, located at lat. 57.90746451 N, long. 14.22919088 E, approximately 9 km away from the drilling site (http://www.slu.se/miljodata-MVM). The measurements are recorded at discrete depth intervals and extend down to 115−120 m water depth. The time series cover the months of April through October (Figure 3-3).

In late spring (May), the water column exhibits a homogenous temperature profile close to +4°C, with no thermal stratification (Figure 3-3). Throughout the spring, warming surface waters become mixed with the underlying water masses, and thermal stratification takes place. In Vättern, thermal stratification is comparatively weak. By June, it is developed at a depth of approximately 10−20 m (Kvarnäs 2001) (Figure 3-3). By the end of the summer, and throughout the autumn, surface cooling and densification, together with wind driven mixing, destabilise the water column (Kvarnäs 2001). Although surface water cooling continues throughout the autumn, bottom water temperatures continue to rise due to mixing with the relatively warmer surface waters (Figure 3-3). Although measurements through the winter months are not available, it is clear from the available data, that between October and April the bottom waters continue to cool, and at some point in winter likely drop below +4°C.

Over longer, millennial to geological timescales, little is known about the bottom water temperature in Lake Vättern. Because it is coupled to surface air temperature variations, it clearly has fluctuated through time. For example, Dokulil et al. (2006) used the data seen in Figure 3-3 to show that the bottom water temperatures of Lake Vättern, along with 11 other deep lakes from across Europe, have experienced a slight warming trend (0.1−0.2°C/decade) over the past 20−50 years. Inter-annual variation in the bottom water temperatures may be driven by changes in large-scale climatic processes in the North Atlantic (Dokulil et al. 2006).

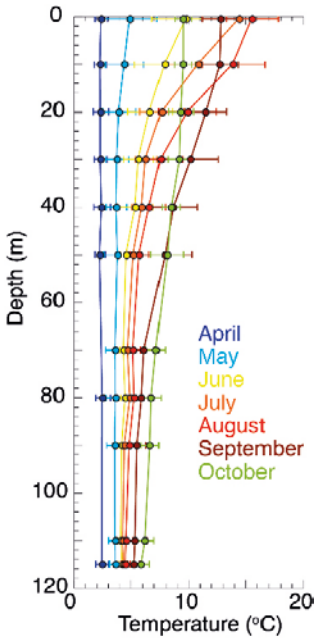


Figure 3-3. *Monthly averaged water column temperatures from Edeskvarnaån NV, in southern lake Vättern. Averages calculated from measurements taken between 1972 and 2003. Error bars represent 1 standard deviation. Data downloaded from http://www.slu.se/miljodata-MVM.*

4 Data – Description and processing

4.1 The rock drill core

The rock drill core first consists of sandstone in varying colours of yellow to reddish brown and with varying content of quartz and feldspar. The sandstone is present in the core from approximately 155 meters below the lake floor to a core-length of 439.5 meters. Discordant bedding shows that the sandstone, at least during some times, was deposited in flowing water. Correlations to the stratigraphy in Girabäcken, Figure 3-1, are unclear. A reason could be lateral variations and breaks due to the extensive tectonic disturbance along the Vättern depression.

In the core, the sandstone is followed by a few meters of granodiorite mixed with a diorite. The latter is present to the very end of the core at 1997.4 meters core length. A photo on sandstone and diorite samples is found in Appendix 4.

The core drilled borehole from the western shore of Lake Vättern penetrates layers of sandstone ending at 102.6 meters core-length. Then granitoids are present to a core-length of 1123 meters where it is succeeded by a diorite. The diorite is then present from here to the very end of the core at 2000 meters core-length. Within the diorite both susceptibility as well as density vary abruptly within short distances.

The age of the diorite is unclear but may be coeval to the granitoid magmatism but could also be somewhat younger than this. Concerning mineral alteration the diorite looks more affected than the gabbro, which is present in Smålands Taberg some kilometres to the south (Larson S Å 2016, personal communication). This means that it may be older than 1.2 billion years. However, it is important to keep in mind that the lake Vättern depression has been the place of intense tectonic movements.

4.2 Borehole temperature

On October 23, 2012, the in-situ temperature was measured with an ANTARES miniature temperature probe at one-second intervals from the top of casing (barge deck) to a borehole length of 1950 m. The ANTARES miniature temperature loggers are made of stainless steel and are 16 cm long and 1.5 cm in diameter. They have an operational range of −5 to 50ºC, with a resolution of 0.001ºC (Pfender and Villinger 2002).

The temperature logging was generally performed at a speed corresponding to between 2 and 3 temperature measurements per meter. At certain intervals, about 475 m, 1125 m and 1400 m, the logging tool slowed down or stopped completely resulting in a much higher frequency of temperature measurements per meter, up to 60 per meter in one case. The temperature logs presented and used in this report were acquired from this downhole logging.

True vertical depth (TVD) was calculated for each temperature measurement point along the borehole using the “Low tangential method”. TVD is calculated from the borehole deviation survey including a) borehole length and b) dip expressed as deviation from vertical. Dip values at regular 3 meter intervals were obtained from the survey results. A dip value was assigned to each temperature logging point along the borehole. The measured dip at a given borehole length was assigned to each temperature logging point within an interval 1.5 m above and below the position of the measured dip, for example, the dip for the borehole length interval between 1.5 m and 4.5 m was assumed to be the same for the dip measured at 3 m borehole length. There are no survey data available for the borehole length 1882 m to 1950 m. For this reason, the dip at 1882 m has been assigned to this borehole interval.

The processing of the data included removing of data from borehole intervals at which the logging tool slowed down or stopped completely. Data from the casing extending from the barge deck down to the bottom of Lake Vättern have also been removed.

True vertical depths were adjusted in some graphs so that the lake bottom is equal to 0 m, i.e. the lake bottom is equal to the top of borehole Bh32012. Depth increases positive in the downward direction.

Before calculating temperature gradients the temperature loggings were filtered using a 3 point moving average filter. The temperature gradient was calculated at each temperature logging point using the following as input:

a) the difference in vertical depth between 20 temperature logging values (usually corresponding to between 8 m and 12 m of borehole section),

b) the temperature difference for the same depth interval.

The temperature versus depth is presented in Figure 4-1. In Figure 4-1 (right) the upper part (0−400 m) of the temperature data is presented. The temperature development in the water column and the quaternary deposit are also shown. The temperature at the lake bottom (approximately 100 m) is approximately 5.7°C (as measured on October 23, 2012) and a high gradient is visible close to the bottom (1°C over a few meters). This number is close to the monthly mean temperature at 110 m depth in Figure 3-3 for October month. A temperature wave representing a slightly higher temperature seems to be present in the sediments slightly below the lake floor water (Figure 4-1 (right)).

A potential error in the temperature log may be caused by remaining thermal disturbance from drilling. There are two reasons for the disturbance: (i) heat is generated during the drilling, and (ii) the media used for flushing (water or air) can be either cooling or heating. The time for the borehole to regain pre-drilling thermal conditions can be rather long, and depends mainly on the amount of heat generated, in turn depending on the drilling time, the temperature of the water or air used for flushing and on the thermal properties of the rock. This can be calculated according to the following equation (see e.g. Sundberg et al. 2009):

$$T = q/(4\pi\lambda) \cdot (E_1(r^2/(4\kappa t)) - E_2(r^2/4\kappa(t - t_0))) \qquad \text{Equation 4-1}$$

where

T temperature (°C)

q heat generation in borehole due to drilling (W/m)

r radius of borehole (m)

t time from start of drilling (s)

t_0 time when drilling is completed (s)

E_1, E_2 exponential integrals.

However, the equation can only be used to give an idea of the magnitude and time for the generated disturbance.

The time needed for the temperature to stabilise after drilling is exemplified in Table 4-1. In the calculations, different drilling times and different degrees of recovery in terms of dimensionless temperature have been used. The stabilising times in Table 4-1 only give an estimation of the real conditions. In Figure 4-2 the table is showed as graph.

Table 4-1. Time needed for the temperature disturbance to decay after drilling (to 90, 99 and 99.9% of pre-drilling thermal conditions). The recovery status is expressed as a dimensionless temperature. T_{max} : temperature at completed drilling (Sundberg et al. 2009).

Drilling time t_0	$1-T/T_{max}$ 0.9	0.99	0.999
24 h	1.3 days	18 days	6 months
1 week	6 days	13 weeks	3 years
1 month	21 days	11 months	9.4 years
6 months	96 days	4.5 years	47 years

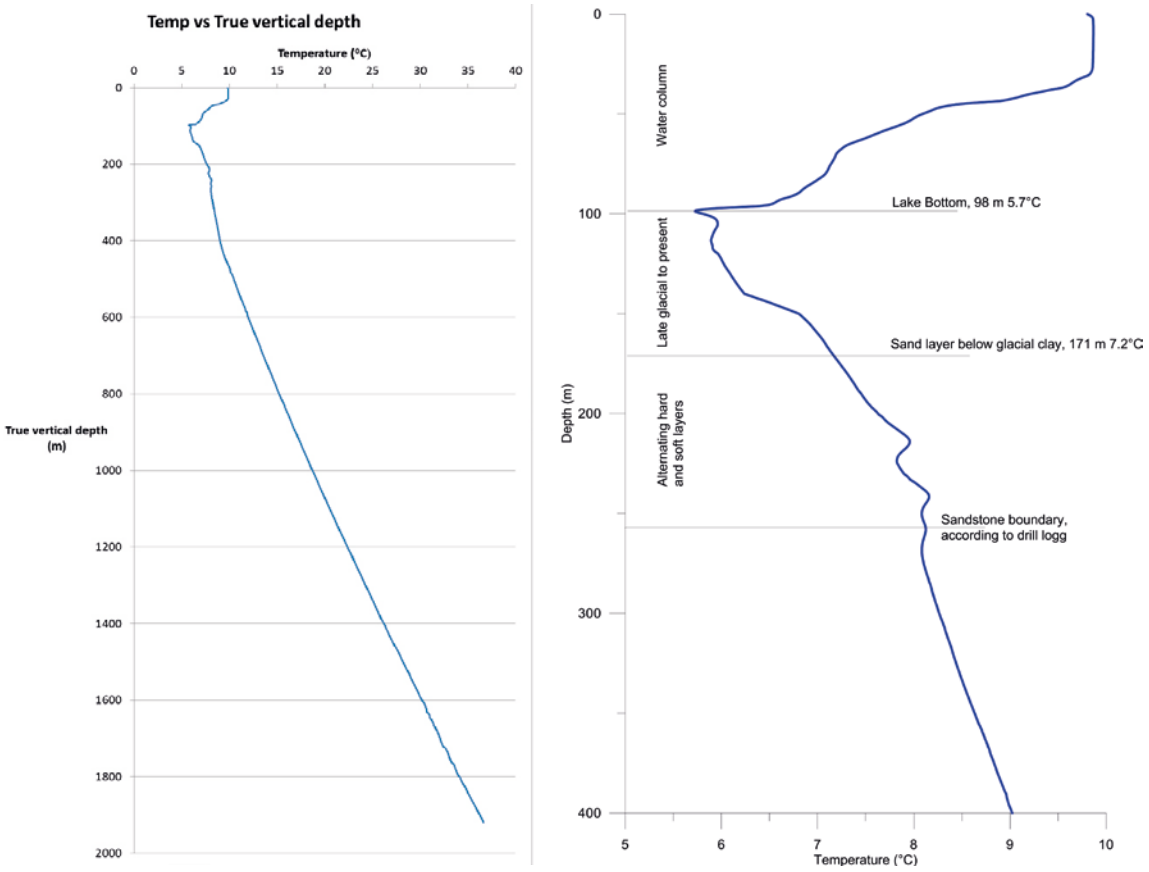


Figure 4-1. *Left: Logged temperature versus true vertical depth. In this graph depth zero represents the barge deck, above the lake level. Right: Temperature versus borehole length for the upper 400 m. Depth zero represents barge deck. The Figures represents the temperature in October 23 2012.*

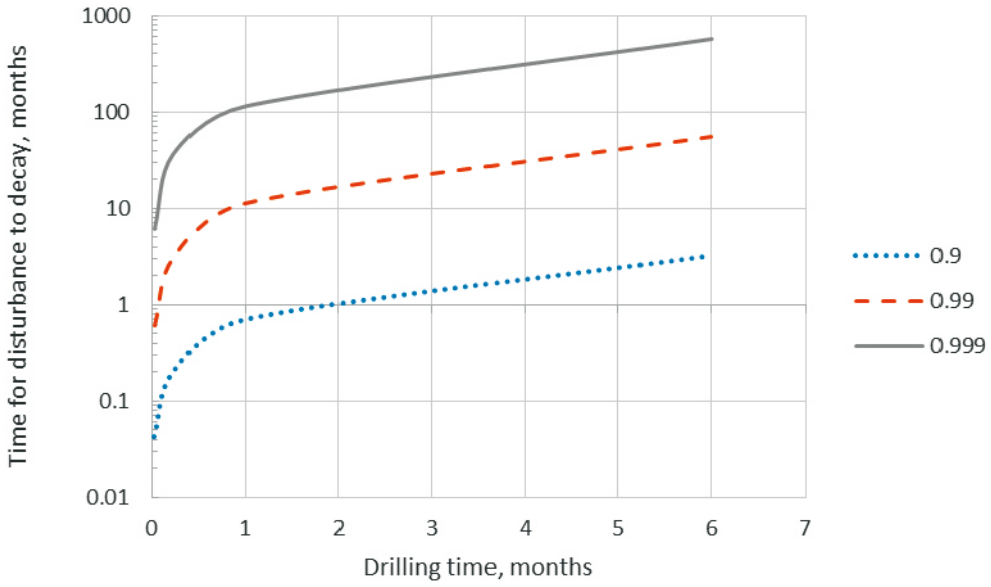


Figure 4-2. *Time needed for disturbance from drilling to decay (to 90, 99 and 99.9% calculated by Equation 4-1).*

Borehole Bh32012 was logged for temperature about four weeks after the termination of drilling. The drilling time was approximately three months. From Figure 4-2 it is possible to estimate the time it takes to achieve 10, 1 and 0.1% of the original temperature disturbance from drilling. Based on a drilling time of 3 months, these times are approximately 1 month, 2 years and 10 years respectively. After one month the remaining disturbances is approximately 10%.

The remaining absolute temperature disturbance (in degrees Celsius) is hard to estimate, see discussion above. If the original disturbance is assumed to be 1°C or 10°C, the remaining disturbance after one months is approximately 0.1°C or 1°C respectively. The latter figure is not unrealistic considering the possibility that relative warm surface water from Vättern has been used during drilling. Since the disturbance can be unevenly distributed along the borehole (e.g. from and to hydraulic layers) it is possible that some of the disturbances in the upper part of the temperature log are caused by drilling (see Figure 4-1). However, a possible constant disturbance at larger depth in the crystalline rock results in a more constant bias and do not necessarily influence the modelling of paleotemperatures in a significant way.

4.3 Thermal properties of rock samples

4.3.1 Thermal conductivity and diffusivity

The thermal properties of 18 rock samples from different borehole depths were measured at Chalmers University of Technology using the Transient plane source (TPS) method (Appendix 4). The TPS method was also the main method used at the site investigation and thermal modelling at Forsmark and Laxemar for the planned final repository for spent nuclear fuel (e.g. Sundberg et al. 2008).

The results of the thermal properties investigation are presented in Figure 4-3, Figure 4-4 and Table 4-2. Five diorite samples from 1500−2000 m borehole length show generally higher conductivities than diorite from the rest of the borehole. However, more data is required to draw any conclusions regarding the large-scale variation in conductivity. Variable thermal conductivities may be a result of localized alteration (chloritization) or anisotropy (direction of conductivity measurements in relation to foliation or layering).

Table 4-2. Results of thermal property measurements on rock samples. Suscept = Susceptibility.

Borehole length/ID	Rocktype	Subdivision	Thermal conductivity W/(m·K)	Thermal diffusivity mm²/s	Specific heat MJ/(m³·K)	Comments
323.3	Sandstone	Light grey	3.363	1.461	2.311	
440.4	Sandstone	Dark brown red	2.39	1.019	2.347	
444.44	Granodiorite	Altered	1.815	0.902	2.019	
503.05	Diorite	Low-medium suscept	1.96	0.932	2.104	
540	Diorite	Low suscept	2.247	1.032	2.175	
613.6	Diorite	Layered	2.377	0.991	2.399	Stained
642.4	Diorite	Low-medium suscept	2.201	0.991	2.228	
742.55	Diorite	Layered	2.272	1.022	2.222	Clear layering
842	Diorite	Layered	1.91	1.032	1.851	Vertical calcite fracture
972	Diorite	Layered	2.031	0.91	2.232	
1001.58	Diorite	Low-medium suscept	2.338	1.092	2.141	
1337.48	Diorite	Low-medium suscept	2.193	1.024	2.14	
1395.08	Diorite	Layered	1.718	0.865	1.986	Coarse medium grained
1565.52	Diorite	Strongly chloritized	2.386	1.074	2.221	
1701.43	Diorite	High suscept	2.438	1.065	2.288	
1790.4	Diorite	Layered	2.894	1.239	2.336	
1932	Diorite	Strongly chloritized	2.396	1.049	2.283	
1988.58	Diorite	Layered	2.457	1.113	2.209	
Mean	Sandstone		2.877	1.240	2.329	
Mean	Diorite		2.255	1.029	2.188	
Mean	Diorite-/ Granodiorite		2.227	1.021	2.177	

The mean thermal conductivities for sandstone (2 measurements) and diorite/granodiorite (16 measurements) were used as input for the heat flow density calculations for depth intervals 155−341 m and 341−1800 m respectively where depth refers to vertical depth below the lake bottom. Heat flow was determined as the product of mean conductivity for the two predominant lithologies (sandstone and diorite) and the gradient calculated for 100 m depth sections.

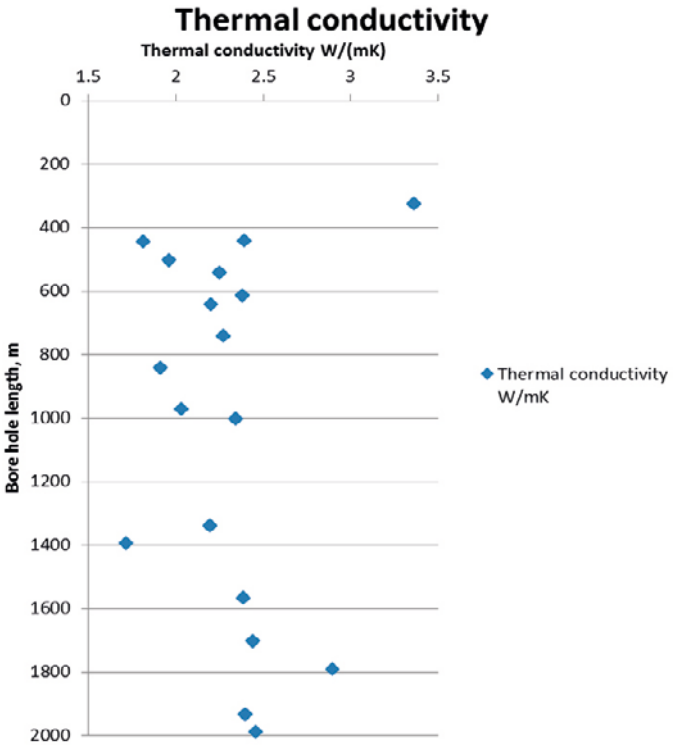


Figure 4-3. *Thermal conductivity for all rock samples versus borehole length below barge deck.*

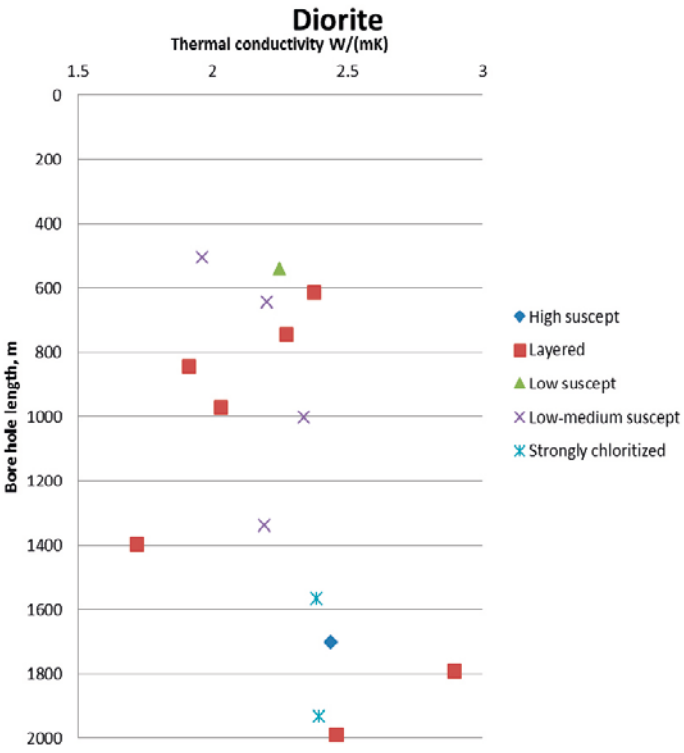


Figure 4-4. *Thermal conductivity for the diorite samples versus borehole length below barge deck.*

4.3.2 Heat production

The heat production has been calculated from the amount of U, Th and K in the rock samples according to Rybach (1973). The result is shown in Table 4-3 together with a reference value. The reference value for the heat generation in the gabbro is almost identical to the calculated. The comparison between diorite and gabbro is relevant since the actual diorite has its origin in a gabbro before metamorphose (Larson S Å 2016, personal communication). It is reasonable to assume that the amount of U, Th and K have not increased, but potentially decreased, during metamorphose.

Table 4-3. Calculation of heat production in the diorite and sandstone from the content of U, Th and K. The density has been estimated. In the diorite group some samples of granodiorite and granite are included.

	Mean Heat production μW/m^3	Std	N	Comments
Diorite	0.109	0.167	141	Reference value in Gabbro: 0.11 μW/m^3 (Cermák et al. 1990 in Beardsmore and Cull 2001)
Sandstone	0.155	0.210	16	
All	0.114	0.172	157	

The density of each rock type is necessary in the heat production calculation but unfortunately no density measurements are available. The density have therefore been estimated to reasonable values for each rock type, 2500 and 2900 kg/m^3 for the sandstone and diorite respectively. Potential errors in the estimated densities have low impact on the heat flow since the heat productions are low in both rock types. The influence on the heat flow from internal heat production is only approximately 0.1 mW/m^2 per 1000 m rock.

4.4 Thermal properties of sediments

Sediment cores recovered from the five sediment holes were compiled into a single composite record containing 74 meters of late Pleistocene to Holocene sediments (Swärd et al. 2016).

Thermal conductivity and thermal diffusivity of the sediment cores was measured by the TPS method. The heat capacity was calculated for each measurement from the conductivity and diffusivity measurements. The results of the thermal property measurements for each sample can be seen in Appendix 5, and summarized in Table 4-4.

The thermal conductivity versus core length is shown in Figure 4-5. An increasing thermal conductivity with depth can be observed. The thermal conductivity versus density is presented in Figure 4-6. As expected, an increasing thermal conductivity is associated with high bulk density (lower porosity) sediments.

Table 4-4. Thermal properties measured with the TPS method and density of the sediments. The specific heat is calculated from thermal conductivity and diffusivity. High-resolution (one cm) measurements of sediment bulk density were performed on each of the recovered cores using the Multi-Sensor Core Logger with gamma ray attenuation technique (see Swärd et al. 2016).

	Thermal conductivity (W/(m·K))	Thermal Diffusivity (mm^2/s)	Specific Heat Capacity (MJ/(m^3·K)	Bulk Density (g/cm^3)
Mean	1.25	0.41	3.10	1.73
Std	0.19	0.13	0.31	0.24
N	69	69	69	69

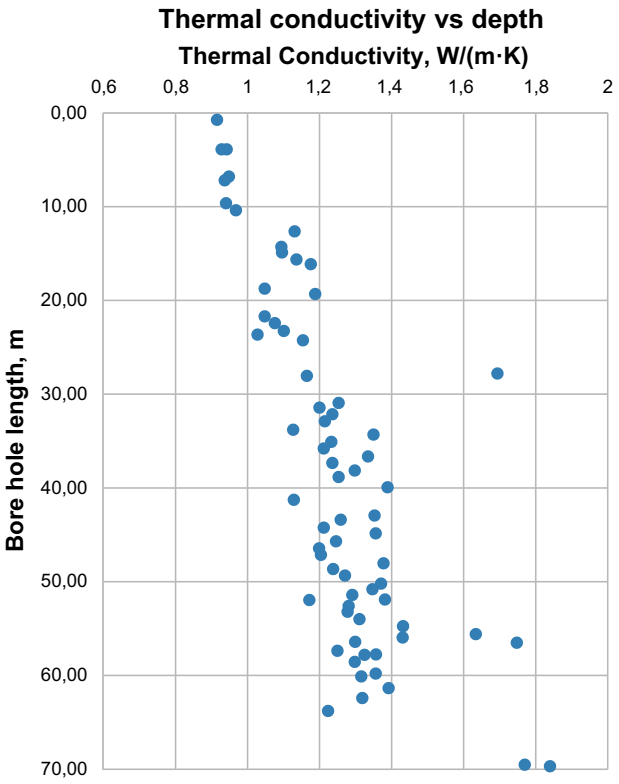


Figure 4-5. *Thermal conductivity versus borehole length below lake floor for the 69 sediment samples.*

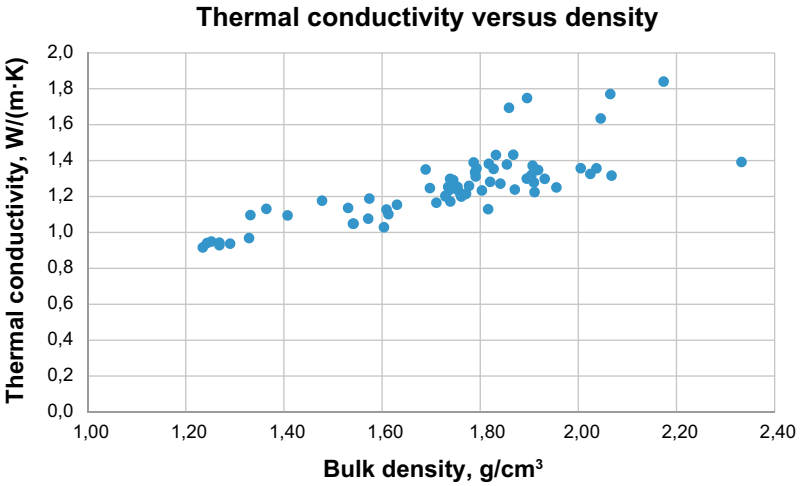


Figure 4-6. *Thermal conductivity versus bulk density for sediment samples.*

5 Results on temperature gradient and heat flow

5.1 Temperature gradient

The lithologies along the borehole are summarized in Table 5-1.

Table 5-1. Summary of lithologies in borehole Bh32012. One granodiorite sample is included in the diorite group.

Vertical depth from lake bottom	Predominant lithology	Original borehole length
0−155 m	Quaternary sediments	98−253 m
155−341 m	Sandstone	253−439 m
341−1820 m	Diorite	439−1950 m

The temperatures and temperature gradients are plotted against true vertical depth in Figure 5-1 and Figure 5-2. The vertical axis in the figures illustrates depth below the bottom of Lake Vättern at the drilling site.

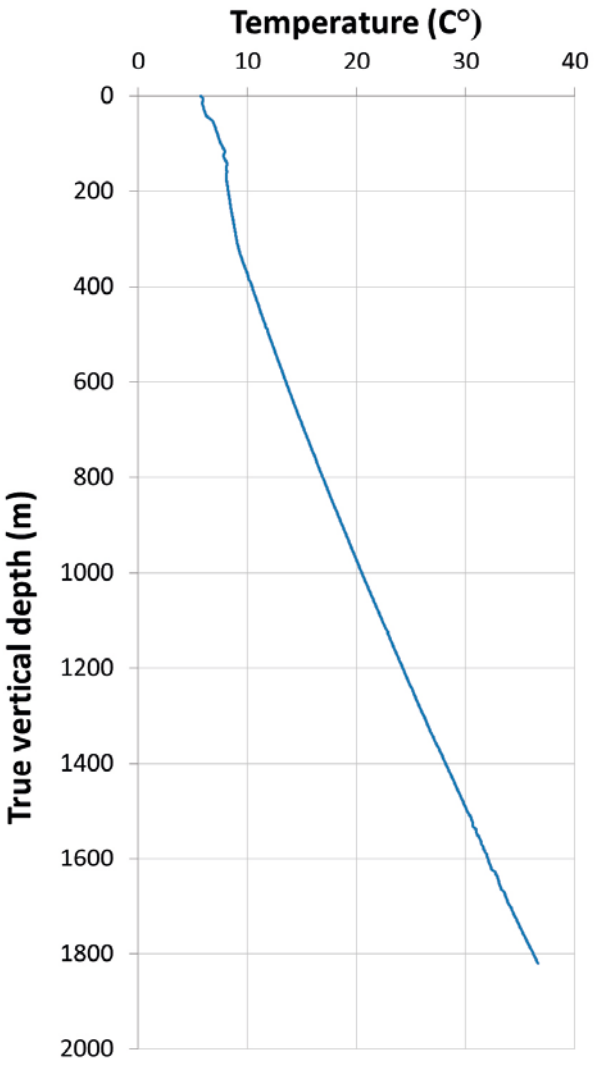


Figure 5-1. *Measured temperature in borehole bh32012 at Lake Vättern at in October 23, 2012. 0 m corresponds to the lake bottom.*

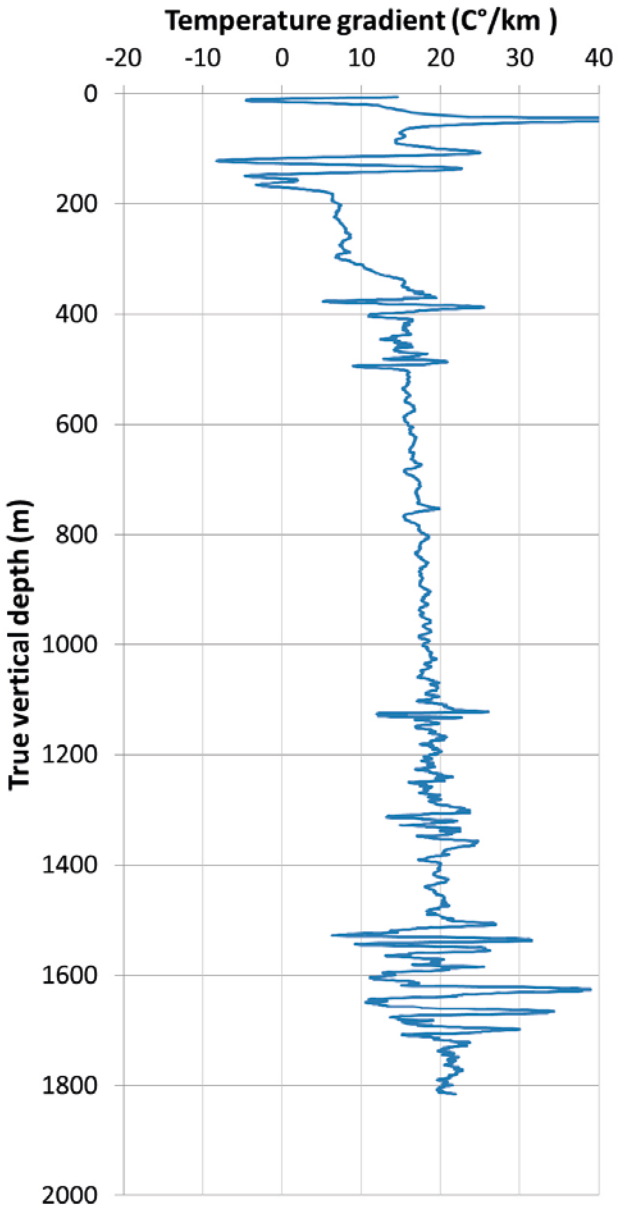


Figure 5-2. *Vertical temperature gradients for approximately 10 m borehole sections in borehole bh32012 at Lake Vättern. 0 m corresponds to the lake bottom/floor.*

The temperature gradient in diorite/granodiorite increases from 15°C/km in the upper diorite rocks to over 20°C/km in the lower diorite rocks at the bottom of the borehole. Very variable gradients are found in the quaternary deposits down to 155 m depth but also in the igneous rocks at certain depth intervals, in particular at 1500 m to 1700 m depth below lake bottom/floor. Sandstones between the quaternary sediments and the igneous rocks display generally low temperature gradients in the range 5−10°C/km.

5.2 Heat flow density

The calculated heat flow density (HFD) profile for 100 m intervals along the borehole is shown in Figure 5-3.

The mean thermal conductivities for sandstone (two measurements) and diorite/granodiorite (16 measurements) were used as input for the HFD calculations for the depth intervals 155−341 m and 341−1800 m respectively (vertical depth below the lake bottom).

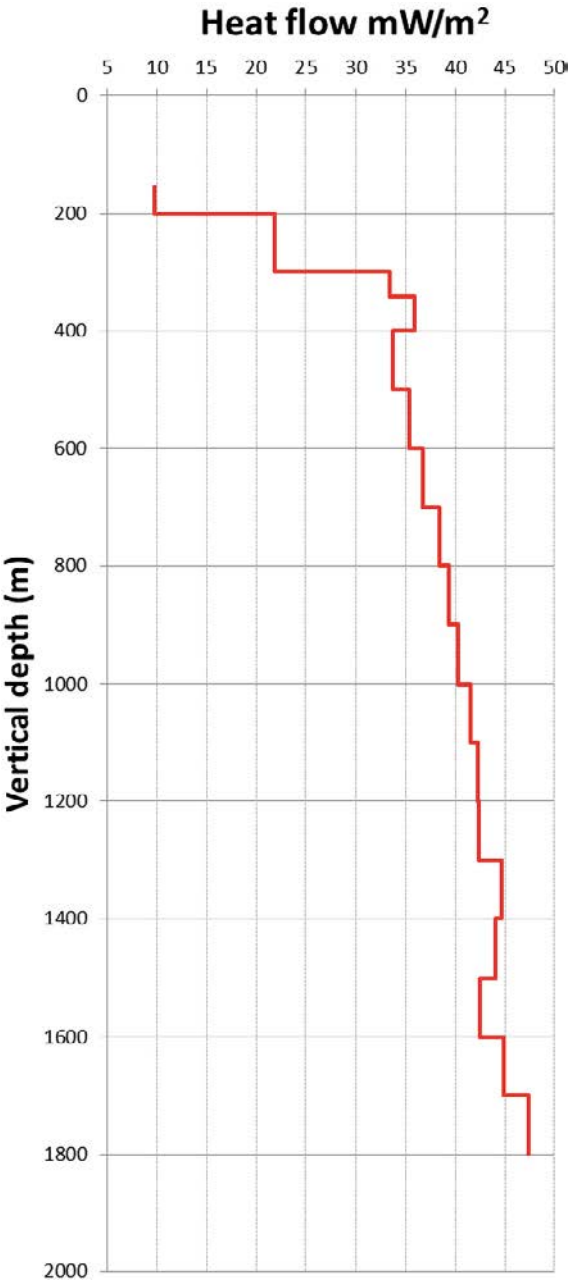


Figure 5-3. *Average heat flow density calculated at 100 m intervals along borehole bh32012 at Lake Vättern. 0 m corresponds to the lake bottom (lake floor). Heat flow in quaternary deposits are excluded. The heat flow is uncorrected for climate changes (the temperature history at the lake floor).*

Heat flow was determined as the product of mean conductivity for the two predominant lithologies (sandstone and diorite) and the temperature gradient calculated for 100 m depth sections. Gradient data from the sediment section and the thermal data on the sediments were excluded from the calculations. These exclusions have no influence on the heat flows on larger depth along the borehole. The low heat flow in the upper part of the borehole (Figure 5-3) may be a result of water movements in glacifluvial parts of the sediment (see Section 3.3) or disturbances from drilling. This needs to be investigated further.

A downward vertical increase in HFD is observed. In the sandstone, at depths of 155−341 m, the calculated heat flow density varies from 10 to 34 mW/m^2. In the underlying diorite heat flow increases from about 35 mW/m^2 at a depth of 400 m to 47 mW/m^2 at 1800 m. The calculated HFD values are uncorrected for influence from the lake floor surface temperature history due to climate changes on the temperature measurements. The influence on the heat flow from internal heat production in the sandstone and the diorite is small, approximately 0.1 mW/m^2 per 1000 m rock.

The calculated heat flow at Vättern can be compared to the calculated heat flows at Forsmark and Laxemar. At the Forsmark site the uncorrected heat flow is 37 mW/m^2 using the gradient at 200 m depth and 50 mW/m^2 at approximately 900 m depth. At Laxemar the uncorrected heat flow is 36 mW/m^2 using the gradient at 200 m depth and 43 mW/m^2 at approximately 700−800 m depth. The mean corrections for palaeoclimatical compensation are estimated to 9 and 13 mW/m^2 in Forsmark and Laxemar respectively (Sundberg et al. 2009).

One uncertainty in the temperature data and calculated heat flow is a possible disturbance from the drilling operation. The borehole was logged for temperature on October 23 2012, i.e. about 4 weeks after the termination of the drilling. An estimation of the size of the disturbance is made in Section 4.2.

References

SKB's (Svensk Kärnbränslehantering AB) publications can be found at www.skb.com/publications.

Andrén T, Lindeberg G, Andrén E, 2002. Evidence of the final drainage of the Baltic Ice Lake and the brackish phase of the Yoldia Sea in glacial varved from the Baltic Sea. Boreas 31, 226–238.

Beardsmore G R, Hull J P, 2001. Crustal heat flow: a guide to measurement and modelling. New York: Cambridge University Press.

Brunnberg L, 1995. Clay-varve chronology and deglaciation during the Younger Dryas and Preboreal in the easternmost part of the Middle Swedish Ice Marginal Zone. PhD thesis. Stockholm University, Sweden.

Cermák V, Bodri L, Rybach L, Buntebarth G, 1990. Relationship between seismic velocity and heat production: Comparison of two sets of data and test of validity. Earth and Planetary Science Letters 99, 48–57.

Dokulil N T, Jagsch A, George G D, Anneville O, Jankowski T, Wahl B, Lenhart B, Blencker T, Teubner K, 2006. Twenty years of spatially coherent deepwater warming in lakes across Europe related to the North Atlantic Oscillation. Limnology and Oceanography 51, 2787–2793.

Greenwood S L, O'Regan M, Swärd H, Flodén T, Ananyev R, Chernykh D, Jakobsson M, 2015. Multiple re-advances of a Lake Vättern outlet glacier during Fennoscandian Ice Sheet retreat, south-central Sweden. Boreas 44, 619–637.

Jakobsson M, Björck S, O'Regan M, Flodén T, Greenwood S L, Swärd H, Lif L, Ampel L, Koyi H, Skelton A, 2014. Major earthquake at the Pleistocene-Holocene transition in Lake Vättern, southern Sweden. Geology 42, 379–382.

Kvarnäs H, 2001. Morphometry and hydrology of the four large lakes of Sweden. Ambio 30, 467–474.

Larson S Å, 1994. Bedrock map / Berggrundskarta 7D Ulricehamn SO. Geological Survey of Sweden Af 178.

Morad S, Collini B, 1991. Petrology and geochemistry of Upper proterozoic shales of the Visingsö Group, southern Sweden. Bulletin of the Geological Institutions of the University of Uppsala 16, 61–68.

Norrman J O, 1964. Lake Vättern: investigations on shore and bottom morphology. Geografiska Annaler 46, 1–238.

Norrman J O, Königsson L-K, 1972. The sediment distribution in Lake Vättern and some analyses of cores from its southern basin. Geologiska Föreningen i Stockholm Förhandlingar 94, 489–513.

O'Regan M, Greenwood S, Preto P, Swärd H, Jakobsson M, 2016. Geotechnical and sedimentary evidence for thick-grounded ice in southern Lake Vättern during deglaciation. GFF 138, 355–366.

Pfender M, Villinger H, 2002. Miniaturized data loggers for deep sea sediment temperature gradient measurements. Marine Geology 186, 557–570.

Rybach L, 1973. Warmeproduktionsbestimmungen an Gesteinen der Schweizer Alpen. Beitrage zur Geologie der Schweiz 51, 43.

Strömberg B, 1992. The final stage of the Baltic Ice Lake. Sveriges Geologiska Undersökning Ca 81, 347–353.

Sundberg J, Wrafter J, Back P-E, Rosén L, 2008. Thermal properties Laxemar. Site descriptive modelling SDM-Site Laxemar. SKB R-08-61, Svensk Kärnbränslehantering AB.

Sundberg J, Back P-E, Ländell M, Sundberg A, 2009. Modelling of temperature in deep boreholes and evaluation of geothermal heat flow at Forsmark and Laxemar. SKB TR-09-14, Svensk Kärnbränslehantering AB.

Swärd H, O'Regan M, Ampel L, Ananyev R, Chernykh D, Flodén T, Greenwood S L, Kylander M, Mörth C M, Preto P, Jakobsson M, 2016. Regional deglaciation and postglacial lake development as reflected in a 74 m sedimentary record from Lake Vättern, southern Sweden. GFF 138, 336–354.

Åhäll K-I, Larson S Å, 2000. Growth-related 1.85–1.55 Ga magmatism in the Baltic Shield; a review addressing the tectonic characteristics of Svecofennian, TIB-1 related, and Gothian events. GFF 122, 193–206.

Appendix 1

Geology and location, Bh3 (Bh32012)

SALVA RESOURCES

ASERA LAKE VATTERN IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length (m)		
Discovery EF-75	Wireline core	ASERA-03-12	451541	Lake Vattern			
Driller	Drilling starting date:	Completed on :	Northing	RL (m)	Core Size		
PAUL and Emile	29.6.2012		6410460		HQ and NQ		

Date	Drilling Run		Drilling Meterage	Core Length (m)	Core Recovery (%)	Lithocode	Lithology	Lithology Description					
	From (m)	To (m)						Colour	Grain	RQD	Weathering/Alteration	GT Description	Geological Description
29.6.12													Started putting PW casing. Total PW casing is 108 m from barge deck.
1.7.12													Started to put HW casing. Total HW casing depth is 207 m from the barge deck.
5.7.12													Started putting HQ rods.
6.7.12													27 m of rimming done in sandy lake sediments. Drilling done upto 253 m. from 211.5 to 253 m rubbles and pebbles of sandstone and ultramafic/mafic rcks rich in pyroxene, micaceous minerals and quartz-plagioclase feldspar in parts
7.7.12	253.00	258.40	5.40	3.00	55.56	SS	Sandstone	Yellowish Grey to reddish brown	FN	68.67	No	Hard, compact, well sorted, broken and crushed in parts	From 253 to 255.7 m pebbles and rubbles of sandstone and mafics rich in pyroxene, mica and quartzofeldspathic mass. From 255.7 m to 258.4 m solid core of fine grained, well sorted sandstone with horizontal lamination.Colour varies from Grey to reddish brown in places. From 256.1 m, core is broken and crushed.
9.7.12	258.40	259.50	1.10	1.10	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN	82.72	No	Hard, compact, well sorted	Fine grained, yellowish Grey to reddish brown coloured, compact, well sorted sandstone with horizontal lamination. Silica/quartz enriched zones observed
9.7.12	259.50	262.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN	96.67	No	Hard, compact, well sorted	Fine grained, yellowish Grey to reddish brown coloured, compact, well sorted sandstone with horizontal lamination.Gently dipping (~ 10 ^{0}) laminae in few places.
9.7.12	262.50	265.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN	91.67	No	Hard, compact, well sorted	Fine grained, well sorted sandstone, yellowish Grey to reddish brown in colour, compact, very fine laminae observed, in places enriched in silica/quartz, gently dipping (~ 10-15 ^{0}) laminae.
9.7.12	265.50	268.50	3.00	2.95	98.33	SS	Sandstone	Yellowish Grey	FN	93.33	No	Hard, compact, well sorted	Yellowish Grey, well sorted, well compacted, fine grained sandstone with gently dipping (~10 ^{0}) fine laminae.
9.7.12	268.50	271.50	3.00	3.05	100.00	SS	Sandstone	Yellowish Grey	FN	94.33	No	Hard, compact, well sorted	Yellowish Grey, well sorted, well compacted, fine grained sandstone with gently dipping (~10-15 ^{0}) fine laminae.
9.7.12	271.50	274.50	3.00	2.97	99.00	SS	Sandstone	Yellowish Grey	FN to MD	87.67	No	Hard, compact, well sorted	Yellowish Grey coloured, fine to medium grained sandstone, well sorted, well compacted with fine, subhorizontal to gently dipping (~ 15-20 ^{0}) laminae. Cross bedding observed, inclined fracture present at 272.6 m dipping at 65-70 ^{0}.
9.7.12	274.50	277.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	78.67	No	Hard, compact, well sorted	Yellowish Grey to reddish brown coloured, fine to medium grained sandstone, well sorted, well compacted with fine, subhorizontal to gently dipping (~ 15-20 ^{0}) laminae.
9.7.12	277.50	280.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	89	No	Hard, compact, well sorted	Yellowish Grey to reddish brown coloured, fine to medium grained sandstone, well sorted, well compacted with fine, subhorizontal laminae. Cross bedding and thicker (> 2.5 cm) beds present at places.
9.7.12	280.50	283.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	93.33	No	Hard, compact, well sorted	Yellowish Grey to reddish brown coloured, fine to medium grained sandstone, well sorted, well compacted with fine, subhorizontal fine laminae. Bed thickness increases in places upto ~ 5 cm. Locally silica enriched zones present.
9.7.12	283.50	286.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	94.33	No	Hard, compact, well sorted	Yellowish Grey to reddish brown coloured, fine to medium grained sandstone, well sorted, well compacted with fine, subhorizontal fine laminae. Thicker (~ 2.5 - 5.0 cm) beds present at places.
9.7.12	286.50	289.50	3.00	2.95	98.33	SS	Sandstone	yellowish Grey	MD to CS	85	No	Hard, compact, , consolidated ,well sorted	Yellowish Grey, medium to coarse grained, well sorted, well compacted sandstone with horizontal to gently dipping (~ 15 ^{0}) fine laminae. Locally shows silica enrichment.
9.7.12	289.50	292.50	3.00	3.00	100.00	SS	Sandstone	yellowish Grey	MD to CS	94.33	No	Hard, compact, , consolidated ,well sorted	Yellowish Grey, medium to coarse grained, well sorted, well compacted sandstone with subhorizontal fine laminae.
10.7.12	292.50	295.50	3.00	2.95	98.33	SS	Sandstone	yellowish Grey	MD to CS	90	No	Hard, compact, , consolidated ,well sorted with few fractures	Yellwish Grey, medium to coarse grained, well sorted, well compacted brecciated sandstone with subhorizontal laminae. At ~ 293 m, there is inclined fracture with greenish coloured alteration. From 293.25-293.5m, a zone with broken, ill sorted, coarse to fine grained fragments with silica cement is present. It shows significant variation in grain size and grain shape along with pyrite infillings.
10.7.12	295.50	298.50	3.00	3.00	100.00	SS	Sandstone	yellowish Grey	FN to MD	83.33	No	Hard, compact, , well consolidated ,well sorted	Yellowish Grey coloured, well sorted, well compacted sandstone with fine horizontal laminae. No natural fracture is present. Becomes reddish brown in colour in few places.

10.7.12	298.50	301.50	3.00	2.99	99.67	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	93	No	Hard, compact, , well consolidated ,well sorted	Yellowish Grey coloured, well sorted, well compacted sandstone with fine horizontal laminae. No natural fracture is present. Becomes reddish brown in few places. Gently dipping laminae is present in few places.
10.7.12	301.50	304.50	3.00	2.95	98.33	SS	Sandstone	Yellowish Grey	FN to MD	90	No	Hard, compact, , well consolidated ,well sorted	Yellowish Grey coloured, well sorted, well compacted sandstone with fine horizontal laminae. No natural fracture is present. Becomes reddish brown in few places. Gently dipping laminae is present in few places.
10.7.12	304.50	307.50	3.00	3.00	100.00	SS	Sandstone	Grey	FN to MD	95.33	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, fine to medium grained sandstone, well sorted, finely laminated, laminae horizontal to gently dipping, at places reddish in colour.
10.7.12	307.50	310.50	3.00	3.05	100.00	SS	Sandstone	Grey	FN to MD	93.33	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, fine to medium grained sandstone, well sorted, finely laminated, laminae horizontal to gently dipping, at places reddish in colour.
10.7.12	310.50	313.50	3.00	2.95	98.33	SS	Sandstone	Grey	FN to MD	88.00	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, fine to medium grained sandstone, well sorted,well compacted, very fine gently dipping to subhorizontal laminae. No natural fracture is present.
10.7.12	313.50	316.50	3.00	2.95	98.33	SS	Sandstone	Grey	FN to MD	88.33	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, fine to medium grained sandstone, well sorted,well compacted, with subhorizontal to gently dipping fine laminae.
10.7.12	316.50	319.50	3.00	3.00	100.00	SS	Sandstone	Grey	FN to MD	84.33	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, fine to medium grained sandstone, well sorted,well compacted, with subhorizontal to gently dipping fine laminae.
10.7.12	319.50	322.50	3.00	2.98	99.33	SS	Sandstone	Grey	FN to MD	88.00	No	Hard, compact, , well consolidated ,well sorted	Grey coloured, well sorted, well compacted, fine to medium grained sandstone with subhorizontal laminae.
10.7.12	322.50	325.50	3.00	3.00	100.00	SS	Sandstone	Grey	FN to MD	87.00	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, well sorted, well compacted, Grey coloured sandstone with fine, subhorizontal to gently dipping laminae. Grainsize increases little towards the bottom of the core.
10.7.12	325.50	328.50	3.00	2.97	99.00	SS	Sandstone	Grey	FN to MD	82.33	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, well sorted, well compacted, Grey coloured sandstone with fine, subhorizontal to gently dipping laminae. Cross bedding present.
11.7.12	328.50	331.50	3.00	2.97	99.00	SS	Sandstone	Grey	FN to MD	84.67	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, well sorted, well compacted, Grey coloured sandstone, few (2) inclined (~65-70 ^{0}) natural fractures present, fracture surfaces smooth.
11.7.12	331.50	334.50	3.00	2.94	98.00	SS	Sandstone	Grey	FN to MD	88.00	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, Grey coloured, well sorted, well compacted sandstone with subhorizontal laminae.Shows increase of feldspar percentage in some bands. Some distinct feldspathic bands/laminae present.
11.7.12	334.50	337.50	3.00	2.96	98.67	SS	Sandstone	Grey	FN to MD	85.00	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, well sorted, well compacted Grey coloured sandstone with subhorizontal laminae. Fragmented in few parts.
11.7.12	337.50	340.50	3.00	3.00	100.00	SS	Sandstone	Grey to reddish brown	FN to MD	85.33	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, Grey to reddish brown, well sorted, well compacted sandstone with horizontal to subhorizontal to gently dipping fine laminae. Colour changes from Grey to reddish brown at 339.2 m. Then there is an intercalation of Grey to reddish brown sandstone. Bottom 60 cm of the core is totally reddish brown.
11.7.12	340.50	343.50	3.00	3.00	100.00	SS	Sandstone	Grey to reddish brown	FN to MD	89.00	No	Hard, compact, , well consolidated ,well sorted	Fine to medium grained, Grey coloured sandstone intercalated with reddish brown sandstone with fine horizontal to subhorizontal laminae. Upto 341.10 m the sandstone units are intercalated. The next 95 cm is solely Grey sandstone, the rest upto bottom of the core is reddish brown sandstone. No natural fracture is present.
11.7.12	343.50	346.50	3.00	2.96	98.67	SS	Sandstone	Reddish brown	FN to MD	91.33	No	Hard, compact, , well consolidated ,well sorted	Reddish brown coloured, fine to medium grained, well sorted, well compacted sandstone with subhorizontal to gently dipping laminae. Intercalated with few Grey coloured sandstone bands.
11.7.12	346.50	349.50	3.00	2.95	98.33	SS	Sandstone	Reddish brown	FN to MD	82.67	No	Hard, compact, , well consolidated ,well sorted	Reddish brown coloured, fine to medium grained, well sorted, well compacted sandstone with subhorizontal to gently dipping laminae. Intercalated with few Grey coloured sandstone bands. Few silica/quartz filled veins present.
11.7.12	349.50	352.50	3.00	2.97	99.00	SS	Sandstone	Greyish to reddish brown	FN to MD	82.67	No	Hard, compact, , well consolidated ,well sorted	An intercalated unit of reddish brown and Grey coloured sandstones, both fine to medium grained, wel sorted, well compacted, with subhorizontal to gently dipping laminae. At places the grain size becomes a little coarser with variation in colour to bluish Grey.
11.7.12	352.50	355.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	73.67	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted, well compacted, yellowish Grey sandstone intercalated with reddish brown sandstone.Gently dipping to subhorizontal laminae.
11.7.12	355.50	358.50	3.00	2.93	97.67	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	76.67	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted well compacted yellowish Grey sandstone intercalated with reddish brown sandstone. Subhorizontal to gently dipping laminae present. Fine laminae rich in micaceous material is present, at times up to 0.5 cm thick.
11.7.12	358.50	361.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	79.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated sandstone with fine subhorizontal laminae. First 85 cm (upto 359.35 m) is intercalated Grey and reddish sandstone. Next 90 cm is totally Grey sandstone followed by intercalated unit again. Lat 75 cm is again yellowish Grey sandstone indicating a repetetive sequence.
11.7.12	361.50	364.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	81.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted and well consolidated, Greyish yellow sandstone and reddish brown sandstone. Fine laminae, gently dipping (~ 20-25 ^{0}) are present. Fine micaceous bands visible.
11.7.12	364.50	367.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	72.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted and well consolidated, Greyish yellow sandstone and reddish brown sandstone. Fine laminae, gently dipping (~ 20-25 ^{0}) are present. Fine micaceous bands visible. From 365.57 to 367.12 m the unit is made up of totally reddish brown sandstone. Few mica rich lamellae are present near the bottom. At places, the sand sized particles become coarse.

11.7.12	367.50	370.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	88.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted and well consolidated, Greyish yellow sandstone and reddish brown sandstone. Fine laminae, gently dipping (~ 20-25 ^{0}) are present. Fine micaceous bands visible. Few mica rich lamellae are present. At places, the sand sized particles become coarse.
11.7.12	370.50	373.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	83.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of Grey and reddish brown sandstone, well sorted, well compacted, with gently to moderately dipping (~ 20-35 ^{0}) laminae.
11.7.12	373.50	376.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	75.67	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of Grey and reddish brown sandstone, well sorted, well compacted, with gently to moderately dipping (~ 20-35 ^{0}) laminae. Proportion of reddish sandstone increases from 374.7 m for a length of 1.80 m. At places, some laminations are subhorizontal.
11.7.12	376.50	379.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	83.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated sandstone with fine subhorizontal laminae. Proportion of reddish brown sandstone is higher than Greyish coloured sandstone. Fine laminae of micaceous material present. At places, quartz rich pockets present.
11.7.12	379.50	382.50	3.00	2.97	99.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	79.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated sandstone with fine subhorizontal laminae. Proportion of reddish brown sandstone is higher than Greyish coloured sandstone. Fine laminae of micaceous material present. At places, quartz rich pockets present.
11.7.12	382.50	385.50	3.00	2.95	98.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	73.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated yellowish Grey and reddish brown sandstone. Fine laminae present, subhorizontal to gently dipping. Silica enriched bands and pockets present. Micaceous laminae observed. Reddish brown sandstone shows microfaulting.
11.7.12	385.50	388.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	90.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated yellowish Grey and reddish brown sandstone.Fine laminae of micaceous material visible. Beds gently dipping to subhorizontal.
11.7.12	388.50	391.50	3.00	2.99	99.67	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	88.67	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of well sorted, well consolidated yellowish Grey and reddish brown sandstone.Fine laminae of micaceous material visible. Beds gently dipping to subhorizontal.
11.7.12	391.50	394.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	91.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted, intercalated unit of reddish brown sandstone and yellowish Grey sandstone. Fine horizontal to subhorizontal laminae present. Proportion of Grey sandsone significantly higher. A zone of intense convolute lamination present from 392.56 to 392. 9 m (34 cm).
12.7.12	394.50	397.50	3.00	2.98	99.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	92.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted, well consolidated, Greyish yellow sandstone intercalated with reddish brown sandstone. Zones of silica/quartz enrichment present. Few micaceous bands observed. Microfaults present. Laminae are fine and are subhorizontal to gently dipping. Sand material filling up a fault, may be a sand dyke.
12.7.12	397.50	400.50	3.00	2.91	97.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	90.33	No	Hard, compact, intact, well sorted, well consolidated.	Intercalated unit of fine to medium grained, yellowish Grey sandstone and reddish brown sandstone with subhorizontal to gently dipping laminae. Fine micaceous bands present. Bottom 20 cm of the core shows larger grains of quartz and feldspar embedded in a finer, sandy matrix.
12.7.12	400.50	403.50	3.00	3.02	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	91.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, intercalated unit of Greyish yellow and reddish brown sandstone. Silica/quartz rich and micaceous bands present. Laminae are gently dipping to subhorizontal.
12.7.12	403.50	406.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD, coarse in places.	86.33	No	Hard, compact, intact, well sorted, well consolidated.	An intercalated unit of Greyish yellow and reddish sandstone, compact, well consolidated, well sorted with fine subhorizontal laminae.Thin mica rich zones/laminae present. From 404.57 m, a zone , 22 cm long, of coarse quartz grains embedded withing fine, sandy matrix is present.
12.7.12	406.50	409.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	81.67	No	Hard, compact, intact, well sorted, well consolidated.	Intercalated unit of Greyish yellow and reddish brown, fine grained, well sorted sandstone with fine, subhorizontal to gently dipping laminae. Few fine micaceous laminae observed.
12.7.12	409.50	412.50	3.00	3.00	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	79.00	No	Hard, compact, intact, well sorted, well consolidated.	Yellowish Grey sandstone intercalated with reddish brown sandstone, fine tomedium grained, with fine laminae, gently dipping to subhorizontal. At places, yellowish Grey sandstone protrudes into reddish sandstone. Very fine micaceous bands visible.
12.7.12	412.50	415.50	3.00	2.97	99.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to MD	85.67	No	Hard, compact, intact, well sorted, well consolidated.	Intercalated unit of reddishbrown and yellowish Grey sandstone, fine to medium grained, at places shows coarse grains of quartz, fine laminae are subhorizontal to gently dipping. Few micaceous bands visible. At the contact between reddish brown and yellowish Grey sandstone, there is an increased concentration of larger quartz grains, as seen in few places.
12.7.12	415.50	418.50	3.00	3.02	100.00	SS	Sandstone	Yellowish Grey to reddish brown	FN to CS	85.67	No	Hard, compact, intact, poorly sorted, well consolidated.	Intercalated unit of reddishbrown and yellowish Grey sandstone, poorly sorted, fine to coarse grained, fine gently dipping to subhorizontal laminae, few micaceous bands present. Top 60 cm (upto 416.10 m) is fine grained sandstone. Rest of the core is poorly sorted, poorly rounded sandstone with angular grains/fragments of quartz and feldspar.
12.7.12	418.50	421.50	3.00	2.95	98.33	SS	Sandstone	Yellowish Grey to reddish brown	FN to CS	82.67	No	Hard, compact, broken, poorly sorted, well consolidated.	Reddish brown to yellowish Grey, poorly sorted, fine to coarse grained sandstone. Shows very large laths of quartz and feldspar embedded in a fine grained silicious matrix. Bedding thick (~5 cm to greater than 5 cm), subhorizontal. Grains poorly rounded, mostly angular.
12.7.12	421.50	424.50	3.00	3.00	100.00	SS	Sandstone	Reddish brown to dark grey	FN to CS	87.33	No	Hard, compact, broken, poorly sorted, well consolidated.	Reddish brown, fine to coarse grained, poorly sorted sandstone with calcareous bands. The calcareous bands are whitish to dark grey coloured, showing effervescence with Dilute HCL and contains quartz and feldspar embedded in the calcareous matrix.
12.7.12	424.50	427.50	3.00	2.94	98.00	SS	Sandstone	Reddish brown	FN to CS	87.00	No	Hard, compact, intact, poorly sorted, well consolidated.	Reddish brown, fine to coarse grained, poorly sorted sandstone with calcareous bands. Top 20 cm is made up of dark grey calcareous rock followed by a fining up sandstone unit. Then it consists of sandstone with intermittent whitish coloured calcareous bands.
12.7.12	427.50	430.50	3.00	2.98	99.33	SS	Sandstone	Reddish brown	FN to MD	93.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, reddish brown sandstone with fine subhorizontal laminae. Intensely intercalated with white coloured calcareous bands.

12.7.12	430.50	433.50	3.00	2.98	99.33	SS	Sandstone	Reddish brown	FN to MD	84.00	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, reddish brown sandstone, with fine subhorizontal laminae and intercalated with white coloured calcareous bands.
13.7.12	433.50	436.50	3.00	2.97	99.00	SS	Sandstone	Reddish brown	FN to MD	93.33	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted reddish brown sandstone with fine subhorizontal laminae. Core is intact with no natural fractures. dark grey coloured, fine grained rock fragments, well rounded to angular are present in the sandstone as terrigenous clasts. The clasts are non calcareous and soft.
13.7.12	436.50	439.50	3.00	2.98	99.33	SS	Sandstone	Reddish brown	FN to MD	87.67	No	Hard, compact, intact, well sorted, well consolidated.	Fine to medium grained, well sorted reddish brown sandstone with fine subhorizontal laminae. Core is intact with no natural fractures. dark grey coloured, fine grained rock fragments, well rounded to angular are present in the sandstone as terrigenous clasts. The clasts are non calcareous and soft.
13.7.12	439.50	442.50	3.00	2.96	98.67	SS/GR	Sandstone/ Granite	Reddish brown to Grey	FN to CS	70.00	Little alteration along fractures.	Hard, compact, broken, well sorted	Fine to medium grained, well sorted, well compacted sandstone, with fine subhorizontal laminae. This part of the core is intact with no natural fractures. At 441.30 m the lithology changes to a porphyritic, crystalline, Greyish coloured igneous rock containing a mosaic of quartz,orthoclase and plagioclase feldspar, biotite and pyroxene. This part of the core is broken and shows alteration along fractures. The rock is granitic in composition and shows calcareous veins.
15.7.12	442.50	445.50	3.00	2.92	97.33	GR	Granite	Grey to pinkish Grey	CS	81.33	No	Hard, compact, broken in parts, fractured, alteration along fractures.	Grey coloured, porphyritic igneous rock with phenocrysts of quartz, orthoclase and plagioclase feldspar, biotite and pyroxene. Fractured and broken core with alteration along fracture planes. Percentage of mafics high.
15.7.12	445.50	448.50	3.00	3.05	100.00	GR	Granite	Grey to pinkish Grey	CS	76.67	No	Hard, compact, broken in parts, fractured, alteration along fractures.	Grey coloured, porphyritic igneous rock with phenocrysts of quartz, orthoclase and plagioclase feldspar, biotite and pyroxene. Fractured and broken core with alteration along fracture planes. Percentage of mafics high.
15.7.12	448.50	451.50	3.00	3.00	100.00	GR/DR	Granite/ Diorite	Pinkish Grey to Grey	CS to MD	46.60	Altered along fractures	Hard, broken, fractured, altered.	Porphyritic igneous rock with phenocrysts of quartz, feldspar and mafics. Broken core with alteration along fractures. Granitic rock upto 450.05 m. Then the core is highly fractured with significantly high percentage of mafic minerals and the rock is medium grained. The fracture planes show slickenlines and show higher percentage of micaceous minerals. The rock is identified as Diorite.
16.7.12	451.50	454.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	66.00	Little alteration along fractures.	Hard, broken, fractured, altered.	Fractured, broken core of a porphyritic, fine to medium grained igneous rock, with high percentage of dark coloured mafic minerals. Fracture planes show slickenlines and show higher percentage of preferentially aligned micaceous minerals.
16.7.12	454.50	457.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	61.00	Little alteration along fractures.	Hard, broken, fractured, altered.	Fractured, broken core of a porphyritic, fine to medium grained igneous rock, with high percentage of dark coloured mafic minerals. Fracture planes show slickenlines and show higher percentage of preferentially aligned micaceous minerals. Significantly high percentage of micaceous minerals observed.
16.7.12	457.50	460.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	44.00	Altered along fractures.	Hard, dense, intact, fractured.	Fractured core of porphyritic, Grey coloured, igneous rock with high percentage of mafic minerals and micaceous minerals. Small anhedral grains of quartz are observed along with micaceous minerals having a preferrential alignment along the fracture planes. Fracture planes are altered and show slickensides.
16.7.12	460.50	463.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	24.00	Altered along fractures.	Hard, dense, intact, fractured.	Fractured core of porphyritic, Grey coloured, igneous rock with high percentage of mafic minerals and micaceous minerals. Small anhedral grains of quartz are observed along with micaceous minerals having a preferrential alignment along the fracture planes. Fracture planes are altered and show slickensides.
16.7.12	463.50	466.50	3.00	2.90	96.67	DR/GR	Diorite/Granite	Grey to pinkish Grey	FN to CS	65.00	Altered along fractures.	Hard, dense, intact, fractured.	Fractured core of Grey coloured, dense , porphyritic, fine to medium grained igneous rock with high percentage of mafic and micaceous minerals. Fracture planes show alteration and alignment of micaceous minerals. Slickensides are present along fractures. At 465.90 m, the rock type changes to a coarse grained, porphyritic igneous rock consisting of quartz, orthoclase felpspar, mafics and micaceous minerals. It is identified as a granite.
16.7.12	466.50	467.20	0.70	0.70	100.00	GR	Granite	Pinkish Grey	CS	75.70	No	Hard, dense, compact, fractured, broken in parts.	Coarse grained, pinkish Grey coloured, porphyritic igneous rock with quartz, orthoclase feldspar, mafic minerals and micas. Large phenocrysts of quartz and feldspar are embedded in a finer matrix enriched in mafics. Grains are anhedral to subhedral in shape.
16.7.12	467.20	469.50	2.30	1.89	82.17	GR/DR	Granite/Diorite	Pinkish Grey to Grey	FN to CS	46.67	No	Hard, dense, compact, fractured	Coarse grained, pinkish Grey , porphyritic igneous rock with phenocrysts of quartz, orthoclase feldspar and mafic minerals. Mafic minerals are more in quantity in the matrix. Grains are subhedral to anhedral in shape. At 468.4 m, the lithotype changes to a dark grey coloured, finer grained mafic rich rock-having a Dioritic composition. Presence of mica is significantly higher in the Dioritic rock.
16.7.12	469.50	472.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	91.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, porphyritic igneous rock with fine to medium grainsize, rich in mafic minerals, with abundant micaceous minerals. Micaceous minerals are aligned along fractures. Chloritization is observed along fractures. Fractures are moderately dipping, ~45-50 ^{0}.
16.7.12	472.50	475.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	71.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, porphyritic igneous rock with fine to medium grainsize, rich in mafic minerals, with abundant micaceous minerals. Micaceous minerals are aligned along fractures. Chloritization is observed along fractures. Fractures are moderately dipping, ~45-50 ^{0}. Strongly magnetic due to concentration of disseminated magnetite.
16.7.12	475.50	478.50	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	87.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, porphyritic igneous rock with fine to medium grainsize, rich in mafic minerals, with abundant micaceous minerals. Micaceous minerals are aligned along fractures. Chloritization is observed along fractures. Fractures are moderately dipping, ~45-50 ^{0}. Strongly magnetic due to concentration of disseminated magnetite.

16.7.12	478.50	481.50	3.00	2.80	93.33	DR	Diorite	Grey	FN to MD	88.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, porphyritic igneous rock with fine to medium grainsize, rich in mafic minerals, with abundant micaceous minerals. Micaceous minerals are aligned along fractures. Chloritization is observed along fractures. Fractures are moderately dipping, ~45-50 ^{0}. Strongly magnetic due to concentration of disseminated magnetite.
17.7.12	481.50	484.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	80.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, porphyritic igneous rock, moderately magnetic. Grains are anhedral to subhedral in shape. Enriched in mafic minerals. Few parts show enrichment in silica. Shows multiple irregular fractures dipping 40-60 ^{0}. Shows alteration along fractures.
17.7.12	484.50	487.50	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	81.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, porphyritic igneous rock, moderately magnetic. Grains are anhedral to subhedral in shape. Enriched in mafic minerals. Few parts show enrichment in silica. Shows multiple irregular fractures dipping 40-60 ^{0}. Shows alteration along fractures.
17.7.12	487.50	490.50	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	70.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, porphyritic igneous rock, moderately magnetic. Grains are anhedral to subhedral in shape. Enriched in mafic minerals. Few parts show enrichment in silica. Shows multiple irregular fractures dipping 40-60 ^{0}. Shows alteration along fractures. Calcite veins observed along with heavy alteration along multiple fractures. Few pyrite crystals observed.
17.7.12	490.50	493.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	86.67	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, dark grey coloured, porphyritic igneous rock, moderate to feebly magnetic, consisting of subhedral to anhedral grains of mafic minerals, quartzofeldspathic mass and mica flakes. Contains abundant fractures, which are inclined at 30-60 ^{0}. Shows chloritic alteration along fractures.
17.7.12	493.50	496.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	67.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and biotite. Moderately magnetic. Few portions show enrichment in calcareous mass, mostly in the form of veins along fractures. Alteration in the form of chloritization is along fractures. Fractures are inclined at 40-65 ^{0}.
17.7.12	496.50	499.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	75.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and biotite. Moderately magnetic. Few portions show enrichment in calcareous mass, mostly in the form of veins along fractures. Alteration in the form of chloritization is along fractures. Fractures are inclined at 40-65 ^{0}.
17.7.12	499.50	502.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	70.67	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and biotite. Moderately magnetic. Few portions show enrichment in calcareous mass, mostly in the form of veins along fractures. Alteration in the form of chloritization is along fractures. Fractures are inclined at 40-65 ^{0}. Percentage of mafic decreases.
17.7.12	502.50	505.50	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	78.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and biotite. Moderately magnetic. Few portions show enrichment in calcareous mass, mostly in the form of veins along fractures. Alteration in the form of chloritization is along fractures. Fractures are inclined at 40-65 ^{0}. Percentage of mafic decreases.
17.7.12	505.50	508.50	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	77.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and biotite. Moderately magnetic. Few portions show enrichment in calcareous mass, mostly in the form of veins along fractures. Alteration in the form of chloritization is along fractures. Fractures are inclined at 40-65 ^{0}. Percentage of mafic decreases.
17.7.12	508.50	511.50	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	71.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals embedded in a silica enriched groundmass along with micaceous minerals. Several calcareous veins present. Multiple inclined fractures present which are dipping at 30-40 ^{0}. Alteration is observed along fractures. Moderately magnetic. Percentage of magnetite decreases in the lower 40 cm making it feebly magnetic.
17.7.12	511.50	514.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	66.67	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals embedded in a silica enriched groundmass along with micaceous minerals. Several calcareous veins present. Multiple inclined fractures present which are dipping at 30-40 ^{0}. Alteration is observed along fractures. Percentage of magnetite decreases making it feebly magnetic.
17.7.12	514.50	517.50	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	70.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals embedded in a silica enriched groundmass along with micaceous minerals. Several calcareous veins present. Multiple inclined fractures present which are dipping at 30-40 ^{0}. Alteration is observed along fractures. Percentage of magnetite increases making it moderately magnetic.
17.7.12	517.50	520.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	55.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals embedded in a silica enriched groundmass along with micaceous minerals. Several calcareous veins present. Multiple inclined fractures present which are dipping at 30-40 ^{0}. Alteration is observed along fractures. Moderately magnetic.
17.7.12	520.50	523.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	68.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, Greyish coloured, porphyritic igneous rock enriched in mafic minerals and micaceous minerals along with quartzofeldspathic mass. The rock shows moderate to feeble magnetism and is fractured along which it is altered/chloritized. There are several inclined fractures present, dip being 40-50 ^{0}. Few calcareous veins present.
17.7.12	523.50	526.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	72.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Fine to medium grained, Greyish coloured, porphyritic igneous rock with mafic minerals, micaceous minerals and quartzofeldspathic mass. Feebly magnetic, few portions/zones show moderate magnetism. Highly altered in places along fractures. From 525.8 to 526.1 m, the 30 cm zone is highly altered and chloritized. Shows multiple fractures, most fractures dip 40-50 ^{0}.
17.7.12	526.50	529.50	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	91.33	Altered along fractures, chloritized.	Hard, dense, compact, fractured	Greyish coloured, fine to medium grained, porphyritic igneous rock with mafic minerals, micaceous minerals along with quartzofeldspathic groundmass. Altered along fractures, fractures dipping at 10-50 ^{0}.

18.7.12	529.50	532.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	80.00	Altered along fractures, chloritized.	Hard, dense, compact, fractured	dark grey coloured, fine to medium grained, porphyritic igneous rock, enriched in mafic minerals, micaceous minerals along with quartz and feldspar in small amount. The rock is fractured with alteration along fracture planes. Few calcareous veins are observed. Fractures are inclined at 30-45 ^{0}. The rock is feebly to moderately magnetic. Percentage of mafic is lesser than previously observed.
18.7.12	532.50	535.50	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	88.67	Altered along fractures, very little chloritization.	Hard, dense, compact, fractured	Fine to medium grained, dark grey coloured, porphyritic igneous rock showing intergranular texture. Enriched in mafic minerals, micaceous minerals and quartzofeldspathic mass . Very little alteration along fractures. Fractures inclined at 50-60 ^{0}.
18.7.12	535.50	538.50	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	93.33	Altered along fractures, very little chloritization.	Hard, dense, compact, fractured	The rock properties and mineralogical composition unchanged. It is a fine to medium grained, dark grey coloured, porphyritic igneous rock showing intergranular texture. Enriched in mafic minerals, micaceous minerals and quartzofeldspathic mass . Very little alteration along fractures. Fractures inclined at 50-60 ^{0}. Some calcareous infillings are observed along fractures.
18.7.12	538.50	541.50	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	90.33	Little chloritization and clay alteration along fractures.	Hard, dense, compact, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, micaceous minerals and little quartzofeldspathic mass. Grains are subhedral to anhedral in shape. Inclined fracture planes observed dipping at 60-65 ^{0}. Clay alteration observed along fractures. Shows feeble to moderate magnetism.
18.7.12	541.50	544.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	89.00	Alteration along fractures, chloritized	Hard, dense, compact, intact, fractured	Rock properties unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, micaceous minerals and little quartzofeldspathic mass. Grains are subhedral to anhedral in shape. Inclined fracture planes observed dipping at 60-65 ^{0}. Chloritic alteration observed along fractures. Devoid of clay alteration. Shows feeble to moderate magnetism. Shows stronger magnetism due to higher magnetite content.
18.7.12	544.50	547.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	89.00	Alteration along fractures, chloritized	Hard, dense, compact, intact, fractured	Rock properties unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, micaceous minerals and little quartzofeldspathic mass. Grains are subhedral to anhedral in shape. Inclined fracture planes observed dipping at 60-65 ^{0}. Chloritic alteration observed along fractures. Devoid of clay alteration. Shows feeble to moderate magnetism. Shows stronger magnetism due to higher magnetite content.
18.7.12	547.50	550.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	92.00	Clay alteration along fractures along with little chloritization	Hard, dense, compact, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with high mafic and micaceous mineral content along with quartzofeldspathic mass. Fractures present, inclined at 50-70 ^{0}. Clay alteration present along fractures.
18.7.12	550.50	553.50	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	90.33	Clay alteration along fractures	Hard, dense, compact, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and mica. Little quartzofeldspathic mass present. Percentage of mica higher than before. Contains fractures, inclined at 45-60 ^{0}. Shows clay alteration along fractures.
18.7.12	553.50	556.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	79.00	No alteration	Hard, dense, compact, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with high mafic and mica content along with quartzofeldspathic groundmass. Shows fractures inclined at 30-40 ^{0}. Moderately magnetic.
18.7.12	556.50	559.50	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	91.33	No alteration	Hard, dense, compact, intact, fractured	Rock properties and mineralogical composition unchanged. It is Grey, fine to medium grained, porphyritic igneous rock with high mafic and mica content along with quartzofeldspathic groundmass. Shows fractures inclined at 30-40 ^{0}. Feebly magnetic. Proportion of mafics lesser.
18.7.12	559.50	562.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	89.00	No alteration	Hard, dense, compact, intact, fractured	Rock properties and mineralogical composition unchanged. It is Grey, fine to medium grained, porphyritic igneous rock with high mafic and mica content along with quartzofeldspathic groundmass. Shows fractures inclined at 30-40 ^{0}. Feebly magnetic. Proportion of mafics lesser.
18.7.12	562.50	565.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	82.33	No alteration	Hard, dense, compact, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with significant mafic and mica content. Percentage of quartzofeldspathic groundmass higher. Shows feeble magnetism. Fractures inclined at 20-25 ^{0} present.
18.7.12	565.50	568.50	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	86.67	No alteration	Hard, dense, compact, fractured	Fine to medium grained, porphyritic, Grey coloured, mafic igneous rock with high mafic and mica content and little quartzofeldspathic groundmass. Grains are subhedral to anhedral. The rock is feebly magnetic and contains fractures inclined at 30-35 ^{0}.
18.7.12	568.50	571.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	93.00	No alteration	Hard, dense, compact, fractured	The rock proterties are unchanged. It is a fine to medium grained, porphyritic, Grey coloured, mafic igneous rock with high mafic and mica content and little quartzofeldspathic groundmass. Grains are subhedral to anhedral. The rock is feebly magnetic and contains fractures inclined at 30-35 ^{0}.
18.7.12	571.50	574.50	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	81.00	Clay alteration along fractures	Hard, dense, compact, fractured	Grey coloured, fine to medium grained, porphyritic igneous rock with high mafic mineral and mica content along with quartzofeldspathic groundmass. The fractures present are inclined at 15-30 ^{0} and shows clay alteration along with calcareous material. The rock is moderately to feebly magnetic with the parts enriched in quartzofeldspathic mass showing lesser magnetism.
19.7.12	574.50	577.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	81.67	No alteration	Hard, dense, compact, intact, no natural fractures.	Fine to medium grained, Grey, porphyritic igneous rock enriched in mafic minerals , micas and contains some quartzofeldspathic mass. Grains are subhedral to anhedral and the rock is devoid of any natural fractures or alteration. The rock is moderately magnetic indicating presence of higher amount of magnetite.
19.7.12	577.50	580.50	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	92.33	No alteration	Hard, dense, compact, intact, no natural fractures.	Rock is unchanged with same properties and composition. It is fine to medium grained, Grey, porphyritic igneous rock enriched in mafic minerals , micas and contains some quartzofeldspathic mass. Grains are subhedral to anhedral and the rock is devoid of any natural fractures or alteration. The rock shows lesser magnetism due to more quartzofeldspathic groundmass and less magnetite.

19.7.12	580.50	583.50	3.00	2.90	96.67	DR	Diorite	Grey	MD to CS	92.33	Alteration along fractures, chloritized	Hard, dense, compact, intact, fractured.	Generally coarse to medium graned, Grey coloured porphyritic igneous rock enriched in mafic minerals and micas along with quartzfeldspathic groundmass. Magnetite grains observed. In few places contains coarse laths of quartz and plagioclase feldspar in a mafic rich groundmass. Grains are anhedral in shape. Shows chloritization along fractures which are inclined at 30-35 ^{0}. Generally showing low magnetism apart from places rich in magnetite specs.
19.7.12	583.50	586.50	3.00	2.97	99.00	DR	Diorite	Grey	MD to CS	90.67	Little chloritization and clay alteration along fractures.	Hard, dense, compact, intact, fractured.	Grey to whitish Grey coloured, medium to coarse grained, porphyritic igneous rock with abundant mafic minerals and micaceous minerals along with quartzofeldspathic mass. The rock contains large laths of quartz and feldspar. Grains are anhedral. Shows alteration along fractures inclined at ~ 50 ^{0}. Shows lesser magnetism due to less magnetite content.
19.7.12	586.50	589.50	3.00	3.00	100.00	DR	Diorite	Grey	MD to CS	88.00	Little chloritization and clay alteration along fractures.	Hard, dense, compact, intact, fractured.	No change in rock properties.It is Grey to whitish Grey coloured, medium to coarse grained, porphyritic igneous rock with abundant mafic minerals and micaceous minerals along with quartzofeldspathic mass. The rock contains large laths of quartz and feldspar. Grains are anhedral. Shows alteration along fractures inclined at ~ 50 ^{0}. Shows lesser magnetism due to less magnetite content. Presence of calcareous veins observed along minute fractures. Magnetic susceptibilty low.
19.7.12	589.50	592.50	3.00	3.00	100.00	DR and Chert	Diorite/Chert	Grey and Greyish pink	FN to MD	38.00	Highly altered, chloritization along fractures	Hard, compact , highly fractured, broken	Grey to whitish Grey, fine to medium grained, porphyritic igneous rock with mafics, micas and quartzofeldspathic mass. Moderately magnetic. From 589.8 m to 591.75 m, there is a thick, pinkish Grey coloured, cherty band, which has a diffused contact with Diorite. It is highly broken, fractured and altered to chloritic material. Several fine calcareous veins are also observed.
19.7.12	592.50	595.50	3.00	3.00	100.00	DR and Chert	Diorite/Chert	Grey and Greyish pink	FN to MD	79.00	Little chloritization along fractures.	Hard, compact, dense, intact with few fractures.	Grey, fine to medium grained, porphyritic igneous rock, with high proportion of mafic minerals, micas along with quartzofeldspathic mass. Contains fractures inclined at 20-30 ^{0} to 70 ^{0} and shows alteration. Feebly magnetic , magnetism higher in places with greater concentration of magnetite. Shows presence of 22 cm thick chert band from 592.57 m.
19.7.12	595.50	598.50	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	70.00	Little chloritization along fractures.	Hard, compact, dense, intact with few fractures.	Rock properties unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock, with high proportion of mafic minerals, micas along with quartzofeldspathic mass. Contains fractures inclined at 20 ^{0} to 70 ^{0} and shows alteration. Feebly magnetic , magnetism higher in places with greater concentration of magnetite. Few calcareous veins observed along fractures.
19.7.12	598.50	601.50	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	88.33	Little chloritization along fractures.	Hard, compact, dense, intact with few fractures.	Rock properties unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock, with high proportion of mafic minerals, micas along with quartzofeldspathic mass. Contains fractures inclined at 20 ^{0} to 70 ^{0} and shows alteration. Feebly magnetic , magnetism higher in places with greater concentration of magnetite. Silica content decreases , more magnetic. Calcareous veins observed and also a zone of intense alteration along a fracture.
19.7.12	601.50	604.50	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	88.00	Little chloritization along fractures.	Hard, compact, dense, intact with few fractures.	Rock properties unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock, with high proportion of mafic minerals, micas along with quartzofeldspathic mass. Contains fractures inclined at 10 ^{0} to 15 ^{0} and shows alteration. Feebly magnetic , magnetism higher in places with greater concentration of magnetite. Silica content decreases , more magnetic. Calcareous veins observed and also zones of intense alteration along fractures.
19.7.12	604.50	607.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	73.33	Little chloritization along fractures.	Hard, compact, dense, intact with few fractures.	Grey, fine to medium grained, porphyritic igneous rock, with abundant mafic minerals, micaceous minerals, along with quartzofeldspathic groundmass. Shows inclined (15-70 ^{0}) fractures along which it is slightly altered (chloritized). Show moderate magnetism as it has higher magnetite.
19.7.12	607.50	610.50	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	79.33	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism.
19.7.12	610.50	613.50	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	83.67	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Rock properties and composition same and unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism.
19.7.12	613.50	616.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	86.33	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Rock properties and composition same and unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism. Magnetism higher than before due to higher percentage of magnetite.
19.7.12	616.50	619.50	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	88.33	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Rock properties and composition same and unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism. Magnetism higher than before due to higher percentage of magnetite.
19.7.12	619.50	622.50	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	70.67	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Rock properties and composition same and unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism. Magnetism higher than before due to higher percentage of magnetite.

19.7.12	622.50	625.50	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	71.67	Altered to chloritic material along fractures.	Hard, compact, dense, intact, fractured.	Rock properties and composition same and unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with high proportion of mafic minerals and micaceous minerals along with quartzfeldspathic mass. Shows fractures inclined at 40-70 ^{0}. Shows clay alteration as well as chloritic alteration along fractures. Shows moderate magnetism, at places with higher quartzofeldspathic mass shows feeble magnetism. Magnetism higher than before due to higher percentage of magnetite.
20.7.12	625.50	628.50	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	78.67	Altered along fractures to chloritic material	Hard, compact, dense, intact, fractured.	Grey, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and mica along with some quartzofeldspathic groundmass. The grains are subhedral to anhedral. The rock is characterized by several fractures which are inclined at 10 - 65 ^{0}. There is chloritic alteration along the fractures. The rock shows moderate magnetism due to higher percentage of magnetite. Few calcareous veins are also present.
20.7.12	628.50	631.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	77.67	Altered along fractures to chloritic material	Hard, compact, dense, intact, fractured.	The rock properties and composition are same as previous run. It is Grey, fine to medium grained, porphyritic igneous rock with high percentage of mafic minerals and mica along with some quartzofeldspathic groundmass. The grains are subhedral to anhedral. The rock is characterized by several fractures which are inclined at 10 - 65 ^{0}. There is chloritic alteration along the fractures. . Few calcareous veins are also present. Shows higher extent of alteration along the fractures. Percentage of mafics decreases. Moderate to feebly magnetic.
20.7.12	631.50	634.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	78.33	Altered along fractures to chloritic material	Hard, compact, dense, intact, fractured.	Fine to medium grained, Grey coloured, porphyritic igneous rock with high proportion of mafic mineralsand micas along with quartzofeldspathic mass. There are several fractures which are inclined at 30-70 ^{0} and showing chloritic alteration.Shows presence of calcareous materials along the fractures and shows moderate magnetism. Magnetism is higher in zones/pockets due to higher magnetite content.
20.7.12	634.50	637.50	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	72.33	Altered along fractures, chloritized.	Hard, compact, dense, intact, fractured.	Grey, fine to medium grained, porphyritic igneous rock rich in mafic minerals, micas and also consists of quartzofeldspathic mass. Grains are subhedral to anhedral in shape and the rock is characterized by several fractures inclined at 30-60 ^{0}. Some of these fractures show minor chloritic alteration. The rock shows moderate to feeble magnetism.
20.7.12	637.50	640.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	69.33	Altered along fractures, chloritized.	Hard, compact, dense, intact, fractured.	The rock properties are unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock rich in mafic minerals, micas and also consists of quartzofeldspathic mass. Grains are subhedral to anhedral in shape and the rock is characterized by several fractures inclined at 30-60 ^{0}. Some of these fractures show minor chloritic alteration. The rock shows moderate to feeble magnetism.
20.7.12	640.50	643.50	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	94.67	Altered along fractures, chloritized.	Hard, compact, dense, intact, fractured.	The rock properties are unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock rich in mafic minerals, micas and also consists of quartzofeldspathic mass. Grains are subhedral to anhedral in shape and the rock is characterized by several fractures inclined at 30-60 ^{0}. Some of these fractures show minor chloritic alteration. The rock shows moderate to feeble magnetism.
20.7.12	643.50	646.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	94.00	Altered along fractures, significantly chloritized.	Hard, compact, dense, intact, fractured.	The rock properties are unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock rich in mafic minerals, micas and also consists of quartzofeldspathic mass. Grains are subhedral to anhedral in shape and the rock is characterized by several fractures inclined at 30-60 ^{0}. Some of these fractures show minor chloritic alteration. The rock shows moderate to feeble magnetism.
20.7.12	646.50	649.50	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	91.00	Altered along fractures, significantly chloritized.	Hard, compact, dense, intact, fractured.	The rock properties are unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock rich in mafic minerals, micas and also consists of quartzofeldspathic mass. Grains are subhedral to anhedral in shape and the rock is characterized by several fractures inclined at 30-60 ^{0}. Some of these fractures show minor chloritic alteration. The rock shows moderate to feeble magnetism.
20.7.12	649.50	652.50	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	95.67	Little chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	Grey coloured, fine to medium grained, porphyritic igneous rock rich in mica and mafic minerals along with quartzofeldspathic mass. The rock consists of some calcareous material and shows alteration alng fractures. Fractures are inclined at 40-65 ^{0}. Moderately magnetic.
21.7.12	652.50	653.00	0.50	0.50	100.00	DR	Diorite	Grey	FN to MD	80.00	Little chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock is same with unchanged mineralogical composition and properties.Grey coloured, fine to medium grained, porphyritic igneous rock rich in mica and mafic minerals along with quartzofeldspathic mass. The rock consists of some calcareous material and shows alteration along fractures. Fractures are inclined at 40-65 ^{0}. Moderately magnetic.
21.7.12	653.00	656.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	92.00	Little chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	Grey coloured, fine to medium grained, porphyritic igneous rock enriched in mica and mafic minerals along with quartzofeldspathi mass. The percentage of felsic componenets higher. The rock consists of multiple fractures inclined at 30-70 ^{0}. Shows chloritic alteration along fractures. Feebly magnetic.
21.7.12	656.00	659.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	86.00	Little chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock composition and properties unchanged. It is a Grey coloured, fine to medium grained, porphyritic igneous rock enriched in mica and mafic minerals along with quartzofeldspathi mass. The percentage of felsic componenets higher. The rock consists of multiple fractures inclined at 30-70 ^{0}. Shows chloritic alteration along fractures. Feebly magnetic.
21.7.12	659.00	662.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	85.67	Little chloritization along fractures.	Hard, compact, dense, intact, fractured.	Fine to medium grained, Grey coloured, porphyritic igneous rock consisting of mafic minerals, micas and quartzofeldspathic mass. Grains are subhedral to anhedral. Shows multiple fractures inclined at 40-75 ^{0}. Fractures show little chloritization. Percentage of felsic components higher than previous runs. Feebly magnetic, though shows moderate magnetism in few places.
21.7.12	662.00	665.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	80.00	Little chloritization along fractures along with little clay mineralization.	Hard, compact, dense, intact, fractured.	Fine to medium grained, Grey coloured, porphyritic igneous rock with mafic minerals, micas along with quartzofeldspathic mass. Percentage of mafic minerals higher. Shows fractures inclined at 20-70 ^{0} and there is alteration along the fractures. Moderately to feebly magnetic.

21.7.12	665.00	668.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	92.00	Little chloritization along fractures along with little clay mineralization.	Hard, compact, dense, intact, fractured.	No change in rock properties. Fine to medium grained, Grey coloured, porphyritic igneous rock with mafic minerals, micas along with quartzofeldspathic mass. Percentage of mafic minerals higher. Shows fractures inclined at 20-70 ^{0} and there is alteration along the fractures. Moderately to feebly magnetic.
21.7.12	668.00	671.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	81.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured.	Grey, fine to medium grained, porphyritic igneous rock with significant proportions of mafic minerals and micaceous minerals along with quartzofeldspathic mass. Felsic components are higher than the previous core/run. Shows multiple fractures inclined at 20-60 ^{0}. Chloritic alteration along fractures. The rock is feebly magnetic indicating lesser proportion of magnetite.
21.7.12	671.00	674.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	65.67	Chloritic alteration along fractures	Hard, compact, dense, broken in parts	Rock properties unchanged. It is Grey, fine to medium grained, porphyritic igneous rock with significant proportions of mafic minerals and micaceous minerals along with quartzofeldspathic mass. Felsic components are high in proportion. Shows multiple fractures inclined at 20-60 ^{0}. Shows significant chloritic alteration along fractures. The rock is feebly magnetic indicating lesser proportion of magnetite. Some calcareous material is also present along fractures. Very fine silica veins are observed in the core.
22.7.12	674.00	677.00	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	84.33	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts	Grey, fine to medium grained, porphyritic igneous rock with substantial proportion of mafic minerals, micaceous minerals along with quartzofeldspathic mass. Felsic component higher than before. Shows multiple fractures inclined at 30-60 ^{0}. Chloritic alteration observed along fractures. Feebly magnetic, few pockets showing moderate magnetism due to greater concentration of magnetite.
22.7.12	677.00	680.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	79.00	Little chloritic alteration along fractures	Hard, compact, dense, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The rock is fractured with chloritic alteration along fractures. Fractures are inclined at 30-45 ^{0}.Moderately magnetic due to higher percentage of magnetite.
22.7.12	680.00	683.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to CS	58.33	Little chloritic alteration along fractures	Hard, compact, dense, fractured , broken and crushed in places	The lithology is unchanged. It is Grey, fine to medium grained, porphyritic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The rock is fractured with chloritic alteration along fractures. Fractures are inclined at 30-45 ^{0}.Moderately magnetic due to higher percentage of magnetite. Calcareous materials observed along fractures. Grain size increases near a thick zone of alteration along a fracture.
22.7.12	683.00	686.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	74.33	Little chloritic alteration along fractures	Hard, compact, dense, fractured , broken and crushed in places	The lithology is unchanged. It is Grey, fine to medium grained, porphyritic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The rock is fractured with chloritic alteration along fractures. Fractures are inclined at 30-45 ^{0}.Moderately magnetic due to higher percentage of magnetite. Calcareous materials observed along fractures.
22.7.12	686.00	689.00	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	68.00	Little chloritic alteration along fractures	Hard, compact, dense, fractured , broken and crushed in places	The lithology is unchanged. It is Grey, fine to medium grained, porphyritic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The rock is fractured with chloritic alteration along fractures. Fractures are inclined at 45-70 ^{0}.Moderately magnetic due to higher percentage of magnetite. Calcareous materials observed along fractures.
22.7.12	689.00	692.00	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	87.00	Little chloritization along fractures	Hard, compact, dense, intact, fractured	Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, mica and associated with quartzofeldspathic mass.Grains are anhedral to subhedral in shape. Contains few inclined natural fractures dipping at 20-70 ^{0}. Shows chloritic alteration along the fractures. Shows feeble to moderate magnetism, magnetism high in few places indicating higher percentage of disseminated magnetite
22.7.12	692.00	695.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	72.00	Little chloritization along fractures	Hard, compact, dense, intact, fractured	Rock properties and composition unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, mica and associated with quartzofeldspathic mass.Grains are anhedral to subhedral in shape. Contains few inclined natural fractures dipping at 20-70 ^{0}. Shows chloritic alteration along the fractures. Shows feeble to moderate magnetism, magnetism high in few places indicating higher percentage of disseminated magnetite
22.7.12	695.00	698.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	44.33	Little chloritization along fractures	Hard, compact, dense, intact, fractured, broken in most parts	Rock properties and composition unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock with abundant mafic minerals, mica and associated with quartzofeldspathic mass.Grains are anhedral to subhedral in shape. Contains few inclined natural fractures dipping at 20-70 0. Shows chloritic alteration along the fractures. Shows feeble to moderate magnetism, magnetism high in few places indicating higher percentage of disseminated magnetite. Thick calcareous veins in places, mostly along fractures.
22.7.12	698.00	701.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	61.67	Little chloritization along fractures	Hard, dense, fractured, very broken in parts	Grey, fine to medium grained, porphyritic igneous rock, with high proportion of mafic minerals and micas along with quartzofeldspathic mass. Rocks are highly fractured and broken in several parts. Has inclined fractures dipping at 35-50 0. Shows chloritic alteration along fractures. Few calcitic veins present. Moderately magnetic.
22.7.12	701.00	704.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	64.00	Chloritized along fractures	Hard, compact, intact, dense, fractured, broken in parts.	Fine to medium grained, Grey coloured, porphyritic igneous rock, with abundant mafic minerals and micas along with quartz and plagioclase feldspar. Rock is broken in few parts, shows chloritic alteration along inclined fractures dipping at 25-65 0. Shows moderate magnetism.
22.7.12	704.00	707.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	72.00	Chloritized along fractures	Hard, compact, intact, dense, fractured, broken in parts.	Rock properties and mineralogical cmposition unchanged. It is a fine to medium grained, Grey coloured, porphyritic igneous rock, with abundant mafic minerals and micas along with quartz and plagioclase feldspar. Rock is broken in few parts, shows chloritic alteration along inclined fractures dipping at 25-65 0. Shows moderate magnetism.
22.7.12	707.00	710.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.00	Chloritized along fractures	Hard, compact, intact, dense, fractured, broken in parts.	Rock properties and mineralogical cmposition unchanged. It is a fine to medium grained, Grey coloured, porphyritic igneous rock, with abundant mafic minerals and micas along with quartz and plagioclase feldspar. Rock is broken in few parts, shows chloritic alteration along inclined fractures dipping at 25-65 0. Shows moderate magnetism.

22.7.12	710.00	713.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	85.00	Chloritized along fractures	Hard, compact, intact, dense, fractured, broken in parts.	Rock properties and mineralogical cmposition unchanged. It is a fine to medium grained, Grey coloured, porphyritic igneous rock, with abundant mafic minerals and micas along with quartz and plagioclase feldspar. Rock is broken in few parts, shows chloritic alteration along inclined fractures dipping at 25-65 0. Shows moderate magnetism.
23.7.12	713.00	716.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.33	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to medium grained, Grey coloured, porphyritic, igneous rock with high percentage of mafic minerals, micas along with little quartz and feldspar. The grains are subhedral to anhedral. Very little chloritic alteration along fractures. Fractures are mostly horizontal. Shows feeble magnetism due to lower magnetite content and higher quartzofeldspathic mass.
23.7.12	716.00	719.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	78.00	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	The rock characteristics and composition unchanged. It is a fine to medium grained, Grey coloured, porphyritic, igneous rock with high percentage of mafic minerals, micas along with little quartz and feldspar. The grains are subhedral to anhedral. Very little chloritic alteration along fractures. Fractures are mostly horizontal. There are few fractures which are inclined at 70-75 0. Shows feeble magnetism due to lower magnetite content and higher quartzofeldspathic mass.
23.7.12	719.00	722.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	70.00	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Grey, fine to medium grained, porphyritic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The identifiable grains are subhedral to anhedral in shape along with flaky mica grains. The rock is characterized by several fractures, few longitudinal , few inclined at 30-50 0. Few places/pockets show higher magnetism due to local enrichment of disseminated magnetite.
23.7.12	722.00	725.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	80.33	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	No change in rock properties. It is a Grey, fine to medium grained, porphyritic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The identifiable grains are subhedral to anhedral in shape along with flaky mica grains. The rock is characterized by several fractures, few longitudinal , few inclined at 30-50 0. Few places/pockets show higher magnetism due to local enrichment of disseminated magnetite.
23.7.12	725.00	728.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	81.67	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	No change in rock properties. It is a Grey, fine to medium grained, porphyritic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The identifiable grains are subhedral to anhedral in shape along with flaky mica grains. The rock is characterized by several fractures, few longitudinal , few inclined at 30-50 0. Few places/pockets show higher magnetism due to local enrichment of disseminated magnetite.
23.7.12	728.00	731.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	62.67	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured, broken in parts.	Grey, fine to medium grained, porphyritic igneous rock with moderate magnetism. Magnetism is stronger in few parts due to greater concentration of disseminated magnetite. Lower 50 cm of the core is more felsic rich. The overall rock is enriched in mafic minerals, micaeous minerals along with quartzofeldspathic mass. Several inclined fractures are present , shows chloritic alteration along fractures. Few zones are highly altered. Fractures are dipping at 40-60 0.
23.7.12	731.00	734.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.67	No	Hard, compact, intact, dense, no natural fractures.	Porphyritic, Grey coloured, fine to medium grained igneous rock rich in mafic minerals and mica along with quartzo feldspathic mass. The rock is devoid of any natural fractures and there is no alteration. It is moderately magnetic, magnetism is higher in pockets due to enrichment of magnetite.
23.7.12	734.00	737.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	86.00	Little chloritic alteration along fractures.	Hard, compact, intact, dense, few fractures.	Porphyritic, Grey coloured, fine to medium grained igneous rock with moderate magnetism, enriched in mafic minerals and micas along with quartzofeldspathic mass. The fractures are inclined at 10-30 0 with little chloritic alteration. Calcareous veins are observed along some fractures. Few pockets with higher magnetism observed .
24.7.12	737.00	740.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	85.33	No	Hard, compact, intact, dense, fractured.	Porphyritic, Grey coloured, fine to medium grained, feeble to moderately magnetic igneous rock with high percentage of mafic minerals and mica. Quartzofeldspathic mass present. Few larger mica flakes observed. Few fractures present, inclined at 40-60 0. No alteration along fractures. Magnetism increases in few parts.
24.7.12	740.00	743.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	81.33	No	Hard, compact, intact, dense, fractured.	Fine to medium grained, porphyritic igneous rock, Grey in colour, moderately magnetic, emriched in quartzofeldspathic components along wth mafic minerals and mica. Shows few horizontal fractures without alteration. Magnetism increases where there is more magnetite. Felsic rich parts show lower magnetism.
24.7.12	743.00	746.00	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	88.33	No	Hard, compact, intact, dense, fractured.	The rock properties and mineralogical composition unchanged. It is fine to medium grained, porphyritic igneous rock, Grey in colour, moderately magnetic, enriched in quartzofeldspathic components along wth mafic minerals and mica. Shows few horizontal fractures without alteration. Magnetism increases where there is more magnetite. Felsic rich parts show lower magnetism. From 743.23 m to 743.42 m, there is a zone with high felsic components showing lower magnetism.
24.7.12	746.00	749.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	81.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Porphyritic, Grey coloured, fine to medium grained, igneous rock , moderately magnetic, enriched in mafic mnerals, micaceous minerals along with quartz , plagioclase feldspar and few zones enriched in disseminated magnetite. The rock shows several inclined fractures, dipping at 50-75 0 and shows chloritic alteration. Magnetism is higher in pockets with more disseminated magnetite.
24.7.12	749.00	752.00	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	89.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	The rock is unchanged and is a porphyritic, Grey coloured, fine to medium grained, igneous rock , moderately magnetic, enriched in mafic mnerals, micaceous minerals along with quartz , plagioclase feldspar and few zones enriched in disseminated magnetite. The rock shows several inclined fractures, dipping at 50-75 0 and shows chloritic alteration. Magnetism is higher in pockets with more disseminated magnetite.
24.7.12	752.00	755.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	87.00	No	Hard, compact, intact, dense, fractured.	Grey, fine to medium grained, porphyritic igneous rock with feeble to moderate magnetism , enriched in mafic minerals, micas along with quartz and plagioclase feldspar. Few inclined fractures present which show no alteration. Dips of fractures vary from 50-70 0. Few silica rich veins present. Magnetism increases in few zones with more content of disseminated magnetite.

24.7.12	755.00	758.00	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN to CS	80.67	No	Hard, compact, intact, dense, fractured.	Whitish Grey coloured, fine to coarse grained, porphyritic igneous rock, feeble to moderately magnetic, enriched in mafic minerals and mica. Percentage of quartzfeldspathic mass increases. Fractures are mostly horizontal and few dipping at shallow angle. No alteration along fractures. Few zones of coarse quartz grains present. Shows few pockets of higher magnetism.
24.7.12	758.00	761.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	92.67	Chloritization along fractures.	Hard, compact, intact, dense, fractured.	Grey coloured, porphyritic, fine to medium grained igneous rock enriched in mafic minerals and mica along with quartzfeldspathic mass. The rock shows several inclined fractures dipping at 40-45 0, having chloritic alteration. Shows moderate to feeble magnetism. Few silica and calcareous veins present.
24.7.12	761.00	764.00	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	92.00	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	dark grey coloured, porphyritic, fine to medium grained, moderately magnetic igneous rock enriched in mafic minerals, micas along with quartzofeldspathic mass. The rock shows distinct zones of enrichment of felsic minerals. There are several fractures inclined at 60-70 0, showing chloritic alteration. Pockets of higher magnetism observed due to local enrichment of disseminated magnetite.
24.7.12	764.00	767.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	91.00	No	Hard, compact, intact, dense, fractured.	dark grey coloured, porphyritic igneous rock, fine to medium grained,moderately magnetic with high proportion of mafic minerals, mica along with quartzofeldspathic mass. Few inclined (40-50 0) natural fractures present devoid of any alteration.
24.7.12	767.00	770.00	3.00	3.01	100.00	DR	Diorite	Grey	FN to CS	92.00	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	dark grey to whitish Grey in colour, porphyritic, fine to coarse grained, mafic igneous rock rich in mafic minerals and mica along with quartzofeldspathic mass. Feebly to moderately magnetic. Distinct zones enriched in felsic minerals are observed. Fractures inclined (30-50 0) are observed. Zones of higher magnetism present.
24.7.12	770.00	773.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to CS	88.00	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to coarse grained, dark grey to whitish Grey coloured, porphyritic igneous rock, moderately to feebly magnetic, enriched in mafic minerals, mica, pockets of disseminated magnetite along with quartzofeldspathic mass. Lower 1.2 m is enriched in coarse felsic minerals. Fractures inclined at 20-30 0 present, shows chloritic alteration, calcareous veins present.
24.7.12	773.00	776.00	3.00	3.01	100.00	DR	Diorite	Grey	FN to CS	82.00	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	The rock is unchanged and it is a fine to coarse grained, dark grey to whitish Grey coloured, porphyritic igneous rock, moderately to feebly magnetic, enriched in mafic minerals, mica, pockets of disseminated magnetite along with quartzofeldspathic mass. Fractures inclined at 20-30 0 present, shows chloritic alteration, calcareous veins present.
24.7.12	776.00	779.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to CS	92.33	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	The rock is unchanged and it is a fine to coarse grained, dark grey to whitish Grey coloured, porphyritic igneous rock, moderately to feebly magnetic, enriched in mafic minerals, mica, pockets of disseminated magnetite along with quartzofeldspathic mass. Fractures inclined at 20-30 0 present, shows chloritic alteration, calcareous veins present.
24.7.12	779.00	782.00	3.00	2.95	98.33	DR	Diorite	Grey	FN to CS	92.00	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to coarse grained, porphyritic, Grey coloured, moderately magnetic, mafic igneous rock rich in mafic minerals, micas along with quartzofeldspathic mass. Few zones of coarsegrained felsic minerals observed. Few inclined fractures dipping ~ 20 0 present. Chloritic alteration is present along fractures. Few pockets/zones of higher magnetism present due to higher magnetite.
24.7.12	782.00	785.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	83.33	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	The rock type is unchanged - fine to coarse grained, porphyritic, Grey coloured, moderately magnetic, mafic igneous rock rich in mafic minerals, micas along with quartzofeldspathic mass. Few zones of coarsegrained felsic minerals observed. Few inclined fractures dipping ~ 20 0 present. Chloritic alteration is present along fractures. Few pockets/zones of higher magnetism present due to higher magnetite.
24.7.12	785.00	788.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	70.00	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to medium grained, porphyritic, Greyish coloured, mafic igneous rock, moderately to feebly magnetic, having significant mafic and mica content, also containing quartzofeldspathic minerals, quartz enriched zones present. Few calcitic veins also noted. Inclined fractures (40-50 0) present.
25.7.12	788.00	791.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	90.33	No	Hard, compact, intact, dense, fractured.	Fine to medium grained, Grey, porphyritic, mafic, feebly magnetic igneous rock, enriched in mafic minerals, micas along with quartzofeldspathic mass and disseminated magnetite. There are few zones, mostly in the lower 1 m, where the proportion of felsic minerals is higher. The rock shows few fractures inclined at ~ 15 0 without any alteration. The rock is feebly magnetic, few pockets / zones of higher magnetism present.
25.7.12	791.00	794.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	88.00	Chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to medium grained, Grey, porphyritic, mafic, feebly magnetic igneous rock with high proportion of mafic minerals, micas, along with quartz, plagioclase feldspar and disseminated magnetite. Lower part of the core contains less silica and is more magnetic. Shows chloritic alteration along fractures inclined at ~ 15-25 0.
25.7.12	794.00	797.00	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	76.67	Little chloritic alteration along fractures.	Hard, compact, intact, dense, fractured, broken in few parts.	Fine to medium grained, porphyritic, Grey coloured, mafic, moderately to feebly magnetic igneous rocks enriched in mafic minerals, micas, along with quartz, plagioclase feldspar and disseminated magnetite. Few parts show local increase in the felsic content. Fractures inclined at 15 - 65 0 and chloritized present. Calcareous veins observed.
25.7.12	797.00	800.00	3.00	2.98	99.33	DR	Diorite	Grey to whitish Grey	FN to CS	75.33	No	Hard, compact, intact, dense, fractured.	Greyish to whitish Grey coloured, fine to coarse grained, porphyritic igneous rock with moderate to feeble magnetism, enriched in micaceous minerals, mafic minerals along with quartzofeldspathic and calcareous mass. Bottom 1.3 m consists of a zone of very high calcareous material content. Inclined fractures present with presence of pyrite. Fractures are dipping at 20-60 0. Few localized zones/ pockets present with higher magnetism due to higher magnetite content.

25.7.12	800.00	803.00	3.00	2.95	98.33	DR	Diorite	Grey to whitish Grey	FN to CS	60.00	Chloritic alteration	Hard, compact, intact, dense, highly fractured.	The rock properties are same. It is a Greyish to whitish Grey coloured, fine to coarse grained, porphyritic igneous rock with moderate to feeble magnetism, enriched in micaceous minerals, mafic minerals along with quartzofeldspathic and calcareous mass. Top 1.4 m consists of a zone of very high calcareous material content and coarse grained. Multiple inclined fractures present , devoid of pyrite. Fractures are dipping at 20-60 0. Few localized zones/ pockets present with higher magnetism due to higher magnetite content.
25.7.12	803.00	806.00	3.00	3.00	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	72.00	Little chloritic alteration	Hard, compact, intact, dense, highly fractured.	Greyish, fine to medium grained, porphyritic, feebly to moderately magnetic igneous rock enriched in mafic minerals, micaceous minerals along with quartz, feldspar, disseminated magnetite and little calcareous material. Contains inclined (20-60 0) fractures with chloritization.
25.7.12	806.00	809.00	3.00	3.00	100.00	DR	Diorite	Grey to whitish Grey	FN to CS	41.67	Little chloritic alteration	Hard, compact, intact, dense, fractured, broken in parts.	Grey to whitish Grey, porphyritic, fine to coarse grained, mafic, feebly to moderately magnetic igneous rock consisting of mafic minerals, micas, quartzofeldspathic groundmass along with calcareous material in minor proportion. Very fine calcareous veins present. Localized zones of enrichment of felsic minerals observed. Multiple fractures inclined at 20-50 0 present. Shows little chloritic alteration. Few zones/pockets of higher magnetism present.
25.7.12	809.00	812.00	3.00	2.93	97.67	DR	Diorite	Grey to whitish Grey	FN to CS	76.67	Little chloritic alteration	Hard, compact, intact, dense, fractured, broken in parts.	The rock is unchanged with same properties and composition. Grey to whitish Grey, porphyritic, fine to coarse grained, mafic, feebly to moderately magnetic igneous rock consisting of mafic minerals, micas, quartzofeldspathic groundmass along with calcareous material in minor proportion. Very fine calcareous veins present. Localized zones of enrichment of felsic minerals observed. Multiple fractures inclined at 20-50 0 present. Shows little chloritic alteration. Few zones/pockets of higher magnetism present.
25.7.12	812.00	815.00	3.00	3.03	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	92.00	Little chloritic alteration	Hard, compact, intact, dense, fractured, broken in parts.	Grey to whitish Grey, fine to medium grained, porphyritic , mafic igneous rock, feebly to moderately magnetic. Consisting of high percentage of micaceous minerals, mafic minerals along with quartzofeldspathic mass. Localized zones of silica enrichment present. Shows inclined fractures, dipping at 15-30 0, with chloritic alteration. Pockets of higher magnetism present.
25.7.12	815.00	818.00	3.00	3.04	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	79.00	Little chloritic alteration	Hard, compact, intact, dense, fractured, broken in parts.	The rock is unchanged and it is a Grey to whitish Grey, fine to medium grained, porphyritic , mafic igneous rock, feebly to moderately magnetic. Consisting of high percentage of micaceous minerals, mafic minerals along with quartzofeldspathic mass. Localized zones of silica enrichment present. Shows inclined fractures, dipping at 15-30 0, with chloritic alteration. Pockets of higher magnetism present.
26.7.12	818.00	821.00	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	86.33	No	Hard, compact, intact, dense, fractured.	Grey, fine to medium grained, porphyritic, feeble to moderately magnetic, mafic igneous rock with dominant mafic minerals, micaceous minerals, quartzofeldspathic mass and disseminated magnetite. Proportion of magnetite varies, increases in few pockets leading to higher magnetism. Fractures present which are horizontal to inclined at 10 - 15 0. No alteration is observed along fractures.
26.7.12	821.00	824.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	91.67	No	Hard, compact, intact, dense, fractured, broken in parts.	There is no change in the rock properties and it is a Grey, fine to medium grained, porphyritic, feeble to moderately magnetic, mafic igneous rock with dominant mafic minerals, micaceous minerals, quartzofeldspathic mass and disseminated magnetite. Proportion of magnetite varies, increases in few pockets leading to higher magnetism. Fractures present which are horizontal to inclined at 10 - 15 0. No alteration is observed along fractures. Characteristically shows much higher magnetism than before.
26.7.12	824.00	827.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	86.67	No	Hard, compact, intact, dense, fractured, broken in parts.	There is no change in the rock properties and it is a Grey, fine to medium grained, porphyritic, feeble to moderately magnetic, mafic igneous rock with dominant mafic minerals, micaceous minerals, quartzofeldspathic mass and disseminated magnetite. Proportion of magnetite varies, increases in few pockets leading to higher magnetism. Fractures present which are horizontal to inclined at 10 - 15 0. No alteration is observed along fractures. Characteristically shows much higher magnetism than before. Few places show higher concentration of felsic components in bands. Shows thin silica rich bands as well.
26.7.12	827.00	830.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	86.33	No	Hard, compact, intact, dense, fractured, broken in parts.	Grey to whitish Grey, fine to medium grained, porphyritic, feebly to moderately magnetic, mafic igneous rock with mafic minerals, micaceous minerals, quartzofeldspathic mass and magnetite. Fractures inclined at 10 - 15 0 are present and devoid of any alteration. Few places show higher magnetism due to greater concentration of disseminated magnetite.
26.7.12	830.00	833.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to CS	76.67	No	Hard, compact, intact, dense, fractured.	Grey to whitish Grey, fine to coarse grained, porphyritic, moderately magnetic, mafic igneous rock rich in mafic minerals, mica, quatzofeldspathic mass and disseminated magnetite. Magnetite proportion increases in places giving higher magnetism. Few zones have greater concentration of felsic minerals. Horizontal fractures present without any alteration.
26.7.12	833.00	836.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	81.33	No	Hard, compact, intact, dense, fractured.	The rock is unchanged with same composition and textural attributes. Grey to whitish Grey, fine to coarse grained, porphyritic, moderately magnetic, mafic igneous rock rich in mafic minerals, mica, quatzofeldspathic mass and disseminated magnetite. Magnetite proportion increases in places giving higher magnetism. Few zones have greater concentration of felsic minerals. Horizontal fractures present without any alteration.
26.7.12	836.00	839.00	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	85.33	No	Hard, compact, intact, dense, fractured.	Greyish, fine to medium grained, porphyritic, moderately to feebly magnetic, mafic igneous rock consisting of mafic minerals, mica, quartzofeldspathic mass and disseminated magnetite. Very little calcareous material is present. Consisting of fractures inclined at 10 -15 0, no alteration along the fractures. Few zones/pockets show higher magnetism due to greater magnetite content.
26.7.12	839.00	842.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	90.33	No	Hard, compact, intact, dense, fractured.	No change in rock properties. It is a Greyish, fine to medium grained, porphyritic, moderately to feebly magnetic, mafic igneous rock consisting of mafic minerals, mica, quartzofeldspathic mass and disseminated magnetite. Very little calcareous material is present. Consisting of fractures inclined at 10 - 15 0, no alteration along the fractures. Few fractures are inclined at 40 -45 0.Few zones/pockets show higher magnetism due to greater magnetite content.
26.7.12	842.00	845.00	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	92.33	No	Hard, compact, intact, dense, fractured.	Grey coloured, fine to medium grained, porphyritic, feebly to moderately magnetic , mafic igneous rock consisting of mafic minerals, micas, quartzofeldspathic mass and magnetite. Little calcareous material is present. Consists of fractures inclined at 20-50 0. Devoid of any alteration. Few zones/pockets have higher magnetism due to higher magnetite content. Few quartz rich veins present.

26.7.12	845.00	848.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	62.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured intensely, broken in parts.	Grey coloured, fine to medium grained, porphyritic, feebly to moderately magnetic, mafic igneous rock consisting of high proportion of mafic minerals and mica along with quartzofeldspathic mass and magnetite. The rock is intensely fractured, fractures being inclined at 20 - 70 0 and shows chloritic alteration. Several zones show enrichment of felsic materials, thick silica rich bands are also observed. Few pockets of higher magnetism seen.
26.7.12	848.00	851.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	62.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured intensely, broken in parts.	The rock proterties are unchanged. It is a Grey coloured, fine to medium grained, porphyritic, feebly to moderately magnetic, mafic igneous rock consisting of high proportion of mafic minerals and mica along with quartzofeldspathic mass and magnetite. The rock is intensely fractured, fractures being inclined at 20 - 70 0 and shows chloritic alteration. Several zones show enrichment of felsic materials, thick silica rich bands are also observed. Few pockets of higher magnetism seen.
26.7.12	851.00	854.00	3.00	2.95	98.33	DR	Diorite	Grey	FN to CS	83.67	Chloritic alteration as well as clay alteration along fractures	Hard, compact, intact, dense, fractured .	Fine to coarse grained, porphyritic, Grey coloured, mafic igneous rock with mafic minerals, micas, disseminated magnetite along with quartzofeldspathic mass. The rock is intensely fractured, fractures inclined at 30 - 70 ^{0}. Shows chloritic as well as clay alteration. Several zones of higher silica content present. Shows pockets/zones of higher magnetism due to higher magnetite content. Few silica bands/veins observed, few thick.
26.7.12	854.00	857.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to CS	72.67	Chloritic alteration as well as clay alteration along fractures	Hard, compact, intact, dense, fractured .	Fine to coarse grained, porphyritic, Grey coloured, mafic igneous rock with mafic minerals, micas, disseminated magnetite along with quartzofeldspathic mass. The rock is intensely fractured, fractures inclined at 30 - 70 ^{0}. Shows chloritic as well as clay alteration. Several zones of higher silica content present. Shows pockets/zones of higher magnetism due to higher magnetite content. Few silica bands/veins observed, few thick. Few calcareous veins are also present.
26.7.12	857.00	860.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to CS	84.00	Chloritic alteration as well as clay alteration along fractures	Hard, compact, intact, dense, fractured .	The rock is unchanged with same composition and textural attributes. It is a fine to coarse grained, porphyritic, Grey coloured, mafic igneous rock with mafic minerals, micas, disseminated magnetite along with quartzofeldspathic mass. The rock is intensely fractured, fractures inclined at 30 - 70 ^{0}. Shows chloritic as well as clay alteration. Several zones of higher silica content present. Shows pockets/zones of higher magnetism due to higher magnetite content. Few silica bands/veins observed, few thick. Few calcareous veins are also present.
26.7.12	860.00	863.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to CS	81.00	Chloritic alteration as well as clay alteration along fractures	Hard, compact, intact, dense, fractured .	The rock is unchanged with same composition and textural attributes. It is a fine to coarse grained, porphyritic, Grey coloured, mafic igneous rock with mafic minerals, micas, disseminated magnetite along with quartzofeldspathic mass. The rock is intensely fractured, fractures inclined at 30 - 70 ^{0}. Shows chloritic as well as clay alteration. Several zones of higher silica content present. Shows pockets/zones of higher magnetism due to higher magnetite content. Few silica bands/veins observed, few thick. Few calcareous veins are also present.
26.7.12	863.00	866.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to VCS	66.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured, broken in parts .	Fine to very coarse grained, Grey to whitish Grey to white, porphyritic, mafic, low to moderately magnetic igneous rock consisting of mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. From 863.68 m to 847.02 m, the zone consists of very coarse grained rock with large laths of muscovite, biotite, pyroxene, with fine grains of magnetite. Frcatures inclined at 50 - 80 ^{0}, chloritized.
26.7.12	866.00	869.00	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	93.67	No	Hard, compact, intact, dense, fractured.	Grey, fine to medium grained, porphyritic igneous rock, with mafic minerals, mica, quartzofeldspathic mass and disseminated magnetite. The rock is feebly to moderately magnetic, few zones present with higher magnetism due to greater concentration of magnetite along these zones/pockets. Few fine silica rich bands present. Fractures present, mostly horizontal, no alteration is present.
26.7.12	869.00	872.00	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	82.67	No	Hard, compact, intact, dense, fractured.	The rock is unchanged and is a Grey, fine to medium grained, porphyritic igneous rock, with mafic minerals, mica, quartzofeldspathic mass and disseminated magnetite. The rock is feebly to moderately magnetic, few zones present with higher magnetism due to greater concentration of magnetite along these zones/pockets. Few fine silica rich bands present. Fractures present, mostly horizontal, no alteration is present.
27.7.12	872.00	875.00	3.00	3.01	100.00	evoid of alterati	Diorite	Grey	FN to MD	92.67	No	Hard, compact, intact, dense, no natural fractures.	Grey, fine to medium grained, porphyritic, mafic igneous rock with feeble magnetism, enriched in mafic minerals, micas, quartzofeldspathic mass along with disseminated magnetite. There are few zones with higher magnetism due to greater concentration of magnetite. Few zones of silica enrichment present
27.7.12	875.00	878.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	83.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Grey, fine to medium grained, porphyritic, mafic igneous rock with feeble magnetism, enriched in mafic minerals, micas, quartzofeldspathic mass along with disseminated magnetite. There are few zones with higher magnetism due to greater concentration of magnetite. Few zones of silica enrichment present. Inclined (50 - 70 ^{0}) fractures present, shows chloritic alteration. Silica veins present.
27.7.12	878.00	881.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	68.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine, medium grained, porphyritic, mafic, Grey coloured igneous rock with low magnetism. Consisting of mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Larger grains of pyroxene and muscovite observed. Shows fractures inclined at 30 - 80 ^{0} with chloritic alteration. Magnetic susceptibility is higher in some pockets/zones due to higher concentration of magnetite. Few bands with higher silica content present.
27.7.12	881.00	884.00	3.00	2.99	99.67	DR	Diorite	Grey to whitish Grey	FN to MD	73.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine to medium grained, porphyritic, mafic, Grey to whitish Grey coloured igneous rock with moderate to feeble magnetism. Shows greater proportion of felsic minerals along several zones/bands. Few zones show higher magnetism due to greater magnetite content. Shows fractures inclined at 35 - 70 ^{0} with chloritic alteration.
27.7.12	884.00	887.00	3.00	3.00	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	76.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	The rock is unchanged with same composition and textural attributes.It is a fine to medium grained, porphyritic, mafic, Grey to whitish Grey coloured igneous rock with moderate to feeble magnetism. Shows greater proportion of felsic minerals along several zones/bands. Few zones show higher magnetism due to greater magnetite content. Shows fractures inclined at 35 - 70 ^{0} with chloritic alteration.

27.7.12	887.00	890.00	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	63.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine to medum grained, Grey coloured, porphyritic, mafic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Shows alteration along inclined (45 - 60 ^{0}) fractures. Magnetite proportion increases in few places. Shows few zones with high silica content. Few silica veins present.
27.7.12	890.00	893.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	76.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	The rock has same composition and same texture. It is a fine to medum grained, Grey coloured, porphyritic, mafic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Shows alteration along inclined (45 - 60 ^{0}) fractures. Magnetite proportion increases in few places. Shows few zones with high silica content. Few silica veins present.
30.7.12	893.00	896.00	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	83.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	The rock has same composition and same texture. It is a fine to medum grained, Grey coloured, porphyritic, mafic, moderately to feebly magnetic igneous rock enriched in mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Shows alteration along inclined (45 - 60 ^{0}) fractures. Magnetite proportion increases in few places. Shows few zones with high silica content. Few silica veins present.
30.7.12	896.00	899.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	80.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine to medium grained, dark grey coloured, porphyritic, mafic, moderately magnetic igneous rock enriched in mafic minerals, micaceous minerals, quartz, plagioclase feldspar and disseminated magnetite. Shows inclined fractures (30 - 65 ^{0}) along which there is chloritic alteration. There are few zones enriched in silica along which it is intensely fractured. Magnetite proportion is higher than before. Few silica veins and infillings observed.
30.7.12	899.00	902.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	87.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine to medium grained, porphyritic, Grey to whitish Grey, feebly to moderately magnetic, mafic igneous rock consisting of mafic minerals, mica, quartzofeldspathic mass and disseminated magnetite. Shows multiple inclined (25 - 60 ^{0}) fractures with chloritic alteration. Few silica veins present. Shows alternating zones enriched and depleted in silica. Few places show higher magnetism due to greater concentration of magnetite.
30.7.12	902.00	905.00	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	82.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Grey coloured, fine to medium grained, porphyritic igneous rock, moderately to feebly magnetic, consisting of mafic minerals, mica, quartzofeldspathic mass along with disseminated magnetite. Proportion of calcic plagioclase high. There are some distinct zones along which the proportion of quartzofeldspathic mass increases. Fractures inclined (60 - 70 0) along with chloritic alteration. Few zones/pockets of higher magnetism present.
30.7.12	905.00	908.00	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	74.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	The lithlogy is same and is Grey coloured, fine to medium grained, porphyritic igneous rock, moderately to feebly magnetic, consisting of mafic minerals, mica, quartzofeldspathic mass along with disseminated magnetite. Proportion of calcic plagioclase high. There are some distinct zones along which the proportion of quartzofeldspathic mass increases. Fractures inclined (60 - 70 0) along with chloritic alteration. Few zones/pockets of higher magnetism present. Calcareous veins present along fractures.
30.7.12	908.00	911.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	89.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Fine to medium grained, Grey to whitish Grey coloured, porphyritic, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals like pyroxene, micaceous minerals, quartz, feldspar, along with disseminated magnetite. The rock shows high proportion of calcic plagioclase. Some distinct zones are enriched in quartzofeldspathic mass. Fractures inclined (30 - 50 0) and shows chloritic alteration. Shows calcareous veins along some of the fractures.
30.7.12	911.00	914.00	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	86.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	There is no change in lithology. It is a fine to medium grained, Grey to whitish Grey coloured, porphyritic, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals like pyroxene, micaceous minerals, quartz, feldspar, along with disseminated magnetite. The rock shows high proportion of calcic plagioclase. Some distinct zones are enriched in quartzofeldspathic mass. Fractures inclined (30 - 50 0) and shows chloritic alteration. Shows calcareous veins along some of the fractures.
31.7.12	914.00	917.00	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	89.00	Little chloritic alteration	Hard, compact, intact, dense, fractured.	There is no change in lithology. It is a fine to medium grained, Grey to whitish Grey coloured, porphyritic, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals like pyroxene, micaceous minerals, quartz, feldspar, along with disseminated magnetite. The rock shows high proportion of calcic plagioclase. Some distinct zones are enriched in quartzofeldspathic mass. Fractures inclined (30 - 50 0) and shows chloritic alteration. Shows calcareous veins along some of the fractures.
31.7.12	917.00	917.40	0.40	0.41	100.00	DR	Diorite	Grey	FN to MD	72.50	Little chloritic alteration	Hard, compact, intact, dense, fractured.	Fine to medium grained, porphyritic, Greyish to whitish Grey coloured, feebly to moderately magnetic mafic igneous rock enriched in mafic minerals, micas, quartz, plagioclase and magnetite. Characterized by high proportion of calcic plagioclase. Shows little chloritic alteration.
31.7.12	917.40	920.40	3.00	2.95	98.33	DR	Diorite	Grey to whitish Grey	FN to MD	84.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Greyish to whitish Grey in colour, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock with pyroxene, mica (mostly muscovite), quartzofeldspathic mass and disseminated magnetite. Proportion of calcic plagioclase higher, magnetite percentage low. Few fractures present, inclined (50 - 60 0) and with chloritic alteration. Little calcareous material present along fractures.
31.7.12	920.40	923.40	3.00	2.98	99.33	DR	Diorite	Grey to whitish Grey	FN to MD	86.67	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Greyish to whitish Grey in colour, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock with pyroxene, mica (mostly muscovite), quartzofeldspathic mass and disseminated magnetite. Proportion of calcic plagioclase higher, magnetite percentage low. Few fractures present, inclined (50 - 60 0) and with chloritic alteration. Little calcareous material present along fractures. Few zones present with larger concentration of quartzofeldspathic mass.
31.7.12	923.40	926.40	3.00	3.01	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	90.00	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured.	Greyish to whitish Grey in colour, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock with pyroxene, mica (mostly muscovite), quartzofeldspathic mass and disseminated magnetite. Proportion of calcic plagioclase higher, magnetite percentage low. Few fractures present, inclined (50 - 60 0) and with chloritic alteration. Little calcareous material present along fractures. Few zones present with larger concentration of quartzofeldspathic mass.

31.7.12	926.40	929.40	3.00	3.00	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	74.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured, broken in few places.	Greyish to whitish Grey in colour, fine to medium grained, porphyritic , feebly to moderately magnetic, mafic igneous rock with pyroxene, mica, quartzofeldspathic mass and magnetite. Proportion of calcic plagioclase high. Percentage of magnetite higher. Fractures inclined (30 - 80 0) present with chloritic alteration. Calcareous veins and infillings present along fractures.
31.7.12	929.40	932.40	3.00	2.98	99.33	DR	Diorite	Grey to whitish Grey	FN to MD	86.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured, broken in few places.	The rock is unchanged with same mineralogical composition and textural attributes. It is Greyish to whitish Grey in colour, fine to medium grained, porphyritic , feebly to moderately magnetic, mafic igneous rock with pyroxene, mica, quartzofeldspathic mass and magnetite. Proportion of calcic plagioclase high. Percentage of magnetite higher. Fractures inclined (30 - 80 0) present with chloritic alteration. Calcareous veins and infillings present along fractures.
31.7.12	932.40	935.40	3.00	2.96	98.67	DR	Diorite	Grey to whitish Grey	FN to MD	84.33	Chloritic alteration along fractures	Hard, compact, intact, dense, fractured, broken in few places.	The rock is unchanged with same mineralogical composition and textural attributes. It is Greyish to whitish Grey in colour, fine to medium grained, porphyritic , feebly to moderately magnetic, mafic igneous rock with pyroxene, mica, quartzofeldspathic mass and magnetite. Proportion of calcic plagioclase high. Percentage of magnetite higher. Fractures inclined (30 - 80 0) present with chloritic alteration. Calcareous veins and infillings present along fractures.
31.7.12	935.40	938.40	3.00	2.91	97.00	DR	Diorite	Grey to whitish Grey	FN to MD	65.00	Significant chloritic alteration along fractures	Hard, compact, intact, dense, fractured, broken in parts.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured, moderately magnetic, mafic igneous rock with significant amount of mafic minerals, micas (mostly muscovite, little biotite), quartz, plagioclase feldspar and disseminated magnetite. Proportion of calcic plagioclase high, magnetite percentage increases. There are zones along which the proportion of plagioclase is higher. Several calcareous veins present. Significant alteration along fractures. Fractures are mostly inclined at 30 - 40 0.
31.7.12	938.40	941.40	3.00	2.96	98.67	DR	Diorite	Grey to whitish Grey	FN to MD	87.33	Significant chloritic alteration along fractures. In few places clay alteration is present.	Hard, compact, intact, dense, fractured, broken in parts.	The rock is unchanged. It is a fine to medium grained, porphyritic, Grey to whitish Grey coloured, moderately magnetic, mafic igneous rock with significant amount of mafic minerals, micas (mostly muscovite, little biotite), quartz, plagioclase feldspar and disseminated magnetite. Proportion of calcic plagioclase high, magnetite percentage increases. There are zones along which the proportion of plagioclase is higher. Several calcareous veins present. Significant alteration along fractures. Fractures are mostly inclined at 30 - 40 0. Few fractures show significant clay alteration.
31.7.12	941.40	944.40	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	67.00	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Fine to medium grained, Grey coloured, porphyritic igneous rock, mafic, rich in pyroxene, mica , quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase high. Moderately magnetic, few highly magnetic zones present due to local higher concentration of magnetite. Significant number of inclined (45 - 70 0) fractures with high chloritic alteration.
31.7.12	944.40	947.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	86.33	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Rocktype is unchanged.Fine to medium grained, Grey coloured, porphyritic igneous rock, mafic, rich in pyroxene, mica , quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase high. Moderately magnetic, few highly magnetic zones present due to local higher concentration of magnetite. Significant number of inclined (45 - 70 0) fractures with high chloritic alteration. Proportion of calcic plagioclase is lower than previous run and magnetite content increases.
1.8.12	947.40	950.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	87.33	Significant chloritic alteration along fractures.	Hard, compact, intact, dense, fractured.	Rocktype is unchanged.Fine to medium grained, Grey coloured, porphyritic igneous rock, mafic, rich in pyroxene, mica , quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase high. Moderately magnetic, few highly magnetic zones present due to local higher concentration of magnetite. Significant number of inclined (45 - 70 0) fractures with high chloritic alteration. Proportion of calcic plagioclase is lower than previous run and magnetite content increases. Few fracture planes are very polished and shows slickenlines indicating slip along these fractures.
1.8.12	950.40	953.40	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	53.00	Significant chloritic alteration and weathering along fractures and in the bottom 90 cm.	Hard, compact, dense, fractured, broken.	Fine to medium grained, Grey coloured, porphyritic, moderately to feebly magnetic, mafic igneous rock consisting of mafic minerals (pyroxene), micas, quartz, plagioclase feldspar and magnetite. Few pockets are present with higher magnetite content. Bottom 90 cm, highly altered and fractured. Fractures inclined at 60 - 80 0. Calcareous veins present.
1.8.12	953.40	956.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	63.33	Highly weathered and altered along fractures; chloritized.	Hard, compact, dense, fractured, intensely broken in parts.	Fine to medium grained, porphyritic, Greyish coloured, feebly to moderately magnetic, mafic igneous rock enriched in mafic mineral (mostly pyroxene), micas (mostly muscovite, little biotite), quartz, plagioclase feldspar, disseminated magnetite and little calcareous material. Proportion of calcic plagioclase high. Intensely fractured in parts. Shows intense chloritic alteration along fractures. Shows calcareous materials along fractures in few places. Shows zones of higher magnetism due to greater concentration of magnetic
1.8.12	956.40	959.40	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	28.33	Highly weathered and altered along fractures; chloritized.	Hard, compact, dense, fractured, intensely broken in parts.	Fine to medium grained, porphyritic, Greyish coloured, feebly to moderately magnetic, mafic igneous rock enriched in mafic mineral (mostly pyroxene), micas (mostly muscovite, little biotite), quartz, plagioclase feldspar, disseminated magnetite and little calcareous material. Proportion of calcic plagioclase high. Intensely fractured in parts. Shows intense chloritic alteration along fractures. Shows calcareous materials along fractures in few places. Shows zones of higher magnetism due to greater concentration of magnetic
1.8.12	959.40	962.40	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	56.00	Highly weathered and altered along fractures; chloritized.	Hard, compact, dense, fractured, intensely broken in parts.	The rock is unchanged. Fine to medium grained, porphyritic, Greyish coloured, feebly to moderately magnetic, mafic igneous rock enriched in mafic mineral (mostly pyroxene), micas (mostly muscovite, little biotite), quartz, plagioclase feldspar, disseminated magnetite and little calcareous material. Proportion of calcic plagioclase high. Intensely fractured in parts. Shows intense chloritic alteration along fractures. Shows calcareous materials along fractures in few places. Shows zones of higher magnetism due to greater concentration of magnetic minerals. Fractures are inclined at 45 - 75 0. Fractures are less in number, not as broken and altered as before. Proportion of calcic plagioclase and magnetite higher.

1.8.12	962.40	965.40	3.00	2.89	96.33	DR	Diorite	Grey to whitish Grey	FN to MD	39.33	Highly weathered and altered along fractures; chloritic as well as little clay alteration.	Hard, compact, dense, fractured, intensely broken in parts.	Fine to medium grained, porphyritic, Grey to whitish Grey, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals, micas, quartz, plagioclase feldsapar and disseminated magnetite. Proportion of calcic plagioclase higher. There are pockets or zones along which the proportion of magnetite is higher leading to higher magnetism. The rock is intensely fractured and broken with significant chloritic and clay alteration along them. Few calcareous veins are also present. There are zones which has local enrichment of calcic plagioclase.
1.8.12	965.40	968.40	3.00	2.83	94.33	DR	Diorite	Grey to whitish Grey	FN to MD	9.30	Highly weathered and altered along fractures; chloritic as well as little clay alteration.	Hard, compact, dense, fractured, intensely broken in parts.	The rock properties and mineralogical composition same. Fine to medium grained, porphyritic, Grey to whitish Grey, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals, micas, quartz, plagioclase feldsapar and disseminated magnetite. Proportion of calcic plagioclase higher. There are pockets or zones along which the proportion of magnetite is higher leading to higher magnetism. The rock is intensely fractured and broken with significant chloritic and clay alteration along them. Few calcareous veins are also present. There are zones which has local enrichment of calcic plagioclase.
1.8.12	968.40	971.40	3.00	3.00	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	56.00	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts.	The rock properties and mineralogical composition same. Fine to medium grained, porphyritic, Grey to whitish Grey, feebly to moderately magnetic, mafic igneous rock enriched in mafic minerals, micas, quartz, plagioclase feldsapar and disseminated magnetite. Proportion of calcic plagioclase higher. There are pockets or zones along which the proportion of magnetite is higher leading to higher magnetism. The rock is intensely fractured and broken with significant chloritic and clay alteration along them. Few calcareous veins are also present. There are zones which has local enrichment of calcic plagioclase. Fractures are horizontal to inclined at 30 - 70 0. Chloritic alteration and little calcareous material along fractures.
2.8.12	971.40	974.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	56.33	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts.	Fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase higher in few parts. Percentage of magnetite increases in few zones leading to higher magnetic susceptibility. The rock is fractured, fractures inclined at 30 - 70 0, shows alteration along fractures.
2.8.12	974.40	977.40	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	32.67	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts.	The rock shows same mineralogical composition and texture. It is a fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase higher in few parts. Percentage of magnetite increases in few zones leading to higher magnetic susceptibility. The rock is fractured, fractures inclined at 30 - 70 0, shows alteration along fractures. Highly fractured in few parts, shows calcareous material in few fractures.
2.8.12	977.40	980.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	27.67	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts.	The rock shows same mineralogical composition and texture. It is a fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase higher in few parts. Percentage of magnetite increases in few zones leading to higher magnetic susceptibility. The rock is fractured, fractures inclined at 30 - 70 0, shows alteration along fractures. Highly fractured in few parts. Calcareous veins and calcareous material present in some fractures. Higher magnetic susceptibility than previous runs.
2.8.12	980.40	983.40	3.00	2.87	95.67	DR	Diorite	Grey	FN to MD	37.33	Chloritic alteration along fractures	Hard, compact, dense, fractured, broken in parts.	There is no change in the rock properties. It is a fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase decreases. Percentage of magnetite increases in few zones leading to higher magnetic susceptibility. The rock is fractured, fractures inclined at 30 - 70 0, shows alteration along fractures. Highly fractured in few parts. Calcareous veins and calcareous material present in some fractures. Higher magnetic susceptibility due to greater magnetite content. Few parts of the core are intensely broken.
2.8.12	983.40	986.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	59.00	Chloritic alteration along fractures. Little clay alteration observed.	Hard, compact, dense, fractured, broken in parts.	There is no change in the rock properties. It is a fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Proportion of calcic plagioclase decreases. Percentage of magnetite increases in few zones leading to higher magnetic susceptibility. The rock is fractured, fractures inclined at 30 - 70 0, shows alteration along fractures. Highly fractured in few parts. Calcareous veins and calcareous material present in some fractures. Higher magnetic susceptibility due to greater magnetite content. Few parts of the core are intensely broken.
2.8.12	986.40	989.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	70.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured. Lower 1 m more fractured.	Fine to medium grained, porphyritic, Grey coloured, feebly to moderately magnetic, mafic igneous rock with mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. Proportion of calcic plagioclase lesser, proportion of mafic minerals and magnetite higher. Shows multiple inclined (35 - 70 0) fractures, the rock is weathered with significant chloritic alteration along fractures.
2.8.12	989.40	992.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	42.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured. Intensely fractured in the middle.	The rock is unchanged and is fine to medium grained, porphyritic, Grey coloured, feebly to moderately magnetic, mafic igneous rock with mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. Proportion of calcic plagioclase lesser, proportion of mafic minerals and magnetite higher. Shows multiple inclined (35 - 70 0) fractures, the rock is weathered with significant chloritic alteration along fractures. Shows intense fracturing at 989.45 to 990.00 m. Shows clay alteration in few parts. Few zones show higher magnetism due to greater concentration of magnetite.
2.8.12	992.40	995.40	3.00	3.10	100.00	DR	Diorite	Grey	FN to MD	76.12	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured. Intensely fractured at few places	The rock is unchanged and is fine to medium grained, porphyritic, Grey coloured, feebly to moderately magnetic, mafic igneous rock with mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. Proportion of calcic plagioclase lesser, proportion of mafic minerals and magnetite higher. Shows multiple inclined (35 - 70 0) fractures, the rock is weathered with significant chloritic alteration along fractures. Few zones show higher magnetism due to greater concentration of magnetite. Few calcareous veins present.

2.8.12	995.40	998.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	82.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	Fine to medium grained, porphyritic, Grey coloured, mafic igneous rock , moderately magnetic , enriched in mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser than before, proportion of mafics and magnetite increases, shows multiple inclined fractures, dipping at 10 - 50 0, shows chloritic alteration and calcareous veins along fractures.
2.8.12	998.40	1001.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	88.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock is unchanged with same mineralogical and textural properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic igneous rock , moderately magnetic , enriched in mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser than before, proportion of mafics and magnetite increases, shows multiple inclined fractures, dipping at 10 - 50 0, shows chloritic alteration and calcareous veins along fractures.
2.8.12	1001.40	1004.40	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	87.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock is unchanged with same mineralogical and textural properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic igneous rock , moderately magnetic , enriched in mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser than before, proportion of mafics and magnetite increases, shows multiple inclined fractures, dipping at 10 - 50 0, shows chloritic alteration and calcareous veins along fractures.
2.8.12	1004.40	1007.40	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	90.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock is unchanged with same mineralogical and textural properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic igneous rock , moderately magnetic , enriched in mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser than before, proportion of mafics and magnetite increases, shows multiple inclined fractures, dipping at 10 - 50 0, shows chloritic alteration and calcareous veins along fractures.
2.8.12	1007.40	1010.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	91.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured.	The rock is unchanged with same mineralogical and textural properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic igneous rock , moderately magnetic , enriched in mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser than before, proportion of mafics and magnetite much higher, shows multiple inclined fractures, dipping at 10 - 50 0, shows chloritic alteration and calcareous veins along fractures.
7.8.12	1010.40	1013.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	88.00	Chloritic alteration along fractures. Little clay alteration observed.	Hard, compact, dense, intact, fractured.	Fine to medium grained, porphyritic, Grey coloured mafic igneous rock with moderate magnetism. Consisting of mafic minerals, micas, plagioclase feldspar and little quartz and disseminated magnetite. Proportion of calcic plagioclase much lesser. Inclined (~ 60 0) natural fractures with chloritic and clay alteration present.
7.8.12	1013.40	1016.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	83.33	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured.	Fine to medium grained, porphyritic, Grey coloured, moderately to feebly magnetic mafic igneous rock, enriched in mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. The proportion of magnetite increases in places/zones leading to higher magnetism. Shows few inclined fractures, dipping at ~ 70 0 with little chloritic and clay alteration. Proportion of calcic plagioclase is significantly lower.
7.8.12	1016.40	1019.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	91.67	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured.	The rock is unchanged and it is a fine to medium grained, porphyritic, Grey coloured, moderately to feebly magnetic mafic igneous rock, enriched in mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. The proportion of magnetite increases in places/zones leading to higher magnetism. Shows few inclined fractures, dipping at ~ 70 0 with little chloritic and clay alteration. Proportion of calcic plagioclase is significantly lower. Proportion of magnetite higher than before. Little pyrite is present along the fractures.
7.8.12	1019.40	1022.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	88.33	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured.	The rock is unchanged and it is a fine to medium grained, porphyritic, Grey coloured, moderately to feebly magnetic mafic igneous rock, enriched in mafic minerals, micas, quartz, plagioclase feldspar along with disseminated magnetite. The proportion of magnetite increases in places/zones leading to higher magnetism. Shows few inclined fractures, dipping at ~ 70 0 with little chloritic and clay alteration. Proportion of calcic plagioclase is significantly lower. Proportion of magnetite higher than before. Little pyrite is present along the fractures.
8.8.12	1022.40	1025.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	92.33	No	Hard, compact, intact, dense, fractured, fracture surfaces smooth.	Fine to medium grained, porphyritic, dark grey coloured, moderately magnetic mafic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase very less to negligible to absent. In few places the proportion of magnetite is higher showing more magnetism. The rock is characterized by some smooth, inclined (20-30 0) fractures with no alteration.
8.8.12	1025.40	1028.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	92.00	Very little chloritic and clay alteration	Hard, compact, intact, dense, fractured, fracture surfaces smooth.	The rock is unchanged and it is a fine to medium grained, porphyritic, dark grey coloured, moderately magnetic mafic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase very less to negligible to absent. In few places the proportion of magnetite is higher showing more magnetism. The rock is characterized by some smooth, inclined (20-30 0) fractures with little alteration.
8.8.12	1028.40	1031.40	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	81.33	Very little chloritic and clay alteration	Hard, compact, intact, dense, fractured, fracture surfaces smooth, broken in few places.	The rock is unchanged and it is a fine to medium grained, porphyritic, dark grey coloured, moderately magnetic mafic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase very less to negligible to absent. In few places the proportion of magnetite is higher showing more magnetism. The rock is characterized by some smooth, inclined (20-40 0) fractures with very little alteration. Pyrite is present along fractures. Magnetic susceptibility is higher than before.
8.8.12	1031.40	1034.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	81.33	Very little chloritic and clay alteration	Hard, compact, intact, dense, fractured, fracture surfaces smooth, broken in few places.	The rock is unchanged and it is a fine to medium grained, porphyritic, dark grey coloured, moderately magnetic mafic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. Proportion of calcic plagioclase very less to negligible to absent. In few places the proportion of magnetite is higher showing more magnetism. The rock is characterized by some smooth, inclined (20-40 0) fractures with very little alteration. Magnetic susceptibility is higher than before.

8.8.12	1034.40	1037.40	3.00	2.88	96.00	DR	Diorite	Grey	FN to MD	90.67	No	Hard, compact, dense, intact, little fractured, fractures rough.	Theere is no change in the rock properties. It is a fine to medium grained, porphyritic, mafic igneous rock with dark grey colour and moderate magnetism. Consists of mafic minerals (mostly pyroxene), micas (mostly magnetite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. No calcic plagioclase is observed, proportion of disseminated magnetite increases in pockets giving higher magnetic susceptibility. Few inclined fractures present dipping at 20-25 0. Fractures are with rough surfaces and are devoid of alteration. Magnetic susceptibility lower than before.
8.8.12	1037.40	1040.40	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	84.00	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured, fractures smooth.	Theere is no change in the rock properties. It is a fine to medium grained, porphyritic, mafic igneous rock with dark grey colour and moderate magnetism. Consists of mafic minerals (mostly pyroxene), micas (mostly magnetite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. No calcic plagioclase is observed, proportion of disseminated magnetite increases in pockets giving higher magnetic susceptibility. Few inclined fractures present dipping at 20-25 0. Fractures are with rough surfaces and with little chloritic alteration. Magnetic susceptibility decreases.
8.8.12	1040.40	1043.40	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	87.00	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured, fractures smooth.	Theere is no change in the rock properties. It is a fine to medium grained, porphyritic, mafic igneous rock with dark grey colour and moderate magnetism. Consists of mafic minerals (mostly pyroxene), micas (mostly magnetite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. No calcic plagioclase is observed, proportion of disseminated magnetite increases in pockets giving higher magnetic susceptibility. Few inclined fractures present dipping at 20-25 0. Fractures are with rough surfaces and with little chloritic alteration. Magnetic susceptibility decreases.
8.8.12	1043.40	1046.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	88.33	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, little fractured, fractures smooth.	Theere is no change in the rock properties. It is a fine to medium grained, porphyritic, mafic igneous rock with dark grey colour and moderate magnetism. Consists of mafic minerals (mostly pyroxene), micas (mostly magnetite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. No calcic plagioclase is observed, proportion of disseminated magnetite increases in pockets giving higher magnetic susceptibility. Few inclined fractures present dipping at 20-25 0. Fractures are with rough surfaces and with little chloritic alteration. Magnetic susceptibility moderate to low.
10.8.12	1046.40	1049.40	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	94.00	No	Hard, compact, dense, intact, fractured, fractures rough. No alteration.	Fine to medium grained, porphyritic, Grey coloured igneous rock, feebly to moderately magnetic, consisting of mafic minerals (pyroxene), micas, quartz, plagioclase feldspar and disseminated magnetite. Proportion of magnetite is lower than before. Proportion of mafics higher. The rock shows few fractures inclined at 20 - 25 0 without any alteration. Fracture surfaces rough. In few zones the proportion of quartzofeldspathic mass is higher.
10.8.12	1049.40	1052.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	96.67	No	Hard, compact, dense, intact, fractured, fractures rough. No alteration.	The rock is unchanged with same properties and composition. It is a fine to medium grained, porphyritic, Grey coloured igneous rock, feebly to moderately magnetic, consisting of mafic minerals (pyroxene), micas, quartz, plagioclase feldspar and disseminated magnetite. Proportion of magnetite is lower than before. Proportion of mafics higher. The rock shows few fractures inclined at 20 - 25 0 without any alteration. Fracture surfaces rough. In few zones the proportion of quartzofeldspathic mass is higher. Few pockets show higher magnetism.
10.8.12	1052.40	1055.40	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	93.00	No	Hard, compact, dense, intact, fractured, fractures rough. No alteration.	The rock is unchanged with same properties and composition. It is a fine to medium grained, porphyritic, Grey coloured igneous rock, feebly to moderately magnetic, consisting of mafic minerals (pyroxene), micas, quartz, plagioclase feldspar and disseminated magnetite. Proportion of magnetite is lower than before. Proportion of mafics higher. The rock shows few fractures inclined at 20 - 25 0 without any alteration. Fracture surfaces rough. In few zones the proportion of quartzofeldspathic mass is higher. Few pockets show higher magnetism. Few silica veins present along fractures. Very little amphibole was identifiable.
10.8.12	1055.40	1058.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	88.00	Chloritic as well as clay alteration along fractures	Hard, compact, dense, intact, fractured, fractures rough. Altered along fractures.	The rock is unchanged with same properties and composition. It is a fine to medium grained, porphyritic, Grey coloured igneous rock, feebly to moderately magnetic, consisting of mafic minerals (pyroxene), micas, quartz, plagioclase feldspar and disseminated magnetite. Proportion of magnetite is lower than before. Proportion of mafics higher. The rock shows few fractures inclined at 40 - 50 0 with chloritic alteration. Fracture surfaces rough. In few zones the proportion of quartzofeldspathic mass is higher. Few pockets show higher magnetism. Few silica veins present along fractures. Very little amphibole was identifiable.
10.8.12	1058.40	1061.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	87.33	Chloritic alteration along fractures. Little clay alteration observed.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Alteration along fractures.	Grey, fine to medium grained, porphyritic igneous rock, moderately to feebly magnetic, consisting of mafic minerals (pyroxene),micas (mostly muscovite, little biotite), quartz, plagioclase feldspar and disseminated magnetite. Proportion of magnetite is little higher than previous cores, increases in pockets/zones as indicated by higher magnetic susceptibility. Shows several inclined fractures dipping at 60-70 0, with chloritic and clay alteration. Fracture surfaces smooth.
10.8.12	1061.40	1064.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	65.00	Chloritic and clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Alteration along fractures. Intensely fractured and broken in parts.	Grey, fine to medium grained, porphyritic, moderately magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, magnetite and little calcareous matter. Proportion of magnetite is higher than before. Shows multiple inclined (20 - 70 0) fractures with chloritic and clay alteration. Calcareous veins and calcareous material observed near / in fractures. Pyrite is present in small amount in fractures. Lower 10 cm totally broken.
10.8.12	1064.40	1067.40	3.00	3.05	100.00	DR	Diorite	Grey	FN to MD	77.33	Intensely altered. Chloritization and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces rough.	Rock properties and composition unchanged. It is a Grey, fine to medium grained, porphyritic, moderately magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, magnetite and little calcareous matter. Shows multiple inclined (20 - 70 0) fractures with chloritic and clay alteration. Shows multiple calcareous veins parallel to fractures. Few veins are sygmoidal in shape. A zone of significant calcareous material is present from 1066.55 to 1066.70 m. Pyrite is present in small amount in fractures. Susceptibility is significantly lower than the previous core indicating a decrease in magnetite content.
10.8.12	1067.40	1070.40	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	83.33	Little clay alteration	Hard, compact, dense, intact, fractured, fracture surfaces rough.	Fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Fractures rough, inclined (30-40 0) with little chloritic and clay alteration. Magnetite content higher than before.

10.8.12	1070.40	1073.40	3.00	3.04	100.00	DR	Diorite	Grey	FN to MD	63.33	Chloritic and clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces rough. Intensely fractured in few places.	The rock is unchanged. It is a fine to medium grained, porphyritic, Grey, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, quartz, plagioclase feldspar, along with disseminated magnetite. Fractures rough, inclined (30-40 0) with little chloritic and clay alteration. Intensely fractured in few zones which are highly altered and weathered.
10.8.12	1073.40	1076.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	51.67	Highly altered and weathered along fractures and few zones.	Hard, compact, broken, dense, fractured. Some portions intensely fractured and broken.	Grey to whitish Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas, quartz, plagioclase feldspar and disseminated magnetite. Shows few zones of higher magnetism due to higher concentration of magnetite. Few zones are intensely fractured, weathered, altered with much less magnetism. Fractures are inclined at high angle (60-75 0). Silica veins present.
10.8.12	1076.40	1079.40	3.00	2.88	96.00	DR	Diorite	Grey	FN to MD	47.66	Highly altered and weathered along fractures and few zones.	Hard, compact, broken, dense, fractured. Some portions intensely fractured and broken.	There is no change in rock properties or composition. It is a Grey to whitish Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas, quartz, plagioclase feldspar and disseminated magnetite. Shows few zones of higher magnetism due to higher concentration of magnetite. Few zones are intensely fractured, weathered, altered with much less magnetism. Fractures are inclined at high angle (60-75 0). Few calcareous as well as silica rich veins present.
10.8.12	1079.40	1082.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	69.67	Highly altered and weathered along fractures and few zones.	Hard, compact, broken, dense, fractured. Some portions intensely fractured and broken.	There is no change in rock properties or composition. It is a Grey to whitish Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas, quartz, plagioclase feldspar and disseminated magnetite. Shows few zones of higher magnetism due to higher concentration of magnetite. Few zones are intensely fractured, weathered, altered with much less magnetism. Fractures are inclined at high angle (60-75 0). Few calcareous as well as silica rich veins present. Magnetite content higher giving higher susceptibility.
10.8.12	1082.40	1085.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	86.00	Little clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic, mafic, moderately magnetic igneous rock enriched in mafic minerals, mica, quartz, plagioclase feldspar and disseminated magnetite. Calcareous mass observed along fractures. Fractures inclined (30- 40 0) with smooth surfaces.
11.8.12	1085.40	1088.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	79.67	Chloritic as well as clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth, with alteration.	Grey coloured, fine to medium grained, porphyritic, mafic, moderately magnetic igneous rock rich in mafic minerals (mostly pyroxene), micas, plagioclase feldspar, quartz as well as disseminated magnetite. Identifiable grains are subhedral to anhedral in shape. Shows multiple fractures inclined at 20 - 50 0, with chloritic and clay alteration. Very little calcareous material along fractures. Few zones of higher magnetism present due to greater concentration of magnetite.
11.8.12	1088.40	1091.40	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	74.67	Chloritic as well as clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth, with alteration.	The rock in unchanged.Grey coloured, fine to medium grained, porphyritic, mafic, moderately magnetic igneous rock rich in mafic minerals (mostly pyroxene), micas, plagioclase feldspar, quartz as well as disseminated magnetite. Grains are subhedral to anhedral in shape. Shows multiple fractures inclined at 20 - 50 0, with chloritic and clay alteration. Very little calcareous material along fractures. Few zones of higher magnetism present due to greater concentration of magnetite. Few zones are intensely altered with little or no magnetism.
11.8.12	1091.40	1094.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	92.67	Chloritic as well as clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth, with alteration.	The rock in unchanged.Grey coloured, fine to medium grained, porphyritic, mafic, moderately magnetic igneous rock rich in mafic minerals (mostly pyroxene), micas, plagioclase feldspar, quartz as well as disseminated magnetite. Grains are subhedral to anhedral in shape. Shows multiple fractures inclined at 20 - 50 0, with chloritic and clay alteration. Very little calcareous material along fractures. Few zones of higher magnetism present due to greater concentration of magnetite. Few zones are intensely altered with little or no magnetism. Larger grains of quartz and feldspar observed in few places.
11.8.12	1094.40	1097.40	3.00	2.89	96.33	DR	Diorite	Grey	FN to MD	77.33	Chloritic as well as clay alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth, with alteration.	The rock in unchanged.Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock rich in mafic minerals (mostly pyroxene), micas, plagioclase feldspar, quartz as well as disseminated magnetite. Grains are subhedral to anhedral in shape. Shows multiple fractures inclined at 20 - 50 0, with chloritic and clay alteration. Very little calcareous material along fractures. Few zones of higher magnetism present due to greater concentration of magnetite. Few zones are intensely altered with little or no magnetism. Proportion of coarse grained silica increases. Magnetic susceptibility much lower.
11.8.12	1097.40	1100.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic, feeble to moderately magnetic, mafic igneous rock with mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are subhedral to anhedral in shape. Few scattered coarse grains of plagioclase feldspars present which are subhedral in shape. Few thin silica filled veins present. Multiple inclined (20 - 40 0) fractures present with chloritic and clay alteration. Few fractures are rough though most are smooth.
11.8.12	1100.40	1103.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	76.00	Chloritic alteration along fractures. Little clay alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Intense fracturing in few portions.	The rock is same and is a Grey coloured, fine to medium grained, porphyritic, feeble to moderately magnetic, mafic igneous rock with mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are subhedral to anhedral in shape. Few scattered coarse grains of plagioclase feldspars present which are subhedral in shape. Multiple inclined (20 - 40 0) fractures present with chloritic and clay alteration. Few fractures are rough though most are smooth. Few zones are intensely fractured and broken, with significant chloritic and clay alteration. Magnetic susceptibility higher indicating higher magnetite content. Fine silica veins present.
11.8.12	1103.40	1106.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	85.67	Chloritic alteration along fractures. Little clay alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Altered.	The rock is same and is a Grey coloured, fine to medium grained, porphyritic, moderately magnetic, mafic igneous rock with mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Enriched in pyroxene and plagioclase. Grains are subhedral to anhedral in shape. Multiple inclined (20 - 50 0) fractures present with chloritic and clay alteration. Few fractures are rough though most are smooth. Few zones are intensely fractured and broken, with significant chloritic and clay alteration. Magnetic susceptibility increases and higher than previous run indicating higher magnetite content. Few pockets show higher magnetism Fine silica veins present.

11.8.12	1106.40	1109.40	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	80.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Altered.	The rock is same and is a Grey coloured, fine to medium grained, porphyritic, moderately magnetic, mafic igneous rock with mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Enriched in pyroxene and plagioclase. Grains are subhedral to anhedral in shape. Multiple inclined (20 - 50 0) fractures present with chloritic and clay alteration. Few fractures are rough though most are smooth. Few zones are intensely fractured and broken, with significant chloritic and clay alteration. Magnetic susceptibility increases and higher than previous run indicating higher magnetite content. Few pockets show higher magnetism Fine silica veins present.
11.8.12	1109.40	1112.40	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	67.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Intensely fractured and altered in few parts.	Fine to medium grained, porphyritic, Grey coloured, mafic, moderately to feebly magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Few silica and calcareous veins present. Multiple inclined (20 - 70 0) as well as longitudinal fractures present, intensely altered with chloritic and clayey material.
11.8.12	1112.40	1115.40	3.00	3.14	100.00	DR	Diorite	Grey	FN to MD	72.61	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Intensely fractured and altered in few parts.	There is no change in rock properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic, moderately to feebly magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Few silica and calcareous veins present. Multiple inclined (20 - 70 0) as well as longitudinal fractures present, intensely altered with chloritic and clayey material. Few cm scale feldspathic bands present. Magnetic susceptibility lower.
11.8.12	1115.40	1118.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	66.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Intensely fractured and altered in few parts.	There is no change in rock properties. It is a fine to medium grained, porphyritic, Grey coloured, mafic, moderately to feebly magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Few silica and calcareous veins present. Multiple inclined (20 - 70 0) as well as longitudinal fractures present, intensely altered with chloritic and clayey material. Few cm scale feldspathic bands present. Magnetic susceptibility lower.
11.8.12	1118.40	1121.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	49.00	Intense chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with slickenlines.	Grey, fine to medium grained, porphyritic igneous rock, mafic, moderately magnetic with mafic minerals (pyroxene and amphibole), micas, plagioclase feldspar, quartz and disseminated magnetite. Thin calcareous veins observed, zones of silica enrichment and bands of silica present. Multiple inclined (20 - 70 0) fractures present. Fracture surfaces smooth, slickenlines present. Chloritic alteration and calcareous material observed along fractures. Magnetism higher in few pockets due to greater concentration of magnetite.Magnetism is much lower in alteration zones.
11.8.12	1121.40	1124.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	84.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey, fine to medium grained, porphyritic igneous rock, mafic, moderately magnetic. The mineral composition is same with pyroxene, plagioclase feldspar, muscovite, little quartz and disseminated magnetite. Multiple inclined (40 - 60 0) fractures present with alteration. Magnetic susceptibility much higher in few pockets/zones.
12.8.12	1124.40	1127.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	88.00	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Shows few fractures, inclined at (50-60 0) , shows minor chloritic and clay alteration, fracture surfaces smooth.
12.8.12	1127.40	1130.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	88.33	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Magnetic susceptibility much higher than previous run. Shows significantly higher number of fractures, inclined at (40-70 0) , shows minor chloritic and clay alteration, fracture surfaces smooth.
12.8.12	1130.40	1133.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	89.33	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Magnetic susceptibility high. Shows significantly high number of fractures, inclined at (40-70 0) , shows minor chloritic and clay alteration, fracture surfaces smooth.
12.8.12	1133.40	1136.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	77.00	Little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Proportion of fractures more.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Magnetic susceptibility high. Number of fractures much higher, inclined at (40-70 0) , shows significant chloritic and clay alteration, fracture surfaces smooth. Little calcic plagioclase present.

12.8.12	1136.40	1139.40	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	40.00	Altered to chloritic material along fractures.	Hard, compact, dense, fractured, fracture surfaces smooth. Intensely broken in few parts.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Magnetic susceptibility high. Number of fractures much higher, inclined at (40-70 0) , fracture surfaces smooth. Shows intensely fractured/broken zones with micas and chloritic alteration. Little clay alteration is also present. Calcareous veins present. Few zones are enriched in calcareous material along with little calcic plagiochase.
12.8.12	1139.40	1142.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	64.00	Altered to chloritic material along fractures.	Hard, compact, dense, fractured, fracture surfaces smooth. Intensely broken in few parts.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Moderately magnetic, few zones/pockets showing higher magnetism due to greater concentration of magnetite. Magnetic susceptibility high. Number of fractures much higher, inclined at (40-70 0) , fracture surfaces smooth. Shows intensely fractured/broken zones with micas and chloritic alteration. Little clay alteration is also present. Calcareous veins present. Few zones are enriched in calcareous material along with little calcic plagiochase.
12.8.12	1142.40	1145.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	69.67	Altered to chloritic material along fractures.	Hard, compact, dense, fractured, fracture surfaces smooth. Intensely broken in few parts.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Intensely broken in few parts, cross cutting fractures present. Some zones present with intense clay and chloritic alteration along fractures. Magnetic susceptibility lower than previous run and high in few pockets due to greater concentration of magnetite.
12.8.12	1145.40	1148.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	61.00	Altered to chloritic material along fractures.	Hard, compact, dense, intensely broken and fractured, fracture surfaces smooth.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Intensely broken in few parts, cross cutting fractures present. Intensely broken and fractured in the lower 80 cm (1147.6 to 1148.4 m). Some zones present with intense clay and chloritic alteration along fractures. Calcareous material is observed along fractures. Calcic plagioclase is observed in minor quantity. Longitudinal fractures are also present with high alteration. Magnetic susceptibility generally low and high in few pockets due to greater concentration of magnetite.
12.8.12	1148.40	1151.40	3.00	3.05	100.00	DR	Diorite	Grey	FN to MD	38.00	Altered to chloritic material along fractures.	Hard, compact, dense, intensely broken and fractured, fracture surfaces smooth.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Larger grains of magnetite observed.Intensely broken in few parts, cross cutting fractures present. Some zones present with intense clay and chloritic alteration along fractures. Crosscutting calcareous veins present. Calcareous material is also present along longitudinal fractures. Magnetic susceptibility generally low and high in few pockets due to greater concentration of magnetite.
12.8.12	1151.40	1154.40	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	59.33	Altered to chloritic material along fractures.	Hard, compact, dense, intensely broken and fractured, fracture surfaces smooth.	The rock is unchanged with same mineralogical and textural attributes. It is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, moderately magnetic, enriched in mafic minerals (mostly pyroxene, little amphibole), micas (mustovite, little biotite), plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape, few grains are slender. Thick veins of calcareous material is present. Cross cutting as well as longitudinal fractures are present which are highly altered.
12.8.12	1154.40	1157.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	92.00	Little chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Few fractures rough.	Grey, fine to medium grained, porphyritic, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. Few zones with higher magnetism present due to greater concentration of magnetite. Few subhorizontal to gently dipping (< 10 0) fractures present with little chloritic alteration. Fractures are rough.
12.8.12	1157.40	1160.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	78.33	Little chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Few fractures rough.	The rock is unchanged. It is a Grey, fine to medium grained, porphyritic, moderately to feebly magnetic, mafic igneous rock with pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. Few zones with higher magnetism present due to greater concentration of magnetite. Few subhorizontal to gently dipping (< 10 0) fractures present with little chloritic alteration. Fractures are rough.
12.8.12	1160.40	1163.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	88.00	No	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Few fractures rough.	Grey, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock with pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. Few subhorizontal to gently dipping (< 10 0) fractures present. No alteration is present along fractures. Magnetic susceptibility is much lower due to lesser concentration of magnetite.
12.8.12	1163.40	1166.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	90.00	No	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Few fractures rough.	The lithology is same. It is a Grey, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock with pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. Few subhorizontal to gently dipping (< 10 0) fractures present. No alteration is present along fractures. Magnetic susceptibility is much lower due to lesser concentration of magnetite.

13.8.12	1166.40	1169.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	79.00	No	Hard, compact, dense, intact, fractured, fracture surfaces rough.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, little quartz and disseminated magnetite. The rock is fractured in parts, fractures are inclined (10-20 0), rough, fresh with no alteration. Silica veins are observed, proportions of magnetite increases in few zones/pockets leading to higher magnetism. General magnetic susceptibility lower than previous run.
13.8.12	1169.40	1172.40	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	95.67	Very little chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces rough. Smooth fractures also present.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, little quartz and disseminated magnetite. The rock is fractured in parts, fractures are inclined (10-20 0), rough, fresh with little chloritic alteration. Silica veins are observed, proportions of magnetite increases in few zones/pockets leading to higher magnetism. Larger anhedral grains of quartz are also present along with finer quartz grains embedded in a mafic rich groundmass, General magnetic susceptibility low.
13.8.12	1172.40	1175.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	73.33	Little chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces rough. Smooth fractures also present.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, little quartz and disseminated magnetite. The rock is fractured in parts, fractures are inclined (10-20 0), rough, fresh with little chloritic alteration. Calcareous as well as silica rich veins present.Proportions of magnetite increases in few zones/pockets leading to higher magnetism. Larger anhedral grains of quartz are also present along with finer quartz grains embedded in a mafic rich groundmass, General magnetic susceptibility low.
13.8.12	1175.40	1178.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	92.33	No	Hard, compact, dense, intact, fractured, fracture surfaces rough. No alteration along fractures.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, little quartz and disseminated magnetite. The rock is fractured in parts, fractures are inclined (10-20 0), rough, fresh with no alteration. Proportions of magnetite increases in few zones/pockets leading to higher magnetism.General magnetic susceptibility low.
13.8.12	1178.40	1181.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.33	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Chloritic alteration along fractures.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, little quartz and disseminated magnetite. Proportions of magnetite increases in few zones/pockets leading to higher magnetism.General magnetic susceptibility low. Characterized by multiple fractures with chloritic alteration. Fractures are inclined at 40-70 0, fracture surfaces smooth.
13.8.12	1181.40	1184.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	61.33	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth, broken in parts. Chloritic alteration along fractures.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite, little biotite), plagioclase feldspar, little quartz and disseminated magnetite. Proportions of magnetite increases in few zones/pockets leading to higher magnetism.General magnetic susceptibility low. Characterized by multiple fractures with chloritic alteration. Fractures are inclined at 40-70 0, fracture surfaces smooth. Calcareous veins observed, few veins are as thick as 2 cm. Felsic rich zones present.
13.8.12	1184.40	1187.40	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	65.67	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Chloritic alteration along fractures.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite, little biotite), plagioclase feldspar, little quartz and disseminated magnetite. Proportions of magnetite increases in few zones/pockets leading to higher magnetism.General magnetic susceptibility low. Characterized by multiple fractures with chloritic alteration. Fractures are inclined at 40-70 0, fracture surfaces smooth. Calcareous veins observed. Few zones visible with greater proportion of felsic components.
13.8.12	1187.40	1190.40	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	61.67	Chloritic alteration is present along fractures. Clay alteration also present.	Hard, compact, dense, intact, fractured, fracture surfaces smooth, broken in parts. Chloritic alteration along fractures.	Grey, fine to medium grained, porphyritic, mafic, feebly to moderately magnetic igneous rock with mafic minerals (pyroxene), micas (mostly muscovite, little biotite), plagioclase feldspar, little quartz and disseminated magnetite. Proportions of magnetite increases in few zones/pockets leading to higher magnetism.General magnetic susceptibility low. Characterized by multiple fractures with chloritic alteration. The rock is more broken and fractured and the fractures are more altered.Fractures are inclined at 40-70 0, fracture surfaces smooth. Calcareous veins observed. Few zones visible with greater proportion of felsic components.
13.8.12	1190.40	1193.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	74.33	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic. Consisting of mafic minerals (mostly pyroxene), micas (muscovite and biotite), plagioclase feldspar, little quartz along with disseminated magnetite. Fractures are inclined, shallow dipping (10-20 0), and rough. Magnetic susceptibility higher in few zones indicating greater concentration of magnrtite. Proportion of quartzofeldspathic mass much lower than before. Slickenlines observed along fractures. Lower 10 cm completely broken.
13.8.12	1193.40	1196.40	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	82.33	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic. Consisting of mafic minerals (mostly pyroxene), micas (muscovite and biotite), plagioclase feldspar, little quartz along with disseminated magnetite. Fractures are inclined, shallow dipping (10-20 0), and rough. Magnetic susceptibility higher in few zones indicating greater concentration of magnrtite. Proportion of quartzofeldspathic mass much lower than before. Slickenlines observed along fractures.
13.8.12	1196.40	1199.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	91.00	Chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic. Consisting of mafic minerals (mostly pyroxene), micas (muscovite and biotite), plagioclase feldspar, little quartz along with disseminated magnetite. Fractures are inclined, shallow dipping (10-20 0), and rough. Magnetic susceptibility higher in few zones indicating greater concentration of magnrtite. Proportion of quartzofeldspathic mass much lower than before. Slickenlines observed along fractures.

14.8.12	1199.40	1202.40	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	81.00	Little clay and chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic, enriched in mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Proportion of magnetite increases in few zones leading to higher magnetism. Contains fractures which are mostly inclined (30-70 0) with chloritic as well as little clay alteration. Fracture surfaces are smooth. The grains are typically subhedral to anhedral in shape. Proportion of quartzofeldspathic mass higher. There are few zones with enrichment in felsic components.
14.8.12	1202.40	1205.40	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	83.33	Little clay and chloritic alteration is present along fractures.	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	There is no change in the rock composition and textural attributes. It is a Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic, enriched in mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Proportion of magnetite increases in few zones leading to higher magnetism. Susceptibility higher than previous run. Contains fractures which are mostly inclined (30-70 0) with chloritic as well as little clay alteration. Fracture surfaces are smooth. The grains are typically subhedral to anhedral in shape. Proportion of quartzofeldspathic mass higher. There are few zones with enrichment in felsic components.
14.8.12	1205.40	1208.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	92.67	Very little chloritic alteration	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	There is no change in the rock composition and textural attributes. It is a Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic, enriched in mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Proportion of magnetite increases in few zones leading to higher magnetism. Susceptibility high in few pockets. Contains fractures which are mostly inclined (30-70 0) with chloritic as well as little clay alteration. Fracture surfaces are smooth. The grains are typically subhedral to anhedral in shape. Proportion of quartzofeldspathic mass higher. There are few zones with enrichment in felsic components.
14.8.12	1208.40	1211.40	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	84.67	Very little chloritic alteration	Hard, compact, dense, intact, fractured, few parts broken, fracture surfaces smooth.	There is no change in the rock composition and textural attributes. It is a Grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition, feebly to moderately magnetic, enriched in mafic minerals (pyroxene), micas (mostly muscovite), plagioclase feldspar, quartz and disseminated magnetite. Few zones with higher susceptibility. Contains fractures which are mostly inclined (30-70 0) with chloritic as well as little clay alteration. Few longitudinal fractures are also present. Fracture surfaces are smooth. The grains are typically subhedral to anhedral in shape. Proportion of quartzofeldspathic mass higher. There are few zones with enrichment in felsic components.Calcareous veins present which are fine and sigmoidal in shape.
14.8.12	1211.40	1214.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	48.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, broken in parts, fracture surfaces smooth.	Fine to medium grained, porphyritic, Grey coloured, mafic, feebly to moderately magnetic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite along with calcareous material. The rock is characterized by several fractures inclined at 30 - 75 0 with chloritic alteration. Some portions of the core are broken, fragmented. Calcareous veins are present, very fine, often sigmoidal in shape. Few zones enriched in felsic minerals present. Magnetite content higher in few pockets/zones. Generally magnetic susceptibility is lower.
14.8.12	1214.40	1217.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	91.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, broken in parts, fracture surfaces smooth.	The rock properties are unchanged. It is a fine to medium grained, porphyritic, Grey coloured, mafic, feebly to moderately magnetic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. The rock is characterized by several fractures inclined at 30 - 75 0 with chloritic alteration. Some portions of the core are broken, fragmented. Calcareous veins are present, very fine, often sigmoidal in shape. Few zones enriched in felsic minerals present. Magnetite content higher in few pockets/zones. General magnetic susceptibility is low.
14.8.12	1217.40	1220.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	76.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, broken in parts, fracture surfaces smooth.	The rock properties are unchanged. It is a fine to medium grained, porphyritic, Grey coloured, mafic, feebly to moderately magnetic igneous rock with mafic minerals, micas, plagioclase feldspar, quartz and disseminated magnetite. The rock is characterized by several fractures inclined at 30 - 75 0 with chloritic alteration. Thin calcareous veins are present, often sigmoidal in shape. Few localized zones enriched in felsic minerals present. Magnetite content higher in few pockets/zones. General magnetic susceptibility is low.
15.8.12	1220.40	1223.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	86.00	Very little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas (muscovite, little biotite), plagioclase feldspar, little quartz along with disseminated magnetite. The rock is characterized by few inclined (45-50 0) fractures with little chloritic alteration. Fracture surfaces are smooth. Few very fine calcareous veins are present. Susceptibility lower than before.
15.8.12	1223.40	1226.40	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	82.33	Very little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas (muscovite, little biotite), plagioclase feldspar, little quartz along with disseminated magnetite. The rock is characterized by few inclined (45-50 0) fractures with little chloritic alteration. Fracture surfaces are smooth. Few very fine calcareous veins are present. Few silica veins are also present. Magnetic susceptibility low.
15.8.12	1226.40	1229.40	3.00	3.04	100.00	DR	Diorite	Grey	FN to MD	83.33	Very little chloritic and clay alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey, fine to medium grained, porphyritic, mafic, moderately to feebly magnetic igneous rock consisting of mafic minerals, micas (muscovite, little biotite), plagioclase feldspar, little quartz along with disseminated magnetite. The rock is characterized by few inclined (45-50 0) fractures. Chloritic alteration is present and the rock shows alignment of magnetite and mafic minerals. Fracture surfaces are smooth. Few very fine calcareous veins are present. Few silica veins are also present. Thin (0.5 to 1 cm) bands of felsic minerals present which is also chloritized and contains magnetite. Magnetic susceptibility is lower. Specs of fine grained sulfide minerals are present in the core.
15.8.12	1229.40	1232.40	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	88.33	Chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock with mafic minerals (pyroxene), micas (muscovite), plagioclase feldspar, quartz and disseminated magnetite. There is a layering of mafic and magnetite rich zones and felsic rich zones. Very fine calcareous veins present. Fractures are inclined (10-30 0) with chloritic alteration as well as with calcareous material. Proportion of magnetite varies and shows enrichment along some zones leading to higher susceptibility.

15.8.12	1232.40	1235.40	3.00	3.03	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	86.00	Chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock with mafic minerals (pyroxene), micas (muscovite), plagioclase feldspar, quartz and disseminated magnetite. There is a layering of mafic with magnetite rich zones and felsic rich zones. Layering is more distinct. Very fine calcareous veins present. Fractures are inclined (10-30 0) with chloritic alteration as well as with calcareous material. Proportion of magnetite varies and shows enrichment along some zones leading to higher susceptibility.Mafic rich zones are more magnetic due to higher magnetite content. 1234.28 to 1234.95 m is felsic rich.
15.8.12	1235.40	1238.40	3.00	2.98	99.33	DR	Diorite	Grey to whitish Grey	FN to MD	67.67	Chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock with mafic minerals (pyroxene), micas (muscovite), plagioclase feldspar, quartz and disseminated magnetite. There is a layering of mafic-magnetite rich zones and felsic rich zones. Felsic rich zones also have disseminated magnetite but in lesser proportion than mafic rich layers. Felsic rich layers show an equigranular mosaic of felsic minerals and magnetite. mm to cm scale calcareous bands observed. Fractures are inclined (10-30 0) with chloritic alteration as well as with calcareous material. Proportion of magnetite varies and shows enrichment along some zones leading to higher magnetic susceptibility.
15.8.12	1238.40	1241.40	3.00	2.97	99.00	DR	Diorite	Grey to whitish Grey	FN to MD	58.67	Chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock with mafic minerals (pyroxene), micas (muscovite), plagioclase feldspar, quartz and disseminated magnetite. There is a layering of mafic-magnetite rich zones and felsic rich zones. Top 45 cm of the core is distinctly rich in felsic components,then the rock is mafic and magnetite rich with higher magnetism along with intermittent mm to cm scale subparallel felsic bands. Bottom 26 cm of the core is also felsic rich along with calcareous veins.Fractures are inclined (10-30 0) with chloritic alteration as well as with calcareous material. Fine specs of sulfides (pyrite) present in the bottom 20 cm of the core.
15.8.12	1241.40	1244.40	3.00	2.94	98.00	DR	Diorite	Grey to whitish Grey	FN to MD	48.67	Intense chloritic alteration	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Broken in few parts	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic, mafic, feebly magnetic igneous rock with mafic minerals (pyroxene), micas (muscovite), plagioclase feldspar, quartz and disseminated magnetite. There is a layering of mafic-magnetite rich zones and felsic rich zones. The rock is more magnetic. Significant occurrance of calcareous veins of mm to cm scale.Fractures are inclined (10-30 0) with chloritic alteration as well as with calcareous material. Chloritic alteration is of much higher extent. Few specs of sulfides (pyrite) present.
15.8.12	1244.40	1247.40	3.00	3.10	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	28.00	Intense chloritic alteration	Hard, compact, dense in parts, intensely fractured, fracture surfaces smooth. Intensely broken in several parts.	Grey coloured, fine to medium grained, porphyritic, mafic igneous rock with unchanged mineralogical composition. The rock is intensely altered to chloritic material and broken in parts significantly. Shows distinct felsic and mafic banding. Preferrential alignment of magnetite grains observed. Calcareous veins present. Significant amount of small specs of sulfides (pyrite) present.
15.8.12	1247.40	1250.40	3.00	2.89	96.33	DR	Diorite	Grey	FN to MD	25.00	Significant chloritic alteration	Hard, compact, dense in parts, intensely fractured, fracture surfaces smooth. Intensely broken in several parts.	There is no change in lithology. It is a Grey coloured, fine to medium grained, porphyritic, mafic igneous rock with unchanged mineralogical composition. The rock is intensely altered to chloritic material and broken in parts significantly. Shows distinct felsic and mafic banding. Preferrential alignment of magnetite grains observed. Calcareous veins present. Significant amount of small specs of sulfides (pyrite) present.
16.8.12	1250.40	1253.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	37.00	Significant chloritic alteration all along the rock	Weak, broken, fractured, fracture surfaces smooth.	Grey to greenish Grey coloured, highly fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. There is no definite alignment of mineral grains. Calcareous veins are present. Calcareous material is also present along fractures and also in several portions of the rock. Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value.
16.8.12	1253.40	1256.40	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	38.33	Significant chloritic alteration all along the rock	Weak, broken, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, highly fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. There is no definite alignment of mineral grains. Calcareous veins are present. Calcareous material is also present along fractures and also in several portions of the rock. Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value. Specs of pyrite present.
16.8.12	1256.40	1259.40	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	50.67	Significant chloritic alteration all along the rock	Weak, broken, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, highly fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. There is no definite alignment of mineral grains. Calcareous veins are present. Calcareous material is also present along fractures and also in several portions of the rock. Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value. Specs of pyrite present.
16.8.12	1259.40	1262.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	51.67	Significant chloritic alteration.	Weak, broken, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, highly fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. There is no definite alignment of mineral grains. Calcareous veins are present. Calcareous material is also present along fractures and also in several portions of the rock. Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value.
16.8.12	1262.40	1265.40	3.00	2.72	90.67	DR	Diorite	Grey	FN to MD	60.33	Chloritic alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. The extent of alteration is lesser. Calcareous veins are present. Calcareous material is also present along fractures and also in several portions of the rock. However, proportion of calcareous material is much lower. Shows subparallel zones of felsic and mafic rich layers. Layers are dipping from 10 to 30 0.Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value.

16.8.12	1265.40	1268.40	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	61.33	Chloritic alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. The extent of alteration is lesser. and very little calcareous mass is present Calcareous veins are present. Shows subparallel zones of felsic and mafic rich layers. Layers are dipping from 10 to 30 0.Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value. Little specs of sulfides are present.
16.8.12	1268.40	1271.40	3.00	3.01	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	55.33	Chloritic alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	There is no change in lithology. It is a Grey to greenish Grey coloured, fractured, porphyritic, feebly magnetic, mafic igneous rock consisting of pyroxene, micas, plagioclase feldspar, quartz, magnetite and significant calcareous material. The rock is intensely broken with alteration all throughout the rock. The extent of alteration is lesser. and very little calcareous mass is present Little, very fine calcareous veins are present. Shows subparallel zones of felsic and mafic rich layers. These bands are cm to mm in thickness. Layers are dipping from 10 to 30 0.Significant decrease in magnetite content. Magnetic susceptibility is low. Very low RQD value.
16.8.12	1271.40	1274.40	3.00	3.13	100.00	DR	Diorite	Grey to whitish Grey	FN to MD	72.33	Chloritic alteration.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured, mafic, moderately magnetic igneous rock. There is no change in mineralogical composition , proportion of magnetite is much higher. Alternative bands of felsic and mafic minerals observed, bands are mm to cm scale in thickness, mostly subhorizontal to dipping at ~ 10-15 0. Very fine calcareous veins present. Lower 40 cm of the core is highly calcareous.
16.8.12	1274.40	1277.40	3.00	2.90	96.67	DR	Diorite	Whitish Grey	FN to MD	46.00	Extreme alteration; chloritized and with calcareous material	Weak, broken, fractured, fracture surfaces smooth. Extremely broken in few parts.	Whitish Grey coloured, fine to medium grained, porphyritic igneous rock, extremely altered to chloritic material through out, shows vey high calcification as well. Magnetic susceptibility is low. Very fine, sigmoidal calcareous veins also observed. Layering of mafic and felsic rich bands oresent.
16.8.12	1277.40	1280.40	3.00	2.97	99.00	DR	Diorite	Whitish Grey	FN to MD	30.33	Extreme alteration; chloritized and with calcareous material	Weak, broken, fractured, fracture surfaces smooth. Extremely broken in few parts.	No change in lithology or mineralogical composition.Whitish Grey coloured, fine to medium grained, porphyritic igneous rock, extremely altered to chloritic material through out, shows vey high calcification as well. Magnetic susceptibility is low. Very fine, sigmoidal calcareous veins also observed. Layering of mafic and felsic rich bands oresent.
16.8.12	1280.40	1283.40	3.00	2.93	97.67	DR	Diorite	Whitish Grey	FN to MD	43.00	Extreme alteration; chloritized and with calcareous material	Weak, broken, fractured, fracture surfaces smooth. Extremely broken in few parts.	No change in lithology or mineralogical composition.Whitish Grey coloured, fine to medium grained, porphyritic igneous rock, extremely altered to chloritic material through out, shows vey high calcification as well. Magnetic susceptibility is low. Very fine, sigmoidal calcareous veins also observed. Layering of mafic and felsic rich bands oresent.
21.8.12	1283.40	1286.40	3.00	3.08	100.00	DR	Diorite	Whitish Grey	FN to MD	57.33	Extreme alteration; chloritized and with calcareous material	Weak, broken, fractured, fracture surfaces smooth. Extremely broken in few parts.	No change in lithology or mineralogical composition.Whitish Grey coloured, fine to medium grained, porphyritic igneous rock, extremely altered to chloritic material through out, shows vey high calcification as well. Proportion of calcic plagioclase high. Magnetic susceptibility is low. Very fine, sigmoidal calcareous veins observed. Few very thick calcareous veins are also present. Layering of mafic and felsic rich bands oresent.
21.8.12	1286.40	1289.40	3.00	2.97	99.00	DR	Diorite	Whitish Grey	FN to MD	56.33	Extreme alteration; chloritized and with calcareous material	Weak, broken, fractured, fracture surfaces smooth. Extremely broken in few parts. Several sets of cross cutting fractures present.	No change in lithology or mineralogical composition.Whitish Grey coloured, fine to medium grained, porphyritic igneous rock, extremely altered to chloritic material through out, shows vey high calcification as well. Almost whole rock is altered. Proportion of calcic plagioclase high. Magnetic susceptibility is low. Very fine, sigmoidal calcareous veins observed. Few very thick calcareous veins are also present. Layering of mafic and felsic rich bands oresent.Small crystals of magnetite and pyrite visible. Few very fine veins present warping around large crystals.
21.8.12	1289.40	1292.40	3.00	3.02	100.00	DR	Diorite	Whitish Grey	FN to CS	60.00	Intensely altered; chloritized and calcified.	Hard, compact, dense, intact, fractured, fracture surfaces smooth with alteration	Fine to coarse grained, whitish Grey coloured, porphyritic igneous rock with mafic minerals, quartzofeldspathic mass and disseminated magnetite along with little pyrite and micaceous minerals. The rock shows large laths of calcic plagioclase. Shows intense alteration (chloritization) all throughout the rock. Shows multiple crosscutting fractures inclined at 30-70 0.Fine layering of mafic and felsic minerals. Magnetic susceptibility much lower.
21.8.12	1292.40	1295.40	3.00	2.94	98.00	DR	Diorite	Whitish Grey	FN to CS	68.67	Intensely altered; chloritized and calcified.	Hard, compact, dense, intact, fractured, fracture surfaces smooth with alteration	There is no change in the lithology and it is a fine to coarse grained, whitish Grey coloured, porphyritic igneous rock with mafic minerals, quartzofeldspathic mass and disseminated magnetite along with little pyrite and micaceous minerals. The rock shows large laths of calcic plagioclase. Shows intense alteration (chloritization) all throughout the rock. Shows multiple crosscutting fractures inclined at 30-70 0.Fine layering of mafic and felsic minerals. Magnetic susceptibility much lower.
21.8.12	1295.40	1298.40	3.00	2.80	93.33	DR	Diorite	Whitish Grey	FN to CS	49.33	Intensely altered; chloritized and calcified.	Hard, compact, dense, intact, fractured, fracture surfaces smooth with alteration. Lower part extremely broken.	There is no change in the lithology and it is a fine to coarse grained, whitish Grey coloured, porphyritic igneous rock with mafic minerals, quartzofeldspathic mass and disseminated magnetite along with little pyrite and micaceous minerals. The rock shows large laths of calcic plagioclase. Shows intense alteration (chloritization) all throughout the rock. Shows multiple crosscutting fractures inclined at 30-70 0.Fine layering of mafic and felsic minerals. Magnetic susceptibility much lower. Lower 20 cm of the core is intensely broken. Fine calcite veins are observed along fractures. Some longitudinal fractures are also present with intense alteration.
21.8.12	1298.40	1301.40	3.00	3.24	100.00	DR	Diorite	Whitish Grey	FN to CS	74.00	Heavily altered to chloritic material. Intense calcification present.	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	Fine to coarse grained, whitish Grey coloured, porphyritic igneous rock enriched in mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Little pyrite is present as minute specs. Intensely altered (chloritized) and calcified. Fractures are smooth with alteration and inclined at 35-70 0. Fine layering of mafic and felsic minerals present, magnetic susceptibility low.

21.8.12	1301.40	1304.40	3.00	2.94	98.00	DR	Diorite	Whitish Grey	FN to CS	83.67	Heavily altered to chloritic material. Intense calcification present.	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	The lithology is unchanged and it is a fine to coarse grained, whitish Grey coloured, porphyritic igneous rock enriched in mafic minerals, micas, quartzofeldspathic mass and disseminated magnetite. Little pyrite is present as minute specs. Intensely altered (chloritized) and calcified. Fractures are smooth with alteration and inclined at 35-70 0. Fine layering of mafic and felsic minerals present, magnetic susceptibility low. Thick (0.5 to 1 cm) calcareous veins present. From 1303.85 to 1303.95 m, a 10 cm thick zone/layer is present which consists of larger laths of quartzofeldspathic mass.
21.8.12	1304.40	1307.40	3.00	2.94	98.00	DR	Diorite	Whitish Grey	FN to CS	81.33	Heavily altered to chloritic material. Intense calcification present.	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	Fine to coarse grained, whitish Grey coloured, porphyritic igneous rock enriched in mafic minerals, micas, calcic plagioclase, little quartz and disseminated magnetite. Little specs of pyrite is present in the rock. Intensely altered to chloritic material and calcified. Multiple fractures present. Fractures are smooth with alteration and inclined at 30 - 70 0. Magnetic susceptibility low.
22.8.12	1307.40	1310.40	3.00	3.02	100.00	DR	Diorite	Whitish Grey	FN to MD	90.00	Chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	Fine to medium grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Shows fractures inclined at 30 - 60 0. Fracture surfaces altered and smooth. Fine calcareous veins present close to some fractures.
22.8.12	1310.40	1313.40	3.00	2.93	97.67	DR	Diorite	Whitish Grey	FN to MD	77.33	Chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	There is no change in the rock properties. It is a fine to medium grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Shows fractures inclined at 30 - 60 0. Fracture surfaces altered and smooth. Fine calcareous veins present close to some fractures. Few crosscutting fractures are also noted.
22.8.12	1313.40	1316.40	3.00	2.94	98.00	DR	Diorite	Whitish Grey	FN to MD	82.67	Chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	There is no change in the rock properties. It is a fine to medium grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Shows fractures inclined at 30 - 60 0. Fracture surfaces altered and smooth. Fine layering of mafic rich and felsic rich bands seen. Fine subhorizontal calcareous veins also noted.
22.8.12	1316.40	1319.40	3.00	2.88	96.00	DR	Diorite	Whitish Grey	FN to CS	69.67	Intensely chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth . Broken in few parts.	There is no change in the rock properties. It is a fine to coarse grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Shows fractures inclined at 30 - 60 0. Fracture surfaces altered and smooth. Fine layering of mafic rich and felsic rich bands seen. Fine subhorizontal calcareous veins also noted. From 1317.07 to 1317.47 m, a 40 cm thick zone consisting of large, anhedral quartz and subhedral plagioclase grains embedded in a finer, mafic rich matrix is observed. The zone is fractured (~ 50 0 dipping)with calcareous materials present.
22.8.12	1319.40	1322.40	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	87.67	Chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	There is no change in the rock properties. It is a fine to medium grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Proportion of magnetite increases, moderately magnetic in few zones/pockets due to local enrichment of magnetite. The core is mostly intact ,few inclined (40-50 0)fractures present with chloritization along the fracture surfaces. No calcareous material is present. Susceptibility is little higher than previous runs.
22.8.12	1322.40	1325.40	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	82.67	Chloritized along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth .	There is no change in the rock properties. It is a fine to medium grained, whitish Grey coloured, porphyritic, mafic igneous rock consisting of mafic minerals (pyroxene), micaceous minerals, plagioclase feldspar, quartz and disseminated magnetite. The grains are anhedral to subhedral in shape. Cubic grains of magnetite noted. Feebly magnetic. Proportion of magnetite increases, moderately magnetic in few zones/pockets due to local enrichment of magnetite. The core is mostly intact ,few inclined (40-50 0)fractures present with chloritization along the fracture surfaces. No calcareous material is present. Susceptibility is little higher than previous runs.
22.8.12	1325.40	1328.40	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	34.33	Intensely chloritized throughout the rock, particularly along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth . Intensely fractured and broken in few parts.	Intensely fractured core of Grey, porphyritic, fine to medium grained mafic igneous rock enriched in mafic minerals, micas, plagioclase feldspar, little quartz and disseminated magnetite. Shows intensely developed crosscutting veins as well as longitudinal fractures which are altered/ chloritized. Calcareous veins present, mm to cm scale thick. Fractures are inclined at 30 - 90 0. Feebly to moderately magnetic. Few minute specs of sulfide (pyrite) visible. Lower 40 cm more rich in felsic components, fine layering of mafic and felsic rich zones present.
22.8.12	1328.40	1331.40	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	49.33	Chloritized along fractures and also in some other parts of rock.	Hard, compact, dense, intact, fractured, fracture surfaces smooth . Intensely fractured and broken in few parts.	Intensely fractured core of Grey, porphyritic, fine to medium grained mafic igneous rock enriched in mafic minerals, micas, plagioclase feldspar, little quartz and disseminated magnetite. Shows intense chloritization along fractures as well as in few other portions of the rock. Several sets of cross cutting fractures present, fractures are inclined at 40 - 70 0. Several thin calcareous veins noted. Fine specs of pyrite observed. Few portions show fine layering of mafic and felsic minerals.
22.8.12	1331.40	1334.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	30.00	Chloritized along fractures and also in some other parts of rock.	Hard, compact, dense, intact, fractured, fracture surfaces smooth . Intensely fractured and broken in few parts.	Intensely fractured core of Grey, porphyritic, fine to medium grained mafic igneous rock enriched in mafic minerals, micas, plagioclase feldspar, little quartz and disseminated magnetite. Shows intense chloritization along fractures as well as in few other portions of the rock. Several sets of cross cutting fractures present, fractures are inclined at 40 - 70 0. Several thin calcareous veins noted. Fine specs of pyrite observed. Few portions show fine layering of mafic and felsic minerals.

22.8.12	1334.40	1337.40	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	86.33	Chloritized along fractures and also in some other parts of rock.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Fine to medium grained, Grey coloured, porphyritic igneous rock enriched in mafic minerals, micas, plagioclase feldspar, little quartz and disseminated magnetite. Few parts show larger coarse grained crystals of plagioclase. Shows smooth, inclined fractures dipping at 40 -75 0. Feebly to moderately magnetic. Fractures are filled with chloritic material. Fine mafic-felsic layering observed. Calcareous materials are also present along fractures. Magnetic susceptibility low. Minute specs of sulfides visible.
23.8.12	1337.40	1340.40	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	84.33	Chloritized mostly along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Alteration along fractures.	Grey coloured, fine to medium grained, porphyritic igneous rock, feebly to moderately magnetic, enriched in mafic minerals, plagioclase feldspar, micas (muscovite), little quartz and disseminated magnetite. Magnetite content increases locally in some zones/pockets leading to higher magnetism. Fine subhorizontal layering of mafic and felsic minerals observed. Fractures are inclined (30-40 0) and shows chloritization. Devoid of calcareous material.
23.8.12	1340.40	1343.40	3.00	3.16	100.00	DR	Diorite	Grey	FN to MD	49.00	Chloritized mostly along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Alteration along fractures.	The rock is unchanged. It is a Grey coloured, fine to medium grained, porphyritic igneous rock, feebly to moderately magnetic, enriched in mafic minerals, plagioclase feldspar, micas (muscovite), little quartz and disseminated magnetite. Magnetite content increases locally in some zones/pockets leading to higher magnetism. Fine subhorizontal layering of mafic and felsic minerals observed. Fractures are inclined (30-40 0) and shows chloritization. Devoid of calcareous material. Few longitudinal fractures are also present. Fine silica veins are noted.
23.8.12	1343.40	1346.40	3.00	3.13	100.00	DR	Diorite	Grey	FN to MD	42.00	Chloritized mostly along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth. Alteration along fractures. Intensely fractured and broken in parts.	The rock is unchanged and there has been no change in mineralogical composition and texture. It is a Grey coloured, fine to medium grained, porphyritic igneous rock, feebly to moderately magnetic, enriched in mafic minerals, plagioclase feldspar, micas (muscovite), little quartz and disseminated magnetite. The rock is intensely fractured and with several sets of cross cutting fractures dipping at 30 - 60 0.Few longitudinal fractures are also noted. Little amount of calcareous material is present along fractures. cm scale thick calcareous veins are also present. Pyrite crystals are also observed along fractures.
23.8.12	1346.40	1349.40	3.00	3.07	100.00	DR	Diorite	Grey	FN to MD	42.67	Intensely chloritized .	Hard, compact, fragmented, fractured and broken core. Intensely altered.	Intensely altered, fine to medium grained, porphyritic, dark grey coloured mafic igneous rock enriched in pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. The rock shows fine layering of mafic rich and felsic rich zoneswith fine, subhedral to cubic grains of magnetite homogeneously distributed in them. Few zones show higher magnetism due to greater concentration of magnetite. Almost whole rock is altered to chloritic material along with the occurrance of very fine, sigmoidal to tapering calcareous veins. Fractures are inclined (30-60 0) and altered. From 1347.32 to 1347.76 m, a 44 cm thick highly crushed and altered zone present.
23.8.12	1349.40	1352.40	3.00	3.10	100.00	DR	Diorite	Grey	FN to MD	33.00	Intensely chloritized .	Hard, compact, fragmented, fractured and broken core. Intensely altered.	Intensely altered, fine to medium grained, porphyritic, dark grey coloured mafic igneous rock enriched in pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. The rock shows fine layering of mafic rich and felsic rich zoneswith fine, subhedral to cubic grains of magnetite homogeneously distributed in them. Few zones show significantly higher magnetism due to greater concentration of magnetite. Almost whole rock is altered to chloritic material along with the occurrance of very fine, sigmoidal to tapering calcareous veins. Intensely calcified in parts with significantly higher number of calcareous veins. From 1349.85 to 1350.37 m, an intensely altered and crushed zone is present. Several longitudinal fractures are also noted.
23.8.12	1352.40	1355.40	3.00	3.10	100.00	DR	Diorite	Grey	FN to MD	74.67	Intensely chloritized .	Hard, compact, fragmented, fractured and broken core. Intensely altered.	Intensely altered, fine to medium grained, porphyritic, dark grey coloured mafic igneous rock enriched in pyroxene, micas, plagioclase feldspar, quartz and disseminated magnetite. The rock shows fine layering of mafic rich and felsic rich zoneswith fine, subhedral to cubic grains of magnetite homogeneously distributed in them. Show coarse, subrounder quartz grains. Few zones show significantly higher magnetism due to greater concentration of magnetite. Almost whole rock is altered to chloritic material along with the occurrance of very fine, sigmoidal to tapering calcareous veins. Calcification is negligible. Few portions or zones are intensely altered. Minute specs of pyrite are present all throughout the rock. The proportion of pyrite is significant in the rock.
23.8.12	1355.40	1358.40	3.00	2.97	99.00	Q-DR	Quartz Diorite	Grey to whitish Grey	FN to CS	77.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	Fine to coarse grained, Grey to whitish Grey, porphyritic, feebly magnetic, mafic rich igneous rock with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Proportion of magnetite decreases giving rise to low magnetism. Proportion of quartz significantly higher (more than 5 volume percentage) making the rock quartz-dioritic in composition. Fine layering of mafic and felsic rich zones observed. Large laths of pyroxene observed. Interstitial spaces of these larger grains are filled up by pyrite. Pyrite crystals are also observed in fractures. Fractures inclined (30-60 0) and altered.
23.8.12	1358.40	1361.40	3.00	2.88	96.00	Q-DR	Quartz Diorite	Whitish Grey	FN to CS	73.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	There is no change in the lithology and the rock is a fine to coarse grained, Grey to whitish Grey, porphyritic, feebly magnetic, mafic rich igneous rock with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Proportion of magnetite decreases giving rise to low magnetism. Proportion of quartz significantly higher (more than 5 volume percentage) making the rock quartz-dioritic in composition. Fine layering of mafic and felsic rich zones observed. Large laths of pyroxene observed. Interstitial spaces of these larger grains are filled up by pyrite. Pyrite crystals are also observed in fractures. Fractures inclined (30-60 0) and altered.
24.8.12	1361.40	1364.40	3.00	2.97	99.00	Q-DR	Quartz Diorite	Whitish Grey	MD to CS	66.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	Medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Mica is not observed. Shows fine layering of mafic and felsic rich components leading to mm to cm scale bands. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. Very fine calcareous veins observed. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.

24.8.12	1364.40	1367.40	3.00	2.93	97.67	GDR/GR	Granodiorite/Granite	Whitish Grey	MD to CS	88.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The same lithology continues and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Mica is absent. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. Very fine calcareous veins observed. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1367.40	1370.40	3.00	3.18	100.00	GDR	Granodiorite	Whitish Grey	MD to CS	84.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The same lithology continues and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock. Few very fine fracturefillings present.
24.8.12	1370.40	1373.40	3.00	2.77	92.33	GDR	Granodiorite	Whitish Grey	MD to CS	75.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The same lithology continues and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock. Few very fine fracturefillings present.
24.8.12	1373.40	1376.40	3.00	3.00	100.00	GDR	Granodiorite	Whitish Grey	MD to CS	92.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The same lithology continues and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock. Few very fine fracturefillings present.
24.8.12	1376.40	1379.40	3.00	2.92	97.33	GDR	Granodiorite	Whitish Grey	MD to CS	91.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The same lithology continues and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Few very fine to cm scale thick silica veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1379.40	1382.40	3.00	3.00	100.00	GDR	Granodiorite	Whitish Grey	MD to CS	94.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Few quartz grains are very coarse. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Few very fine to cm scale thick silica veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1382.40	1385.40	3.00	3.01	100.00	GDR	Granodiorite	Whitish Grey	MD to CS	93.33	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Large laths of quartz are visible. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Silica veins are absent. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1385.40	1388.40	3.00	2.98	99.33	GDR	Granodiorite	Whitish Grey	MD to CS	93.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Large laths of quartz are visible. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Multiple thick silica veins noted. Disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1388.40	1391.40	3.00	2.97	99.00	GDR	Granodiorite	Whitish Grey	MD to CS	90.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Large laths of quartz are visible. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Multiple thick silica veins noted. Significant amount of disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.

24.8.12	1391.40	1394.40	3.00	2.97	99.00	GDR	Granodiorite	Whitish Grey	MD to CS	91.00	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. Large laths of quartz are visible. Little mica is present. No banding is visible, rather the rock shows a mosaic of various mineral grains. Feebly magnetic, shows higher magnetism in some zones / pockets due to greater concentration of magnetite. cm scale thick to fine calcareous veins noted. Multiple thick silica veins noted. Significant amount of disseminated pyrite crystals present filling up the interstitial spaces between the grains. Shows multiple fractures inclined at 30 - 70 0. Presence of chloritic alteration along the fractures as well as in some other portions of the rock.
24.8.12	1394.40	1397.40	3.00	3.03	100.00	GDR	Granodiorite	Whitish Grey	FN to CS	91.67	Chloritic alteration along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth and with alteration.	The lithology is unchanged and it is a medium to coarse grained, Greyish white coloured, porphyritic igneous rock rich in quartz, plagioclase feldspar, pyroxene along with disseminated magnetite grains. At 1397.3 m, the lithology changes to Diorite. It is fine to medium grained, dark grey coloured, porphyritic igneous rock with pyroxene, mica, plagioclase feldspar, quartz and little amounts of disseminated magnetite and pyrite.
24.8.12	1397.40	1400.40	3.00	2.97	99.00	DR	Diorite	dark grey	FN to MD	51.00	Little chloritic alteration mostly along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	Dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Consists of mm scale thick fine bands of mafic rich and felsic rich layers. Magnetite grains are disseminated throughout the rock in a more or less homogeneous manner. Multiple fractures are present inclined at 40 - 50 0. Fracture surfaces are smooth and chloritized. Few fine pyrite-filled veins are also noted though most of the pyrite is present in the interstitial spaces. Magnetic susceptibility much higher.
24.8.12	1400.40	1403.40	3.00	2.96	98.67	DR	Diorite	dark grey	FN to MD	57.33	Chloritized along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Consists of mm scale thick fine bands of mafic rich and felsic rich layers. Magnetite grains are disseminated throughout the rock in a more or less homogeneous manner. Multiple fractures are present inclined at 25 - 70 0. Fracture surfaces are smooth and chloritized. Lots of calcareous veins of variable thickness seen. Few fine pyrite-filled veins are also noted though most of the pyrite is present in the interstitial spaces. Magnetic susceptibility much higher.
24.8.12	1403.40	1406.40	3.00	2.93	97.67	DR	Diorite	dark grey	FN to MD	75.67	Significantly chloritized along fractures.	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Consists of mm scale thick fine bands of mafic rich and felsic rich layers. Magnetite grains are disseminated throughout the rock in a more or less homogeneous manner. Multiple fractures are present inclined at 25 - 70 0. Fracture surfaces are smooth and chloritized. Lots of calcareous veins of variable thickness seen. Few fine pyrite-filled veins are also noted though most of the pyrite is present in the interstitial spaces. Magnetic susceptibility much higher.
25/08/12	1406.4	1409.4	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	72.67	Intersely alterred along fractures, altered all through out the rock.	Hard, compact, dense, intact, fracture surfaces both smooth and rough. Intensely altered along fractures.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Consists of mm scale thick fine bands of mafic rich and felsic rich layers. Magnetite grains are disseminated throughout the rock in a more or less homogeneous manner. Multiple fractures are present inclined at 25 - 70 0. Fracture surfaces are smooth and chloritized. cm scale thick calcareous veins noted. Few fine pyrite-filled veins are also noted though most of the pyrite is present in the interstitial spaces. Magnetic susceptibility much higher. Few portions of the rock are intensely broken and fractured with significantly higher alteration.
25/08/12	1409.4	1412.4	3.00	3.15	100.00	DR	Diorite	Grey	FN to MD	72.33	Intersely alterred along fracture, altered all through out the rock.	Hard, compact, dense, intact, fracture surfaces both smooth and rough. Intensely altered along fractures.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Consists of mm scale thick fine bands of mafic rich and felsic rich layers. Magnetite grains are disseminated throughout the rock in a more or less homogeneous manner. Multiple fractures are present inclined at 25 - 70 0. Fracture surfaces are smooth and chloritized. cm scale thick calcareous veins noted along with few thinner veins. Few fine pyrite-filled veins are also noted though most of the pyrite is present in the interstitial spaces. Magnetic susceptibility much higher. Few portions of the rock are intensely broken and fractured with significantly higher alteration.
25/08/12	1412.4	1415.4	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	73.33	Altered along fractures	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Fractures are inclined (15 - 70 0) and characterized by chloritic alteration. Fracture surfaces smooth. Presence of pyrite noted. Shows calcareous materials along fractures along with few very fine calcareous veins.
25/08/12	1415.4	1418.4	3.00	3.02	100.00	DR	Diorite	Grey	FN to MD	76.00	Altered along fracture	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Grains are subhedral to anhedral in shape. Fractures are inclined (15 - 70 0) and characterized by chloritic alteration. Fracture surfaces smooth. Presence of pyrite noted. Shows calcareous materials along fractures along with few very fine calcareous veins.
25/08/12	1418.4	1421.4	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	55.33	Altered along fracture	Hard, compact, dense, intact, fractured, fracture surfaces smooth.	The rock is generally the same. It is a dark grey coloured, porphyritic, fine to medium grained, moderately magnetic mafic igneous rock rich in pyroxene, micas (mostly muscovite), plagioclase feldspar, little amount of quartz along with disseminated magnetite. Magnetite homogeeously distributed both in mafic and felsic rich portions. Grains are subhedral to anhedral in shape. Fractures are inclined (15 - 70 0) and characterized by chloritic alteration. Fracture surfaces smooth. Shows multiple, very fine, interconnected calcareous veins. Pyrite grains are visible all throughout the rock.

25/08/12	1421.4	1424.4	3.00	3.00	100.00	DR	Diorite	dark grey	FN to MD	68.67	Intersely chloritized along fractures, show alteration in other parts of the rock too.	Hard, compact, dense, intact, fracture surface smooth with alteration.	dark grey coloured Diorite with same mineralogical composition and textural attributes. Shows very fine to cm scale mafic and felsic rich bands. The bands are mostly subhorizontal to gently dipping. Magnetite grains are disseminated homogeneously throughout the rock. Several inclined (20 to 40 0) fractures are present with smooth surfaces and alteration. Minute specs of sulphides visible but in lesser quantity. Fine mm scale thick calcareous veins noted mostly near the fractures. Few thicker veins also noted.
25/08/12	1424.4	1427.4	3.00	3.00	100.00	DR	Diorite	dark grey	FN to MD	14.67	Intersely chloritized along fractures, show alteration in other parts of the rock too. Calcification also present.	Hard, compact, dense, intact, fracture surface smooth with alteration. Intensely fracture in few parts and broken	dark grey coloured Diorite with same mineralogical composition and textural attributes. Shows very fine to cm scale mafic and felsic rich bands. The bands are mostly subhorizontal to gently dipping. Magnetite grains are disseminated homogeneously throughout the rock. Several inclined (20 to 40 0) fractures are present with smooth surfaces and alteration. Multiple longitudinal fractures are also noted. Minute specs of sulphides visible but in lesser quantity. Fine mm scale thick calcareous veins noted mostly near the fractures. Few thicker veins also noted. Lots of calcification is also noted along with chloritization along few fractures. Quantity of fractures and calcareous veins significantly higher. Magnetic susceptibility comparatively lower.
25/08/12	1427.4	1430.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	64.33	Intersely chloritized along fractures, show alteration in other parts of the rock too. Calcification also present.	Hard, compact, dense, intact, fracture surface smooth with alteration. Intensely fracture in few parts and broken	dark grey coloured Diorite with same mineralogical composition and textural attributes. Shows very fine to cm scale mafic and felsic rich bands. Proportion of calcic plagioclase higher. The bands are mostly subhorizontal to gently dipping. Magnetite grains are disseminated homogeneously throughout the rock. Several inclined (20 to 40 0) fractures are present with smooth surfaces and alteration. Multiple longitudinal fractures are also noted. Minute specs of sulphides visible but in lesser quantity. Fine mm scale thick calcareous veins noted mostly near the fractures. Few thicker veins also noted. Lots of calcification is also noted along with chloritization along few fractures. Quantity of fractures and calcareous veins significantly higher. Magnetic susceptibility comparatively lower.
25/08/12	1430.4	1433.4	3.00	2.79	93.00	DR	Diorite	Grey	FN to MD	23.33	Intensely altered, Chloritized all through the rock.	Hard, dense, fractured, broken in part, fracture surface smooth.	dark grey coloured Diorite with same mineralogical composition and textural attributes. Shows very fine to cm scale mafic and felsic rich bands. The bands are mostly subhorizontal to gently dipping. Intensely altered all throughout the rock. cm to mm scale thick calcareous veins present. Intensely fractured, fracture surfaces altered and smooth. Large grains of magnetite visible. Disseminated pyrite observed filling up the interstitial spaces. Calcareous material is present along fractures. Longitudinal fractures are also present.
25/08/12	1433.4	1436.4	3.00	3.04	100.00	DR	Diorite	Grey	FN to MD	71.33	Intensely altered, Chloritized all through the rock.	Hard, dense, fractured, broken in part, fracture surface smooth.	dark grey coloured Diorite with same mineralogical composition and textural attributes. Shows very fine to cm scale mafic and felsic rich bands. The bands are mostly subhorizontal to gently dipping. Top 70 cm of the core is intensely altered and crushed. Remaining of the core is less altered. cm to mm scale thick calcareous veins present. Intensely fractured, fracture surfaces altered and smooth. Large grains of magnetite visible. Disseminated pyrite observed filling up the interstitial spaces. Calcareous material is present along fractures. Longitudinal fractures are also present. Magnetic susceptibility much lower due to increase in calcareous and silicic components.
26/08/12	1436.4	1439.4	3.00	3.25	100.00	DR	Diorite	Grey	FN to MD	90.15	Little chloritic alteration along fractures	Hard, compact, dense, intact, fracture surface smooth.	Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. Top 66 cm shows a zone of quartz enrichment with coarse grained quartz crystals associated with finer grained mafic matrix. Shows multiple fractures inclined at 10 - 15 0. Fracture surfaces smooth and shows chloritic alteration. Shows few thick calcareous and silica veins crosscutting the mafic and felsic banding in the rock. Magnetite grains are uniformly distributed both in the mafic and felsic rich portions. Few magnetite grains are very coarse in size. Magnetism increases in few pockets/zones due to greater concentration of magnetite.
26/08/12	1439.4	1442.4	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	90.00	Little chloritic alteration along fractures	Hard, compact, dense, intact, fracture surface smooth.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. Shows multiple fractures inclined at 10 - 15 0. Fracture surfaces smooth and shows chloritic alteration. Shows few thick calcareous and silica veins crosscutting the mafic and felsic banding in the rock. Magnetite grains are uniformly distributed both in the mafic and felsic rich portions. Few magnetite grains are very coarse in size. Magnetism increases in few pockets/zones due to greater concentration of magnetite.
26/08/12	1442.4	1445.4	3.00	3.18	100.00	DR	Diorite	Grey	FN to MD	92.67	Little chloritic alteration along fractures	Hard, compact, dense, intact, fracture surface smooth.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. Shows multiple fractures inclined at 10 - 15 0. Fracture surfaces smooth and shows chloritic alteration. Shows few mm scale thick thick calcareous and silica veins crosscutting the mafic and felsic banding in the rock. Magnetite grains are uniformly distributed both in the mafic and felsic rich portions. Few magnetite grains are very coarse in size. Magnetism increases in few pockets/zones due to greater concentration of magnetite. Near the bottom, a 30 cm thick zone from 1444.93 to 1445.23 m is present which is highly enriched in quartz. Quartz in this zone is extremely coarse grained, subhedral to anhedral in shape and embedded in a finer matrix of mafic minerals and quartzofeldspathic mass
26/08/12	1445.4	1448.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.33	Little chloritic alteration along fractures	Hard, compact, dense, intact, fracture surface smooth.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. Shows multiple fractures inclined at 60 -65 0. Fracture surfaces smooth and shows chloritic alteration. Shows few mm scale thick thick calcareous and silica veins crosscutting the mafic and felsic banding in the rock. Magnetite grains are uniformly distributed both in the mafic and felsic rich portions. Few magnetite grains are very coarse in size. Magnetism increases in few pockets/zones due to greater concentration of magnetite.
26/08/12	1448.4	1451.4	3.00	2.93	97.67	DR	Diorite	Grey	FN to MD	75.67	Little chloritic alteration along fractures	Hard, compact, dense, intact, fracture surface smooth.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. Shows fine cm to mm scale layering of mafic rich and felsic rich materials. Disseminated magnetite present uniformly throughout the rock, subhedral, fine to medium grained. Fractures are inclined (15 - 60 0), shows chloritic alteration along with calcareous material. Minute specs of pyrite present disseminated all throughout the rock. Magnetic susceptibility comparatively lower.

26/08/12	1451.4	1454.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	49.00	Little chloritic alteration along fractures	Hard, compact, dense, intensely fractured, fracture surfaces smooth and altered.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. The rock is intensely fractured with several inclined (10 - 70 0) and cross cutting fractures. Several calcareous veins present. Shows fine layering of mafic and felsic component rich bands. Lower 8 cm totally felsic. Disseminated magnetite is present uniformly. Few specs of pyrite visible.
26/08/12	1454.4	1457.4	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	71.33	Little chloritic alteration along fractures	Hard, compact, dense, intensely fractured, fracture surfaces smooth and altered.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. The rock is intensely fractured with several inclined (10 - 70 0) and cross cutting fractures. Top 7 cm totally felsic. Lots of thick (> 2 cm) felsic bands visible alternating with mafic rich bands. Few very fine calcareous veins observed.
26/08/12	1457.4	1460.4	3.00	3.05	100.00	DR	Diorite	Grey	FN to MD	82.67	Little chloritic alteration along fractures	Hard, compact, dense, intensely fractured, fracture surfaces smooth and altered. Little clay alteration is present along fractures.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. The rock is intensely fractured with several inclined (10 - 70 0) and cross cutting fractures. Along with chloritic alteration little clayey material is also present along fractures. Lots of thick (> 2 cm) felsic bands visible alternating with mafic rich bands. Few very fine calcareous veins observed.
26/08/12	1460.4	1463.4	3.00	2.90	96.67	DR	Diorite	Grey	FN to MD	71.00	Little chloritic alteration along fractures	Hard, compact, dense, intensely fractured, fracture surfaces smooth and altered. Little clay alteration is present along fractures.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. The rock is intensely fractured with several inclined (10 - 70 0) and cross cutting fractures. Along with chloritic alteration little clayey material is also present along fractures. Lots of thick (> 2 cm) felsic bands visible alternating with mafic rich bands. Few very fine calcareous veins observed.
26/08/12	1463.4	1466.4	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	76.67	Little chloritic alteration along fractures	Hard, compact, dense, intensely fractured, fracture surfaces smooth and altered. Little clay alteration is present along fractures.	The lithology is unchanged. Fine to medium grained, Grey coloured, feebly to moderately magnetic, mafic igneous rock enriched in pyroxene, plagioclase feldspar, mica, little amount of quartz and disseminated magnetite. The rock is intensely fractured with several inclined (10 - 70 0) and cross cutting fractures. Along with chloritic alteration little clayey material is also present along fractures. Lots of thick (> 2 cm) felsic bands visible alternating with mafic rich bands. Few very fine calcareous veins observed.
27/08/12	1466.4	1469.4	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD, coarse in places.	67.33	Little chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. From 1468.06 to 1468.86 m, a 80 cm zone is present with intense calcification, lots of crosscutting veins and severe alteration. Lower 42 cm of the core is characterized by silica/quartz grains in high proportion. Few quartz grains are very coarse to coarse. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1469.4	1472.4	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD, coarse in places.	91.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Top 1.1 m of the core consists of coarse quartz grains which are subhedral to anhedral. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1472.4	1475.4	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD, coarse in places.	92.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1475.4	1478.4	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	84.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase is significantly higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1478.4	1481.4	3.00	2.94	98.00	DR	Diorite	Grey	FN to MD	85.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase is significantly higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1481.4	1484.4	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	86.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase is significantly higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.

27/08/12	1484.4	1487.4	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	89.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase is significantly higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
27/08/12	1487.4	1490.4	3.00	3.10	100.00	DR	Diorite	Grey	FN to MD	94.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Proportion of calcic plagioclase is significantly higher. Intense calcification is noted along with several crosscutting veins and severe alteration. Fractures present, inclined (30 -65 0), altered. Fine layering of mafic-felsic rich layers present.
29/08/12	1490.4	1493.4	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	91.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Magnetism is feeble, few pockets show higher magnetism due to greater concentration of magnetite. Proportion of fractures much lower, shows only one inclined fracture dipping at ~ 20 0 and charatcterized by chloritic alteration and smooth surfaces. Multiple calcareous veins observed, cutting across the bandings. Few coarse quartz grains present. Minute specs of sulfides observed.
29/08/12	1493.4	1496.4	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	91.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Larger grains of magnetite visible. At few places, the grain sizes of quartz, plagioclase and pyroxene are coarse. Specs of cubical pyrite grains observed. Fractures are inclined (~ 10-15 0) having smooth surfaces and chloritized. Few fractures are rough and at places clayey material is also observed. Magnetic susceptibility low.
29/08/12	1496.4	1499.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	79.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties unchanged. Shows multiple inclined fractures dipping at 40 - 65 0 and chloritized. Pyrite crystals noted. Shows fine banding of mafic and felsic rich layers.
29/08/12	1499.3	1502.4	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	80.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is same and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties unchanged. Shows multiple inclined fractures dipping at 40 - 65 0 and chloritized. Pyrite crystals noted. Shows fine banding of mafic and felsic rich layers.
29/08/12	1502.4	1505.4	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	80.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties same. Proportion of fractures higher and are inclined at 20 -80 0 , shows chloritic alteration and fracture surfaces smooth. Little pyrite is present. Very fine calcareous veins noted. Magnetic susceptibility is generally low but slightly higher than previous run.
29/08/12	1505.4	1508.4	3.00	3.18	100.00	DR	Diorite	Grey	FN to MD	80.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties same. Top 23 cm of the core is rich in calcareous veins and calcareous material. Magnetic susceptibility is generally low, few points/zones show high susceptibility due to greater concentration of magnetite. Fractures are inclined (15-20 0) with little chloritic alteration. Fracture surfaces smooth.
29/08/12	1508.4	1511.4	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	81.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties same. Proportion of calcareous material is lower and few fractures show clayey material. Magnetic susceptibility is generally low, few points/zones show high susceptibility due to greater concentration of magnetite. Fractures are inclined (15-20 0) with little chloritic alteration. Fracture surfaces smooth. Few silica veins with coarse quartz grains noted.
29/08/12	1511.4	1514.4	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	84.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties same. Proportion of calcareous material is lower and few fractures show clayey material. Magnetic susceptibility is generally low, few points/zones show high susceptibility due to greater concentration of magnetite. Fractures are inclined (15-20 0) with little chloritic alteration. Fracture surfaces smooth.
29/08/12	1514.4	1517.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	82.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. General rock properties same. Proportion of calcareous material is lower and few fractures show clayey material. Magnetic susceptibility is generally low, few points/zones show high susceptibility due to greater concentration of magnetite. Fractures are inclined (15-20 0) with little chloritic alteration. Fracture surfaces smooth. Significant amount of pyrite is noted.
29/08/12	1517.4	1520.4	3.00	3.04	100.00	DR	Diorite	Grey	FN to MD	77.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Coarse quartz grains noted, the grains are anhedral and angular. Multiple inclined fractures present, dipping at 50 - 70 0. Shows chloritic alteration, fracture surfaces smooth. Pyrite is present in small amount in few places.

29/08/12	1520.4	1523.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	75.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite.Intensely fractured in few places with significant chloritic alteration. Calcareous veins noted. A 4 cm thick silica band is present which consists of large quartz grains embedded in a finer siliceous groundmass. Few longitudinal fractures also noted and the rock is moderately magnetic.
29/08/12	1523.4	1526.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	73.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	The lithology is unchanged and it is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Some part of the rock is intensely fractured and broken, longitudinal fractures also present. Devoid of calcification and pyrite. Longitudinal fractures often filled up by chloritic material.
29/08/12	1526.4	1529.4	3.00	3.06	100.00	DR	Diorite	Grey	FN to MD	80.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	Fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Characterized by multiple inclined (30 - 80 0) fractures with chloritic alteration. Calcareous material is also observed along the fractures. Few calcareous veins also noted. Moderate to feebly magnetic, magnetism higher in few zones/pockets.
29/08/12	1529.4	1532.4	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	88.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in rock properties. It is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Characterized by multiple inclined (30 - 80 0) fractures with chloritic alteration. Calcareous material is also observed along the fractures. Few calcareous veins also noted. Moderate to feebly magnetic, magnetism higher in few zones/pockets.
29/08/12	1532.4	1535.4	3.00	2.88	96.00	DR	Diorite	Grey	FN to MD	80.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	The lithology is unchanged. It is a fine to medium grained, porphyritic, Grey to whitish Grey coloured igneous rock with mafic minerals, plagioclase feldspar, mica, quartz and disseminated magnetite. Few coarse quartz graisn seen. Characterized by multiple inclined (30 - 80 0) fractures with chloritic alteration. Calcareous material is also observed along the fractures. Few calcareous veins also noted. Moderate to feebly magnetic, magnetism higher in few zones/pockets. Pyrite grains visible.
30/08/12	1535.4	1538.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	88.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. Grains are typically anhedral to subhedral in shape. Few low angle fractures present with little alteration. Fracture surfaces are both smooth and rough. No pyrite is visible. Fine mafic and felsic bands present. Susceptibility higher than previous runs indicating higher magnetite content.
30/08/12	1538.4	1541.4	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	90.67	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. Grains are typically anhedral to subhedral in shape. Few low angle fractures present with little alteration. Fracture surfaces are both smooth and rough. No pyrite is visible. Fine mafic and felsic bands present. Susceptibility higher than previous runs indicating higher magnetite content.
30/08/12	1541.4	1544.4	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	83.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Several inclined fractures present dipping at 60 - 75 0. Fracture surfaces smooth with little chloritic alteration. Calcareous material and veins also present along fractures.
30/08/12	1544.4	1547.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	86.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. Grains are typically anhedral to subhedral in shape. Inclined fractures present dipping at 60-75 0. Fracture surfaces smooth with little chloritic alteration. Calcareous material and veins also present along fractures.
30/08/12	1547.4	1550.4	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	80.00	Chloritic alteration along fractures. Little clay present.	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. General magnetic susceptibility decreases.Grains are typically anhedral to subhedral in shape. Inclined fractures present dipping at 60-75 0. Fracture surfaces smooth with little chloritic alteration. Calcareous material and veins also present along fractures.
30/08/12	1550.4	1553.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	91.00	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. General magnetic susceptibility decreases.Grains are typically anhedral to subhedral in shape. Inclined fractures present dipping at 60-75 0. Fracture surfaces smooth with little chloritic alteration. Calcareous material and veins also present along fractures.
30/08/12	1553.4	1556.4	3.00	3.03	100.00	DR	Diorite	Grey	FN to MD	75.33	Chloritic alteration along fractures	Hard, compact, dense, intact, fractured, fracture surface smooth. Few parts intensely fractured and broken.	No change in lithology.Fine to medium grained, Grey coloured, porphyritic igneous rock with feeble to moderate magnetism. Mineralogical composition is unchanged. Few zones show higher magnetism due to greater concentration of magnetite. Fine mafic-felsic layering observed. Multiple inclined (30 - 70 0) fractures present, fracture surfaces mostly smooth and altered,few fractures rough. Pyrite grains are observed few places. Calcareous material is observed in few fractures.

3/9/2012	1556.4	1559.4	3.00	2.84	94.67	DR	Diorite	Grey	FN to MD	36.67	Intensely altered to chloritic material.	Hard, compact, dense, intensely fractured and broken.	Fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Enriched in mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. Specs of pyrite observed in few places, mostly along fractures. The rock is highly altered and fractured. Bottom 1.25 m extremely fractured with significant chloritic alteration. Fractures are inclined at 30 - 65 0. Fine calcareous veins observed. Fine mafic and felsic layering observed. The rock is feebly to moderately magnetic.
4/9/2012	1559.4	1562.4	3.00	2.98	99.33	DR	Diorite	Grey	FN to MD	60.33	Intensely altered to chloritic material.	Hard, compact, dense, intensely fractured and broken.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Enriched in mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. From 1559.94 to 1560.66 m, a 72 cm thick, intensely broken and fractured zone present. The rock is highly altered. Fractures are inclined at 40-75 0. A 5 cm thick silica vein is observed at 1561.68 m. Fine calcareous veins present. The rock is characterized by fine mafic and felsic layering. It is feebly to moderately magnetic.
4/9/2012	1562.4	1565.4	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	67.69	Intensely chloritized	Hard, dense, intensely fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. The rock is intensely broken and fractured in few places.Intensely chloritized. Shows multiple fractures inclined at 30 - 60 0. Longitudinal fractures also present. Fracture surfaces are generally smooth. Several fine calcareous veins present. Few fine veins of pyrite present along with specs of pyrite. Shows very fine mafic and felsic rich banding. The rock is feebly to moderately magnetic. Few portions of the rock are more felsic rich.
4/9/2012	1565.4	1568.4	3.00	2.87	95.67	DR	Diorite	Grey	FN to MD	53.67	Intensely chloritized	Hard, dense, compact, fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. The rock is intensely chloritized along fractures, fractures are inclined at 20 - 70 0. Significant amount of calcareous and silica veins noted. Fine banding of mafic and felsic rich layers present. The rock is moderately to feebly magnetic. Pyrite is observed.
4/9/2012	1568.4	1571.4	3.00	2.99	99.67	DR	Diorite	Grey	FN to MD	62.00	Intensely chloritized	Hard, dense, compact, fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. The rock is intensely chloritized along fractures, fractures are inclined at 20 - 70 0. Significant amount of calcareous and silica veins noted. Proportion of silica veins higher. Fine banding of mafic and felsic rich layers present. The rock is moderately to feebly magnetic. Pyrite is observed.
4/9/2012	1571.4	1574.4	3.00	3.01	100.00	DR	Diorite	Grey	FN to MD	80.67	Chloritized along fractures	Hard, dense, compact, intact, fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. Chloritized along fractures which are inclined at 15-70 0. Significant amount of calcareous and silica veins present. Calcareous veins are very thin to few mm thick. Silica veins are much thicker. Alternate zones rich in mafic and felsic components present. Moderate to feebly magnetic.
4/9/2012	1574.4	1577.4	3.00	3.19	100.00	DR	Diorite	Grey	FN to MD	64.67	Chloritized along fractures	Hard, dense, compact, intact, fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. Coarse grains of magnetite present. Chloritized along fractures which are inclined at 15-70 0. Along with the inclined fractures, several high angle to normal fractures observed. Calcareous veins, crosscutting each other, are present. The rock is devoid of silica veins. Mafic rich and felsic rich bands observed. Moderately to feebly magnetic.
4/9/2012	1577.4	1580.4	3.00	2.92	97.33	DR	Diorite	Grey	FN to MD	87.33	Chloritized along fractures	Hard, dense, compact, intact, fractured, fracture surface smooth.	General rock properties and mineralogical composition unchanged. It is a fine to medium grained, porphyritic, Grey coloured igneous rock of mafic composition. Consists of mafic minerals, micas, quartz, calcic plagioclase and disseminated magnetite. Shows multiple inclined fractures dipping at 30- 60 0. The whole rock is chloritized. Shows several thin silica and calcareous veins. Coarse grains of magnetite present. Mafic and felsic rich bands observed.
5/9/2012	1580.4	1583.4	3.00	3.02	100.00	DR	Diorite	dark grey	FN to MD, coarse in places.	89.33	Little chloritic alteration along few fractures	Hard, dense, compact, intact, fractured, proportion of fractures less, fracture surface rough.	dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. From 1581.41 m , a 15 cm thick zone is present which is enriched in very coarse quartz grains embedded in a finer mafic and silica enriched groundmass. Coarse anhedral quartz grains are also present in some other portions of the core. Generally, the proportion of mafic is much higher in the core. Few calcareous veins are present. Few low angle (~ 10 0) fractures present , with rough surfaces and very little chloritic alteration. The rock is moderately to feebly magnetic.
5/9/2012	1583.4	1586.4	3.00	2.96	98.67	DR	Diorite	dark grey	FN to MD	90.67	Little chloritic alteration along few fractures	Hard, dense, compact, intact, fractured, proportion of fractures less, fracture surface rough.	The lithology is unchanged and it is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. The rock is characterized by very few fractures, mostly the fractures are shallow dipping, one fracture is inclined at 75 0. Fracture surfaces are rough with very little chloritic alteration. Show two thick silica rich veins/zones - one is from 1584.63 m and 10 cm thick, the other is from 1585.73 m and 7 cm thick. Few mm scale thick silica veins also noted. The rock is moderately magnetic, magnetism is higher than previous run indicating a greater concentration of magnetite. Proportion of mafic high.

5/9/2012	1586.4	1589.4	3.00	2.95	98.33	DR	Diorite	dark grey	FN to MD	78.00	Little chloritic alteration along few fractures	Hard, dense, compact, intact, fractured, proportion of fractures less, fracture surface rough.	The lithology is unchanged and it is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Few inclined fractures present dipping at 70-75 0. Shows little chloritic alteration. Few fine pyrite specs noted. Moderately magnetic, magnetism higher in zones/pockets due to greater concentration of magnetite. Few fine silica veins are also present.
5/9/2012	1589.4	1592.4	3.00	2.95	98.33	DR	Diorite	dark grey to Grey	FN to MD	69.33	Chloritized along fracture	Hard, dense, compact, intact, fractured and broken in few places, fractures smooth.	The lithology is unchanged and it is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Shows intense fracturing in few places which show significant chloritization. A 35 cm thick zone of silica enrichment is present from 1590 m. Several fine silica veins also noted. Fractures are 30 - 80 0 dipping. Fine mafic rich and felsic rich banding observed. Shows feeble to moderate magnetism.
5/9/2012	1592.4	1595.4	3.00	3.10	100.00	DR	Diorite	Grey	FN to MD	50.00	Chloritized along fracture	Hard, dense, compact, intact, fractured and broken in few places, fractures smooth.	The lithology is unchanged and it is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Top 90 cm of the core is intensely broken, crushed and heavily altered to chloritic material. Proportions of mafic minerals high. Fine silica veins present. Alternate mafic rich and felsic rich bands visible.
5/9/2012	1595.4	1598.4	3.00	3.13	100.00	DR	Diorite	Grey	FN to MD	50.00	Chloritized along fracture	Hard, dense, compact, intact, fractured and broken in few places, fractures smooth.	The lithology is unchanged and it is a dark grey coloured, fine to medium grained, porphyritic igneous rock of mafic composition. Consisting of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Top 90 cm of the core is intensely broken, crushed and heavily altered to chloritic material. Proportions of mafic minerals high. Fine silica veins present. Alternate mafic rich and felsic rich bands visible.
5/9/2012	1598.4	1601.4	3.00	2.97	99.00	DR	Diorite	Grey to whitish Grey	FN to MD	54.67	Chloritized along fracture	Hard, dense, compact, intact, fractured, fracture surface smooth.	Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Shows very fine silica veins to entire 15 cm thick silicified zones. Shows chloritic alteration along fractures which are inclined at 30 - 65 0. Few longitudinal fractures present. Minute specs of pyrite visible. Few calcareous veins are also present. Mafic rich and felsic rich banding present.
5/9/2012	1601.4	1604.4	3.00	2.95	98.33	DR	Diorite	Grey to whitish Grey	FN to MD	76.67	Chloritized along fracture	Hard, dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Coarse to very coarse quartz grains present. From 1601.9 m, a 22 cm thick, silicified zone present with crosscutting very fine calcareous veins going through the interstitial spaces between quartz grains. A 1.2 m thick zone of coarse quartz grains is present from 1602.87 m. Fractures inclined at 30 - 50 0, shows calcareous material along fractures.
5/9/2012	1604.4	1607.4	3.00	2.95	98.33	DR	Diorite	Grey	FN to MD	54.33	Chloritized along fracture	Hard, dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Shows multiple fractures inclined at 50-75 0. Intense chloritic alteration is present along the fractures. Minute specs of pyrite present. Few thin silica veins observed. Mafic rich and felsic rich layers present.
5/9/2012	1607.4	1610.4	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	71.00	Chloritized along fracture	Hard, dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Shows multiple fractures inclined at 50-75 0. Intense chloritic alteration is present along the fractures. Minute specs of pyrite present. Few thin silica veins observed. Mafic rich and felsic rich layers present. Magnetic susceptibility slightly higher indicating a greater concentration of magnetite.
5/9/2012	1610.4	1613.4	3.00	3.17	100.00	DR	Diorite	Grey	FN to MD	66.67	Chloritized along fracture	Hard, dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Multiple fractures present inclined at 60-70 0 with chloritic alteration. Moderately magnetic. Fine banding of mafic rich and felsic rich layers present. Calcareous material is present along fractures.
7/9/2012	1613.4	1616.4	3.00	2.96	98.67	DR	Diorite	Grey	FN to MD	51.00	Chloritized along fracture	Hard, dense, compact, fractured,fracture broken in part.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Multiple fractures present inclined at 40-75 0 with chloritic alteration. Fine banding of mafic rich and felsic rich layers present. Calcareous material is present along fractures.Lower 1 m of the core is intensely fractured and broken. Moderately to feebly magnetic. 1 to 1.5 cm thick calcareous veins noted.

7/9/2012	1616.4	1619.4	3.00	3.07	100.00	DR	Diorite	Grey	FN to MD	57.00	Chloritized along fracture	Hard, dense, compact, fractured,fracture broken in part.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Multiple fractures present inclined at 40-75 0 with chloritic alteration. The rock is broken in parts. Fine banding of mafic rich and felsic rich layers present. Calcareous material is present along fractures. Moderately to feebly magnetic. Magnetic susceptibility higher than before.
7/9/2012	1619.4	1622.4	3.00	3.00	100.00	DR	Diorite	Grey	FN to MD	43.00	Chloritized along fracture	Hard, dense, compact, fractured,fracture broken in part.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. Grains are anhedral to subhedral in shape. Shows alternate mafic - felsic banding. Fractures are inclined at 40 - 70 0. Fracture surfaces are altered and smooth. Few portions of the core are extremely altered and broken. Very fine, few calcareous veins present. In few places large grains of magnetite visible.
7/9/2012	1622.4	1625.4	3.00	2.97	99.00	DR	Diorite	Grey	FN to MD	40.67	Chloritized along fracture. Extremely altered in few places.	Hard, dense, compact, fractured,fracture broken in part.	The rock is unchanged. It is a Grey to whitish Grey in colour, porphyritic, fine to medium grained mafic igneous rock characterized by zones of intense silicification. The rock is composed of mafic minerals (pyroxene), micas, plagioclase feldspar, quartz and disseminated magnetite. The rock is extremely broken and fractured with significant chloritic alteration all along the rock. Few calcareous veins present along the fractures. Fine banding of mafic rich and felsic rich layers present in few places. In other portions, the banding is obliterated by alteration.
7/9/2012	1625.4	1628.4	3.00	3.19	100.00	DR	Diorite	Whitish Grey	FN to MD	67.33	Intense Chloritic alteration	Hard, dense, compact, intact, fractured, fracture surface smooth.	Fine to medium grained, porphyritic, whitish Grey coloured mafic igneous rock with pyrxene, mica, plagioclase feldspar, quartz and disseminated magnetite. The rock is intensely chloritized and as a result of the alteration it has developed a greenish white colour. Intensely fractured in few places, fracture surfaces smooth and are inclined at 20 - 75 0. Very fine calcareous veins present. Banding in most places is obliterated due to alteration. Magnetic susceptibility much lower.
7/9/2012	1628.4	1631.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN to MD	71.67	Intense chloritic alteration in the dioiritic portion, little chloritized in granidiorite	Hard, dense, compact, intact, fractured, fracture surface smooth.	The rock is dioritic with same mineralogical composition and texture up to 1630.63 m. From 1630.63 to 1631.4 m, the rock is leucocratic, porphyritic, whitish Grey with very coarse grains of quartz, coarse to medium grains of mafic minerals, micas and little magnetite in interstitial spaces. The proportion of quartz is greater than 60 % and the rock is Granodioritic in composition. Few calcareous and silica veins present. Intensely chloritized in the dioritic portion, little chloritic in granodiorite.
7/9/2012	1631.4	1634.3	3.00	3.00	100.00	GDR	Granodiorite	Whitish Grey	CS	81.67	Very little Chloritic alteration.	Hard, dense, compact, intact, fractured, fracture surface smooth.	Whitish Grey coloured, coarse grained, porphyritic, felsic igneous rock with is enriched in quartz and lesser amount of pyroxene, mica and very little disseminated magnetite. Grains are anhedral to subhedral in shape, with the interstitial spaces between the quartz grains filled up with pyroxene and magnetite. Very little chloritization is present along fractures. Fractures are inclined (~10 0) to subhorizontal. Very feeble to feebly magnetic. Very fine calcareous veins present.
7/9/2012	1634.3	1637.4	3.00	2.98	99.33	GDR	Granodiorite	Whitish Grey	CS	79.33	Very little Chloritic alteration.	Hard, dense, compact, intact, fractured, fracture surface smooth.	Whitish Grey coloured, coarse grained, porphyritic, felsic igneous rock with is enriched in quartz and lesser amount of pyroxene, mica and very little disseminated magnetite. Grains are anhedral to subhedral in shape, with the interstitial spaces between the quartz grains filled up with pyroxene and magnetite. Silica and calcareous veins present. Large grains of magnetite is present in the interstitial spaces of the quartz grains. Moderately to feebly magnetic. Magnetic susceptibility higher than previous run.
7/9/2012	1637.4	1640.4	3.00	3.00	100.00	GDR	Granodiorite	Whitish Grey to Grey	FN to CS	73.33	Chloritized, significantly altered in few places.	Hard, dense, compact, intact, fracture broken in part, broken in few places.	Top 26 cm (1637.4 to 1637.66 m) is highly enriched in magnetite. From 1637.66 m to 1638.26 m, the rock is Granodioritic. The remaining of the core is Dioritic with dark grey colour, porphyritic texture and same mineralogical composition. The contact between the Granodioritic portion and Dioritic portion is extremely fractured and altered. Fractures are present which are inclined at 40 - 60 0. Fracture surfaces smooth. The rock is moderately magnetic, shows higher magnetism in pockets.
7/9/2012	1640.4	1643.4	3.00	2.91	97.00	DR	Diorite	Grey	FN to MD	51.00	Chloritized, significantly altered in few places.	Hard, dense, compact, intact, fracture broken in part, broken in few places.	Grey coloured Dioritic rock with unchanged mineralogical composition and textural attributes. The rock is fractured with fracture surfaces inclined at 20 - 70 0. Few longitudinal fractures present. The rock is altered significantly and characterized by mafic rich and felsic rich banding. Magnetite content varies.
8.09.2012	1643.4	1646.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	65.67	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. The rock is fractured, the fractures are inclined at 30 - 70 0. Few longitudinal fractures are also present. Fracture surfaces are smooth and altered. Few portions of the rock are enriched in silica/quartz. Very fine calcareous veins present. No banding is visible, being obliterated by alteration.

8.09.2012	1646.4	1649.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	86.33	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The lithology is unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. The rock is fractured, the fractures are inclined at 30 - 70 0. Few longitudinal fractures are also present. Fracture surfaces are smooth and altered. Few portions of the rock are enriched in silica/quartz. Very fine calcareous veins present. Banding is visible in few places, being obliterated by alteration mostly.
8.09.2012	1649.4	1652.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	68.67	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The lithology is unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. Shows banding of mafic and felsic rich layers, the rock is characterized by inclined (15 - 75 0) fractures. Fracture surfaces smooth. The rock is moderately magnetic and has few zones/pockets with higher magnetism due to greater concentration of magnetite. Significant amount of coarse grained magnetite observed along with other associated minerals.
8.09.2012	1652.4	1655.4	3.00	2.97	99.00	DR	Diorite	Grey	FN TO MD	82.67	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The lithology is unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. Shows banding of mafic and felsic rich layers, the rock is characterized by inclined (15 - 75 0) fractures. Fracture surfaces smooth. From 1652.62, a 8 cm thick silica veins is present. Few very fine calcareous veins are also noted. The contact between the silica vein and diorite is sharp and highly altered. Few anhedral coarse quartz grains are present which are embedded in a mafic rich groundmass. Few pyrite grains are observed along fractures.
8.09.2012	1655.4	1658.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	77.33	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The lithology is unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. Shows banding of mafic and felsic rich layers, the rock is characterized by inclined (15 - 75 0) fractures. Fracture surfaces smooth. Few very fine calcareous veins are also noted along with few silica veins. Few anhedral coarse quartz grains are present which are embedded in a mafic rich groundmass. Few pyrite grains are observed along fractures.
8.09.2012	1658.4	1661.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	86.00	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The lithology is unchanged. It is a Grey, fine to medium grained, porphyritic igneous rock of mafic composition. The rock is composed of pyroxene, micas, quartz, plagioclase feldspar and disseminated magnetite. Grains are mostly anhedral to subhedral in shape. Proportion of magnetite is variable, more in some zones or pockets due to greater concentration of magnetite. Shows banding of mafic and felsic rich layers, the rock is characterized by inclined (15 - 75 0) fractures. Fracture surfaces smooth. Few very fine calcareous veins are also noted along with few silica veins. Few anhedral coarse quartz grains are present which are embedded in a mafic rich groundmass. Few pyrite grains are observed along fractures.
8.09.2012	1661.4	1664.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	71.67	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same textural attributes and mineralogical composition. Few portions of the core are intensely altered. Shows fine mafic rich and felsic rich bands which, in some places, are obliterated by alteration. Fractures are inclined at 15 - 65 ^{0}. Fracture surfaces smooth and altered. Few larger grains of magnetite visible. From 1662.55 m, a 14 cm thick zone is observed consisting of whitish and pinkish large quartz grains. Minute specs of pyrite observed along fractures.
8.09.2012	1664.4	1667.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	93.33	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is Dioritic with same textural attributes and mineralogical composition. Few portions of the core are intensely altered. Shows fine mafic rich and felsic rich bands which, in some places, are obliterated by alteration. Fractures are inclined at 15 - 65 ^{0}. Fracture surfaces smooth and altered. Few larger grains of magnetite visible. Very fine calcareous veins noted. Minute specs of pyrite observed along fractures.
8.09.2012	1667.4	1670.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	88.33	Chloritized mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is Dioritic with same textural attributes and mineralogical composition. Few portions of the core are intensely altered. Shows fine mafic rich and felsic rich bands which, in some places, are obliterated by alteration. Fractures are inclined at 15 - 65 ^{0}. Fracture surfaces smooth and altered. Few larger grains of magnetite visible. Very fine calcareous veins noted. Few cm scale silica veins also present along fractures. Minute specs of pyrite observed along fractures.
8.09.2012	1670.4	1673.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	72.33	Chloritic alteration mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is Dioritic with same textural attributes and mineralogical composition. Shows light coloured felsic and dark mafic bands. Fractured, fracture surfaces are inclined at 45 - 55 ^{0}. Altered along fractures along with calcareous veins and materials. Moderately magnetic with few large grains of quartz visible.
8.09.2012	1673.4	1676.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	86.33	Chloritic alteration mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is Dioritic with same textural attributes and mineralogical composition. Shows few inclined fractures dipping at 20 - 70 ^{0}. Most of the fractures are gently dipping. Fracture surfaces are smooth, altered to chloritic material. Some clayey material is also present. Moderately to feebly magnetic. Shows alternate mafic rich and felsic rich banding.

8.09.2012	1676.4	1679.4	3.00	2.95	98.33	DR	Diorite	Grey	FN TO MD	79.67	Chloritic alteration mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is unchanged. It is Dioritic with same textural attributes and mineralogical composition. Shows few inclined fractures dipping at 20 - 70 ^{0}. Most of the fractures are gently dipping. Fracture surfaces are smooth, altered to chloritic material. Some clayey material is also present. Moderately to feebly magnetic. Shows alternate mafic rich and felsic rich banding.
9.09.2012	1679.4	1682.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	84.33	Chloritic alteration mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same mineralogical and textural attributes. Characterized by few inclined fractures, dipping at 40 - 45 ^{0}. Fracture surfaces are smooth and characterized by chloritic alteration. Significant alteration is observed in few portions of the rock. Few mafic rich and felsic rich banding present. Most of the banding is obliterated by alteration. The rock is moderately to feebly magnetic.
9.09.2012	1682.4	1685.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	83.67	Chloritic alteration mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same mineralogical and textural attributes. Characterized by few inclined fractures, dipping at 60 - 75 ^{0}. Fracture surfaces are smooth and characterized by chloritic alteration. Alteration is mostly along fractures. Few mafic rich and felsic rich banding present. Most of the banding is obliterated by chloritization. The rock is moderately to feebly magnetic.
9.09.2012	1685.4	1688.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	81.67	Chlorite alteration mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	General rock properties and composition unchanged. Characterized by alternate banding of mafic rich and felsic rich layers. In some places the banding is obliterated by alteration. Fractures are inclined at 20 - 70 ^{0}. Significant chloritic alteration along fractures. Few veryfine calcareous veins noted. Silica veins are also present. Lower 1.02 m is characterized by larger quartz grains embedded in a mafic groundmass. The rock is moderate to feebly magnetic.
9.09.2012	1688.4	1691.4	3.00	2.97	99.00	DR	Diorite	Grey	FN TO MD	62.33	Chlorite alteration mostly along fracture	Hard,dense, compact, intact, fractured, fracture surface smooth.	General rock properties and composition unchanged. Characterized by alternate banding of mafic rich and felsic rich layers. In some places the banding is obliterated by alteration. Fractures are inclined at 20 - 70 ^{0}. Significant chloritic alteration along fractures. Few veryfine calcareous veins noted. Silica veins are also present. Lower 1.02 m is characterized by larger quartz grains embedded in a mafic groundmass. The rock is moderate to feebly magnetic.
9.09.2012	1691.4	1694.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	61.00	Intensly Chloritized	Hard, compact, Intensly brokenand fractured in few places	The rock is Dioritic in composition with same textural properties. From 1691.4 to 1691.48 m, the rock is enriched in silica. It is characterized by several inclined fractures dipping at 45-55 ^{0} and intensely chloritized. From 1692.60 to 1693.45 m, the rock is intensely broken, fractured and highly altered. Few banding is present though most of the banding is obliterated by alteration.
9.09.2012	1694.4	1697.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	78.00	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same mineralogical composition and textural attributes. Proportion of felsic minerals higher than before. Few banding is observed. Multiple inclined (40 - 70 ^{0})fractures present. Fracture surfaces are smooth and with alteration. Few silica veins and coarse silica grains noted.
9.09.2012	1697.4	1700.4	3.00	3.01	100.00	DR	Diorite	Grey	FN TO MD	89.00	Little chloritization along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same properties, mineralogical composition and textural attributes. Proportion of felsic minerals higher and in few places quartz grains of medium size are present embedded in a finer, mafic rich matrix. Very fine banding is observed which are made up of felsic and mafic minerals respectively. Multiple fractures present which are inclined at 40 - 50 ^{0}. Fracture surfaces smooth and chloritized. The rock is moderately magnetic.
9.09.2012	1700.4	1703.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	81.67	Little chloritization along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same properties, mineralogical composition and textural attributes. Proportion of felsic minerals higher and in few places quartz grains of medium size are present embedded in a finer, mafic rich matrix. Very fine banding is observed which are made up of felsic and mafic minerals respectively. Multiple fractures present which are inclined at 40 - 50 ^{0}. Fracture surfaces smooth and chloritized. The rock is moderately magnetic. Few cm scale thick silica veins and very fine calcareous veins noted. Few fractures show greater concentration of calcareous material.
10.09.2012	1703.4	1706.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	89.00	Little chloritization along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth.	The rock is Dioritic with same properties, mineralogical composition and textural attributes. Proportion of felsic minerals higher and in few places quartz grains of medium size are present embedded in a finer, mafic rich matrix. Very fine banding is observed which are made up of felsic and mafic minerals respectively. Multiple fractures present which are inclined at 40 - 50 ^{0}. Fracture surfaces smooth and chloritized. The rock is moderately magnetic. Magnetic susceptibility higher than previous run indicating greater concentration of magnetite. Few cm scale thick silica veins and very fine calcareous veins noted. Few fractures show greater concentration of calcareous material.
10.09.2012	1706.4	1709.4	3.00	3.03	100.00	DR	Diorite	Grey	FN TO MD	81.00	Little chloritization along fractures	Hard,dense, compact, intact, few fractures, fracture surfaces smooth to rough.	The rock is Dioritic in composition with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. The texture is same. Characterized by multiple inclined fractures dipping at 45 - 55 ^{0}. Fracture surfaces are smooth, but also rough in few cases. Little chloritization is observed along fractures. Proportion of mafic is much higher than before along with an increase in magnetite content. In few places, coarse quartz grains are present , anhedral in shape. The rock is moderately magnetic.

10.09.2012	1709.4	1712.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	85.67	Little chloritization along fractures	Hard,dense, compact, intact, few fractures, fracture surfaces smooth to rough.	The general rock properties and composition unchanged. Has multiple inclined fractures dipping at 40 - 50 ^{0}. Fracture surfaces are smooth and chloritized. Silica veins are observed along fractures. Few parts of the core is characterized by coarse, anhedral grains of quartz embedded in a mafic rich groundmass. Proportion of mafic minerals is high. The rock is moderately magnetic. In few zones/pockets the magnetism is higher.
10.09.2012	1712.4	1715.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	77.00	Little chloritization along fractures	Hard,dense, compact, intact, few fractures, fracture surfaces smooth to rough.	The general rock properties and composition unchanged. Has multiple inclined fractures dipping at 40 - 50 ^{0}. Fracture surfaces are smooth and chloritized. Silica veins are observed along fractures. Few parts of the core is characterized by coarse, anhedral grains of quartz embedded in a mafic rich groundmass. Proportion of mafic minerals is high. The rock is moderately magnetic. In few zones/pockets the magnetism is higher.
10.09.2012	1715.4	1718.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	84.67	Little chloritization along fractures	Hard,dense, compact, intact, few fractures, fracture surfaces smooth to rough.	The general rock properties and composition unchanged. Has multiple inclined fractures dipping at 40 - 50 ^{0}. Fracture surfaces are smooth and chloritized. Silica veins, up to 1 cm thick, are observed along fractures. Few parts of the core is characterized by coarse, anhedral grains of quartz embedded in a mafic rich groundmass. Proportion of mafic minerals is high. The rock is moderately magnetic. In few zones/pockets the magnetism is higher.
10.09.2012	1718.4	1721.4	3.00	3.04	100.00	DR	Diorite	Grey	FN TO MD	72.00	Little chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic with same mineralogical composition and textural attributes. Fractures are inclined at 65-75 ^{0}. Surfaces altered. Bandings are obliterated by alteration. Few pyrite grains are observed along fractures. Fine calcareous veins present.
10.09.2012	1721.4	1724.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	73.00	Little chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic with unchanged mineralogical composition and texture. Characterized by multiple inclined (60 - 70 ^{0}) fractures with smooth surfaces and chloritization. Shows banding of felsic and mafic rich layers. In some places the banding is obliterated by significant alteration. Few fine specs of sulfides (pyrite) observed along fractures in some places. Fine calcareous veins noted.
10.09.2012	1724.4	1727.4	3.00	2.93	97.67	DR	Diorite	Grey	FN TO MD	80.00	Little chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic with unchanged mineralogical composition and texture. Distinct mafic and felsic rich banding visible. Fractures are inclined at 55 - 60 ^{0} with chloritic alteration. Fracture surfaces are smooth. Sulfides (pyrite) visible in small amount.
10.09.2012	1727.4	1730.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	78.00	Chloritized along fractures, significant alteration in some parts	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic and consists of pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. Shows multiple inclined fractures dipping at 40 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Significant chloritic alteration is present in some parts of the rock. Few mafic rich and felsic rich banding visible. At few places, coarser grains of quartz visible embedded in a finer, mafic rich groundmass. The rock is moderately magnetic.
10.09.2012	1730.4	1733.4	3.00	2.92	97.33	DR	Diorite	Grey	FN TO MD	71.00	Chloritized along fractures, significant alteration in some parts	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic and consists of pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. Shows multiple inclined fractures dipping at 40 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Significant chloritic alteration is present in some parts of the rock. Few mafic rich and felsic rich banding visible. At few places, coarser grains of quartz visible embedded in a finer, mafic rich groundmass. The rock is moderately magnetic. Lots of calcification is observed along fractures. cm scale thick to very fine calcareous veins noted. Fine specs and grains of pyrite observed in few places.
11.09.2012	1733.4	1736.4	3.00	3.04	100.00	DR	Diorite	Grey	FN TO MD	78.67	Chloritized along fractures, significant alteration in some parts	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized, broken in few places	The rock is Dioritic and consists of pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. The rock is characterized by multiple inclined fractures dipping at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Few parts of the rock are more altered. The rock is highly enriched in mafic minerals.Shows fine mafic rich and felsic rich banding. The rock is moderately magnetic. Few coarser grains of quartz are visible which are embedded in a mafic rich groundmass.
11.09.2012	1736.4	1739.4	3.00	3.10	100.00	DR	Diorite	Grey	FN TO MD	81.33	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The rock is unchanged. It is Dioritic and consists of pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. The rock is characterized by multiple inclined fractures dipping at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Intensely chloritized and broken in few places.. The rock is highly enriched in mafic minerals.Shows fine mafic rich and felsic rich banding. The rock is moderately magnetic. Few coarser grains of quartz are visible which are embedded in a mafic rich groundmass. Multiple fine calcareous veins present.
11.09.2012	1739.4	1742.4	3.00	3.03	100.00	DR	Diorite	Grey	FN TO MD	96.67	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The rock is unchanged. It is Dioritic and consists of pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. The rock is characterized by multiple inclined fractures dipping at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Intensely chloritized and broken in few places.. The rock is highly enriched in mafic minerals.Shows fine mafic rich and felsic rich banding. The rock is moderately magnetic. Few coarser grains of quartz are visible which are embedded in a mafic rich groundmass. Multiple fine calcareous veins present.
11.09.2012	1742.4	1745.4	3.00	2.83	94.33	DR	Diorite	Grey	FN TO MD	78.33	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. The rock is enriched in coarse to medium quartz grains embedded in a finer, mafic rich groundmass. Several calcareous and silica veins are observed. Characterized by multiple fractures inclined at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Lower 70 cm of the core is extremely rich in medium grained felsic minerals. Magnetic susceptibility lower than previous run indicating a decrease in magnetite content.

11.09.2012	1745.4	1748.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	85.67	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. The rock is enriched in coarse to medium quartz grains embedded in a finer, mafic rich groundmass. Several calcareous and silica veins are observed. Characterized by multiple fractures inclined at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Top 1.1 m of the core is rich in medium grained felsic minerals. Magnetic susceptibility is low.
11.09.2012	1748.4	1751.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	81.67	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Shows fine banding of mafic rich and felsic rich layers. Shows multiple fracturing, fractures being inclined at 45 - 65 ^{0}. Fracture surfaces show intense chloritization and are smooth. Few portions of the rock shows greater concentration of felsic components resulting in lower magnetism. Few fine calcareous veins noted. A 3 cm thick silica vein is present.
11.09.2012	1751.4	1754.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	69.00	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Shows fine banding of mafic rich and felsic rich layers. Characterized by numerous inclined (40 - 75 ^{0}) to longitudinal fractures. Shows greater concentration of felsic components. Shows significant number of fine mafic - felsic banding.
11.09.2012	1754.4	1757.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	54.33	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Shows fine banding of mafic rich and felsic rich layers. Characterized by numerous inclined (40 - 75 ^{0}) to longitudinal fractures. Shows greater concentration of felsic components. Shows significant number of fine mafic - felsic banding. Numerous very fine to cm scale thick calcareous veins noted. Alteration is very high along some fractures and also in some other portions of the rock.
11.09.2012	1757.4	1760.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	70.00	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Shows fine banding of mafic rich and felsic rich layers. Characterized by numerous inclined (40 - 75 ^{0}) to longitudinal fractures. Shows greater concentration of felsic components. Shows significant number of fine mafic - felsic banding. Alteration is very high along some fractures and also in some other portions of the rock. Magnetism feeble to moderate. Numerous calcareous veins present.
11.09.2012	1760.4	1763.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	61.33	Altered along fractures, significant chloritization in few places	Hard,dense, compact, intact, fractured, fracture surface smooth, broken in few places	The lithology is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, quartz, micas and disseminated magnetite. Shows fine banding of mafic rich and felsic rich layers. Characterized by numerous inclined (40 - 75 ^{0}) to longitudinal fractures. Shows greater concentration of felsic components. Shows significant number of fine mafic - felsic banding. Alteration is very high along some fractures and also in some other portions of the rock. Magnetism feeble to moderate. Numerous calcareous veins present. Calcareous material is also present along fractures.
12.09.2012	1763.4	1766.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	58.00	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Significant amount of medium grained felsic minerals are present embedded in a mafic rich finer groundmass. Significant numbers of fractures present , inclined at 45 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Few longitudinal fractures are also present. Fine mafic rich and felsic rich bandings observed. At some places, the banding is obliterated by significant alteration. Few very fine calcareous veins noted. Presence of sulfides (pyrite) is noted in small amount mostly along fractures. The rock is moderately magnetic. Magnetism is higher in few zones/pockets due to greater concentration of magnetite.
12.09.2012	1766.4	1769.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	83.67	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is same as previous run. It is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Significant amount of medium grained felsic minerals are present embedded in a mafic rich finer groundmass. Significant numbers of fractures present , inclined at 45 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Few longitudinal fractures are also present. Fine mafic rich and felsic rich bandings observed. At some places, the banding is obliterated by significant alteration. Few very fine calcareous veins noted. Presence of sulfides (pyrite) is noted in small amount mostly along fractures. The rock is moderately magnetic. Magnetism is higher in few zones/pockets due to greater concentration of magnetite.
12.09.2012	1769.4	1772.4	3.00	3.10	100.00	DR	Diorite	Grey	FN TO MD	82.33	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Fractures are inclined at 30 - 75 ^{0} with significant chloritization. Pyrite is noted, mostly along fractures.
12.09.2012	1772.4	1775.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	74.33	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Proportion of felsic components is higher in few places. Consists of banding of felsic rich and mafic rich layers. At few places, few coarser grains of quartz are present embedded in a finer, mafic rich groundmass. Fractures are inclined at 30 - 70 0, chloritized and contains fine specs of pyrite in few places. Few longitudinal fractures are also present. The rock is feebly to moderately magnetic.
12.09.2012	1775.4	1778.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	70.67	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Proportion of felsic components is higher in few places. Consists of banding of felsic rich and mafic rich layers. At few places, few coarser grains of quartz are present embedded in a finer, mafic rich groundmass. Fractures are inclined at 30 - 70 0, chloritized and contains fine specs of pyrite in few places. Few longitudinal fractures are also present. The rock is feebly to moderately magnetic.

12.09.2012	1778.4	1781.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	87.33	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is unchanged. It is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Proportion of felsic components is higher in few places. Consists of banding of felsic rich and mafic rich layers. At few places, few coarser grains of quartz are present embedded in a finer, mafic rich groundmass. Fractures are inclined at 30 - 70 0, chloritized and contains fine specs of pyrite in few places. Few longitudinal fractures are also present. The rock is feebly to moderately magnetic.
12.09.2012	1781.4	1784.4	3.00	2.97	99.00	DR	Diorite	Grey	FN TO MD	72.33	Chloritized mostly along fractures	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized	The rock is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Proportion of felsic components is higher in few places. Characterized by multiple inclined (30 - 70 ^{0})fractures with alteration and smooth surfaces. Banding is present but at few places is obliterated by alteration. Calcareous veins noted. The rock is moderately to feebly magnetic.
12.09.2012	1784.4	1787.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	71.67	Intensly Chloritized	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized, broken in few places	The rock is unchanged and is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Characterized by significant chloritic alteration. Multiple inclined fractures are present which are dipping at 60 - 75 ^{0}. Fractured surfaces are smooth and chloritized. Few longitudinal fractures are also present. Mafic and felsic bandings are observed. The rock is moderately magnetic.
12.09.2012	1787.4	1790.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	71.00	Intensly Chloritized in few parts	Hard,dense, compact, intact, fractured, fracture surface smooth and chloritized, broken in few places	The rock is unchanged and is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. Characterized by significant chloritic alteration in the top 1 m which is mostly broken and fractured. Fractures are inclined, dipping at 20 - 70 ^{0}. Fracture surfaces are smooth and altered. Few crosscutting as well as longitudinal fractures are present. Distinct bandings are observed in the lower 2 m of the core where the alteration is comparatively lesser. The rock is moderately to feebly magnetic.
12.09.2012	1790.4	1793.4	3.00	3.13	100.00	DR	Diorite	Grey	FN TO MD	88.33	Little Choloritization mostly along fractures	Hard,dense, compact, intact, fractured in few places, fracture surface smooth.	The rock is unchanged and is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. The proportion of felsic components is higher than before. Shows distinct mafic rich and felsic rich bandings. Has few inclined (~ 50 ^{0}) fractures, smooth and chloritized. Disseminated sulfide (pyrite) is present in very minute amount. The rock is feebly to moderately magnetic.
12.09.2012	1793.4	1796.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	69.67	Significant chloritic alteration	Hard,dense, compact, intact, fractured in few places, fracture surfaces smooth.	The rock is unchanged and is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. The proportion of felsic components is higher than before. Shows distinct mafic rich and felsic rich bandings. Has few inclined (~ 50 ^{0}) fractures, smooth and chloritized. Disseminated sulfide (pyrite) is present in very minute amount. The rock is feebly to moderately magnetic. Intensely fractured, broken and altered in few parts. Significant amount of pyrite is present on few fractures.
17.09.2012	1796.4	1799.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	82.00	Chlorite alteration along fractures	Hard,dense, compact, intact, fractured in few places, fracture surfaces smooth.	The rock is unchanged and is Dioritic with pyroxene, plagioclase feldspar, micas, little quartz and disseminated magnetite. The proportion of felsic components is high. Shows banding of mafic rich and felsic rich layers. Characterized by multiple inclined fractures dipping at 45 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Minute specs of pyrite are observed. The rock is moderately magnetic.
17.09.2012	1799.4	1802.4	3.00	3.01	100.00	DR	Diorite	Grey	FN TO MD	94.67	Little chloritic alteration along fractures	Hard,dense, compact, intact few natural fractures, fracture surfaces rough to smooth.	The rock is Dioritic and consists of pyroxene, micas, plagioclase feldsapr, quartz and disseminated magnetite. Proportion of felsic components high. Shows fine banding of felsic and mafic rich layers. Has very few natural fractures inclined at 10 - 30 ^{0}. Little chloritic alteration along fractures, fracture surfaces rough, smooth in few cases. The rock is moderately magnetic.
17.09.2012	1802.4	1805.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	81.33	Little chloritic alteration along fractures	Hard,dense, compact, intact few natural fractures, fracture surfaces smooth	The rock is similar to the previous run. It is Dioritic and consists of pyroxene, micas, plagioclase feldsapr, quartz and disseminated magnetite. Proportion of mafic components increases. Shows fine banding of felsic and mafic rich layers. Has few natural fractures inclined at 10 - 30 ^{0}. Few fractures are inclined at 75 ^{0}, longitudinal fractures are also observed. Little chloritic alteration along fractures, fracture surfaces smooth. The rock is moderately magnetic. Fine specs of disseminated pyrite are present.
17.09.2012	1805.4	1808.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	77.67	Significant chloritic alteration along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth	The rock is similar to the previous run. It is Dioritic and consists of pyroxene, micas, plagioclase feldsapr, quartz and disseminated magnetite. Proportion of mafic components increases. Shows distinct, fine banding of mafic rich and felsic rich layers. Characterised by multiple fractures inclined at 30 - 75 ^{0}. Fracture surfaces smooth and chloritized. Pyrite is present as fine veins and also as minute specs along some fractures. Some fractures have significantly high quantity of pyrite. The rock is feebly to moderately magnetic.
17.09.2012	1808.4	1811.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	67.67	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	The rock is similar to the previous run. It is Dioritic and consists of pyroxene, micas, plagioclase feldsapr, quartz and disseminated magnetite. Proportion of felsic components increase, larger grains of quartz visible. Banding of mafic and felsic minerals visible. Characterized by multiple inclined fractures dipping at 50 - 75 ^{0}. Fracture surfaces are smooth and altered. Some fractures show presence of significant amount of disseminated pyrite. The rock is feebly to moderately magnetic. Very fine calcareous and silica veins present in few places.

17.09.2012	1811.4	1814.4	3.00	3.04	100.00	DR	Diorite	Grey	FN TO MD	63.00	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	There is no change in the rock properties. It is Dioritic and consists of pyroxene, micas, plagioclase feldsapr, quartz and disseminated magnetite. Proportion of felsic components increase, larger grains of quartz visible. Banding of mafic and felsic minerals visible. Characterized by multiple inclined fractures dipping at 50 - 75 ^{0}. Fracture surfaces are smooth and altered. The rock is feebly to moderately magnetic. Very fine calcareous and silica veins present in few places. Lower 1 m of the core shows a significant increase in felsic components and muscovite. Pyrite is observed in few places. Larger grains of magnetite noted.
17.09.2012	1814.4	1817.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN TO MD	83.00	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	Porphyritic, whitish Grey coloured, fine to medium grained mafic igneous rock with pyroxene, plagioclase feldsapr, micas, quartz and disseminated magnetite. Proportion of felsic components and muscovite are significantly higher making it more leucocratic. Distinct bandings are observed. Disseminated magnetite grains are noted. Fractures are dipping at 30 - 40 0 and chloritized.
17.09.2012	1817.4	1820.4	3.00	2.99	99.67	DR	Diorite	Whitish Grey	FN TO MD	83.67	Significant chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock is unchanged. It is a porphyritic, whitish Grey coloured, fine to medium grained mafic igneous rock with pyroxene, plagioclase feldsapr, micas, quartz and disseminated magnetite. Characterized by several inclined (~ 20 0) to longitudinal fractures. Presence of pyrite is not noted. The rock is feebly magnrtic. Significant chloritic alteration is present along fractures.
17.09.2012	1820.4	1823.4	3.00	2.99	99.67	DR	Diorite	Whitish Grey	FN TO MD	76.67	Significant chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock is unchanged. It is a porphyritic, whitish Grey coloured, fine to medium grained mafic igneous rock with pyroxene, plagioclase feldsapr, micas, quartz and disseminated magnetite. Fractures are inclined at 45 - 65 0. Fracture surfaces are smooth and chloritized. Fine specs of pyrite are observed on few fractures. The rock is feebly to moderately magnetic.
17.09.2012	1823.4	1826.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN TO MD	77.33	Significant chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock is unchanged. It is a porphyritic, whitish Grey coloured, fine to medium grained mafic igneous rock with pyroxene, plagioclase feldsapr, micas, quartz and disseminated magnetite. Fractures are inclined at 45 - 65 0. Fracture surfaces are smooth and chloritized. Fine specs of pyrite are observed on few fractures. The rock is feebly to moderately magnetic. Proportion of felsic components and muscovite increases giving the rock its leucocratic nature.
18.09.2012	1826.4	1829.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN TO MD	88.33	Significant chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock is unchanged. It is a porphyritic, whitish Grey coloured, fine to medium grained mafic igneous rock with pyroxene, plagioclase feldsapr, micas, quartz and disseminated magnetite. Multiple inclined fractures (~ 20 - 30 0) present with little chloritic alteration. Fracture surfaces smooth. Presence of pyrite is not noted. The rock is feebly to moderately magnetic.
18.09.2012	1829.4	1832.4	3.00	2.95	98.33	DR	Diorite	Grey	FN TO MD	82.67	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The general rock properties and mineralogical composition unchanged. Proportion of plagioclase feldspar and muscovite increases. The rock is characterized by several inclined fractures dipping at 20 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Distinct banding of mafic rich and felsic rich layers seen. Pyrite is absent. The rock is feebly to moderately magnetic due to variation in the proportion of magnetite.
18.09.2012	1832.4	1835.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	78.67	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The general rock properties and mineralogical composition unchanged. Proportion of plagioclase feldspar and muscovite increases. The rock is characterized by several inclined fractures dipping at 20 - 70 ^{0}. Fracture surfaces are smooth and chloritized. Distinct banding of mafic rich and felsic rich layers seen. Pyrite is absent. The rock is feebly to moderately magnetic due to variation in the proportion of magnetite. Lower 50 cm shows coarser grains of quartz embedded in a mafic rich groundmass.
18.09.2012	1835.4	1838.4	3.00	3.04	100.00	DR	Diorite	Grey	FN TO MD	92.67	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock is still Dioritic with no change in mineralogical composition and textural attributes. Top 1.42 m of the core is characterized by coarser grains of quartz embedded in a mafic rich groundmass. Quartz grains are anhedral in shape. Multiple silica veins are present and are mm to cm scale thick. Diffused banding of mafic and felsic layers seen. This part of the core is devoid of any natural fractures. The remaining of the rock is more rich in muscovite and is lighter in colour. Fractures are inclined, dipping at 15 - 75 ^{0}.
18.09.2012	1838.4	1841.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	66.33	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	There is no change in lithology. The rock is still Dioritic with no change in mineralogical composition and textural attributes. It is significantly altered and characterized by multiple inclined fractures dipping at 60 - 75 ^{0}. Fracture surfaces are smooth and chloritized. Bandings are obliterated by alteration. No pyrite is visible.
18.09.2012	1841.4	1844.4	3.00	3.12	100.00	DR	Diorite	Grey	FN TO MD	91.00	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock has the same mineralogical composition and textural attributes. Shows significant amount of mafic minerals along with muscovite, quartz and plagioclase feldspar. Banding is observed which in some cases is obliterated by alteration. Few natural fractures present dipping at 65 - 75 ^{0} and chloritized. Fracture surfaces are smooth. The rock is feebly to moderately magnetic. Some pockets/zones show higher magnetism due to greater concentration of magnetite.

18.09.2012	1844.4	1847.4	3.00	2.95	98.33	DR	Diorite	Grey	FN TO MD	87.67	Chloritic alteration along fractures	Hard,dense, compact, intact,fractured, fracture surface smooth.	The rock has the same mineralogical composition and textural attributes. Shows significant amount of mafic minerals along with muscovite, quartz and plagioclase feldspar. Banding is observed which in some cases is obliterated by alteration. Few natural fractures present dipping at 65 - 75 ^{0} and chloritized. Fracture surfaces are smooth. The rock is feebly to moderately magnetic. Some pockets/zones show higher magnetism due to greater concentration of magnetite.Little calcareous material is present along few fractures. Coarse grains of magnetite visible.
18.09.2012	1847.4	1850.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	98.00	No	Hard,dense, compact, intact,, no natural fractures.	Fine to medium grained, porphyritic, grey coloured mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, muscovite and disseminated magnetite. Proportion of felsic components and muscovite high. The rock is devoid of any natural fractures and no alteration is visible. Fine banding of mafic and felsic minerals present.
18.09.2012	1850.4	1853.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	72.67	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. The rock is Dioritic and characterized by several inclined fractures dipping at 25 - 50 ^{0}. Some longitudinal fractures are also present. Fracture surfaces are chloritized, at few places the alteration is significant. Fine bandings are observed, at few places obliterated by alteration. The rock is moderately to feebly magnetic. Pyrite is present in few places.
18.09.2012	1853.4	1856.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	75.00	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. The rock is Dioritic and characterized by several inclined fractures dipping at 25 - 50 ^{0}. Some longitudinal fractures are also present. Fracture surfaces are chloritized, at few places the alteration is significant. Fine bandings are observed, at few places obliterated by alteration. The rock is moderately to feebly magnetic. Few portions of the core is characterized by very coarse grains of anhedral shaped quartz. Very few specs of pyrite is present along some fractures. Larger grains of magnetite are also noted.
19.09.2012	1856.4	1859.4	3.00	3.01	100.00	DR	Diorite	Grey	FN TO MD	92.67	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. Proportion of mafics increases slightly. Larger grains of felsic components not noted. Few large grains of magnetite present. Bandings are observed. The rock shows relatively less alteration. Few subhorizontal natural fractures present. Fracture surfaces with little chloritization. The rock is moderately to feebly magnetic.
19.09.2012	1859.4	1862.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	61.00	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	The rock is grey coloured, fine to medium grained, porphyritic, feebly to moderately magnetic of Dioritic composition. Shows multiple inclined fractures dipping at 45 - 65 ^{0}. Fracture surfaces are intensely chloritized and smooth. Shows distinct banding of mafic rich and felsic rich layers. At few places the banding is obliterated by alteration. Few portions of the rock is intensely altered and fractured. Presence of disseminated pyrite is noted on some fractures. Few cm scale thick silica enriched zones present.
19.09.2012	1862.4	1865.4	3.00	2.84	94.67	DR	Diorite	Whitish Grey	FN TO MD	76.33	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. The rock is Dioritic and shows an increase in the proportions of felsic minerals and muscovite. Characterized by multiple inclined fractures dipping at 50 - 55 ^{0}. Some of the fractures are subhorizontal. Fracture surfaces are smooth and chloritized. Banding is noted at some places, mostly obliterated by alteration. The rock is feebly to moderately magnetic.
19.09.2012	1865.4	1868.4	3.00	2.99	99.67	DR	Diorite	Grey to Whitish Grey	FN TO MD	70.33	Significant chloritic alteration	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. The rock is Dioritic and shows an increase in the proportions of felsic minerals and muscovite. Characterized by multiple inclined fractures dipping at 50 - 55 ^{0}. Some of the fractures are subhorizontal. Fracture surfaces are smooth and chloritized. The rock shows more alteration. Banding is noted at some places, mostly obliterated by alteration. The rock is feebly to moderately magnetic. At few places, the rock is intensely fractured and broken. Coarser grains of felsic minerals observed.
19.09.2012	1868.4	1871.4	3.00	3.01	100.00	DR	Diorite	Grey	FN TO MD	72.67	Significant chloritic alteration	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	General rock properties and mineralogical composition unchanged. The rock is Dioritic and proportion of mafic minerals is higher. Characterized by multiple inclined fractures dipping at 50 - 55 ^{0}. Some of the fractures are subhorizontal. Fracture surfaces are smooth and chloritized. The rock shows more alteration. Banding is noted at some places, mostly obliterated by alteration. The rock is feebly to moderately magnetic. Few portions of the rock are intensely broken and altered.
19.09.2012	1871.4	1874.4	3.00	3.03	100.00	DR	Diorite	Grey	FN TO MD	87.33	Little chloritic alteration.	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	There is no change in the textural attributes and mineralogical composition of the rock which is Dioritic and characterized by few inclined (10 - 15 ^{0}) natural fractures. Banding is present, in few places obliterated by alteration. Little alteration is present along fractures, shows smooth surfaces. Proportion of mafic components much higher as compared to felsic components. The rock is feebly to moderately magnetic.
19.09.2012	1874.4	1877.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	89.67	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	There is no change in the textural attributes and mineralogical composition of the rock which is Dioritic and characterized by few inclined (70 - 75 ^{0}) natural fractures. Banding is present, in few places obliterated by alteration. Little alteration is present along fractures, shows smooth surfaces. Proportion of mafic components much higher as compared to felsic components. The rock is feebly to moderately magnetic. Little calcareous material is observed along fractures.

19.09.2012	1877.4	1880.4	3.00	3.04	100.00	DR	Diorite	Grey	FN TO MD	83.67	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	There is no change in the textural attributes and mineralogical composition of the rock which is Dioritic and characterized by few inclined (70 - 75 ^{0}) natural fractures. Banding is present, in few places obliterated by alteration. Little alteration is present along fractures, shows smooth surfaces. Proportion of mafic components much higher as compared to felsic components. The rock is feebly to moderately magnetic. Little calcareous material is observed along fractures.
19.09.2012	1880.4	1883.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	85.33	Chloritic alteration along fractures	Hard,dense, compact, intact, fractured, broken in parts,fracture surfaces smooth.	The rock is Dioritic with unchanged mineralogical composition and textural attributes. It is more altered (more chloritization) along fractures inclined at 45 - 70 ^{0}. Fracture surfaces are smooth and the rock is feebly to moderately magnetic. Few large grains of magnetite visible. Banding is present which, in few places, is obliterated by alteration. Few fractures show the presence of very fine specs of pyrite in minute amount.
19.09.2012	1883.4	1886.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	88.00	Very little chloritic alteration along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces rough.	The rock is still of Dioritic composition with no change in textural attributes.Very few natural fractures present with very little chloritic alteration. Fracture surfaces are rough and no banding is observed. Lower 23 cm shows an enrichment in felsic components and the rock is moderate to feebly magnetic.
20.09.2012	1886.4	1889.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	83.00	Little chloritic alteration along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth.	The rock is still Dioritic with no change in textural attributes and mineralogical composition. Shows increase in the proportion of felsic components and muscovite. Distinct fine bandings are present. Characterized by multiple inclined fractures dipping at 30 - 70 ^{0}. Fracture surfaces are smooth and chloritized and the rock is feebly to moderately magnetic.
20.09.2012	1889.4	1892.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	89.67	Little chloritic alteration along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth.	The rock is still Dioritic with no change in textural attributes and mineralogical composition. Shows increase in the proportion of felsic components and muscovite. Distinct fine bandings are present. Characterized by multiple inclined fractures dipping at 30 - 70 ^{0}. Fracture surfaces are smooth and chloritized and the rock is feebly to moderately magnetic.
20.09.2012	1892.4	1895.4	3.00	3.03	100.00	DR	Diorite	Grey	FN TO MD	95.33	Little chloritization	Hard,dense, compact, intact, few natural fractures, fracture surfaces rough.	The rock is Dioritic and composed of pyroxene, plagioclase feldspar, muscovite, little quartz and magnetite. Very few fractures are present. Fracture surfaces are chloritized and are rough. The rock is feebly magnetic. Few pockets show higher magnetism due to greater concentration of disseminated magnetite.
20.09.2012	1895.4	1898.4	3.00	2.94	98.00	DR	Diorite	Grey	FN TO MD	86.67	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth to rough and chloritized.	The lithology is unchanged with same mineralogical composition and textural attributes. Proportion of mafic minerals is much higher than previous run. No distinct banding is visible. Quantity of muscovite is higher than before. Characterized by few inclined fractures dipping at ~ 10-15 ^{0}. Few fracture surfaces are rough though most of them is smooth. The rock is mostly moderately magnetic indicating a slight increase in magnetite content.
20.09.2012	1898.4	1901.4	3.00	3.01	100.00	DR	Diorite	Grey	FN TO MD	83.33	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The lithology is unchanged with same mineralogical composition and textural attributes. Characterized by multiple inclined fractures dipping at 40 - 70 ^{0}. The rock is chloritized and the fracture surfaces are smooth. Calcareous material is observed along fractures.
20.09.2012	1901.4	1904.4	3.00	2.97	99.00	DR	Diorite	Grey	FN TO MD	69.67	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The lithology is unchanged with same mineralogical composition and textural attributes. Characterized by multiple inclined fractures dipping at 40 - 70 ^{0}. The rock is chloritized and the fracture surfaces are smooth. Calcareous material is observed along fractures.
20.09.2012	1904.4	1907.4	3.00	2.98	99.33	DR	Diorite	Grey to Whitish Grey	FN TO CS	82.33	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The rock is greyish to whitish grey, fine to coarse grained, porphyritic, feebly magnetic igneous rock with muscovite, pyroxene, plagioclase feldspar, quartz and disseminated magnetite. Proportion of muscovite is high. Characterized by multiple inclined fractures dipping at 45 - 50 ^{0}, and significantly altered (chloritized). Fracture surfaces are smooth. Distinct bandings are present which in some places is obliterated by alteration. From 1905.85 m to 1906.61 m, a 76 cm thick zones is present which is characterized by high concentration of anhedral grains of coarse quartz embedded in a mafic rich groundmass.
20.09.2012	1907.4	1910.4	3.00	2.93	97.67	DR	Diorite	Grey	FN TO MD	70.67	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The rock is fine to medium grained, porphyritic, grey in colour with same mineralogical composition. Top 1.4 m is characterized by intense fracturing, almost longitudinal to 75 ^{0} dipping. Fracture surfaces are smooth and chloritized. Remaining 1.6 m of the core is devoid of any fractures. Fine bandings are observed. The rock is moderately to feebly magnetic.
20.09.2012	1910.4	1913.4	3.00	3.02	100.00	DR	Diorite	Grey	FN TO MD	97.67	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The rock is fine to medium grained, porphyritic, grey in colour with same mineralogical composition. Characterized by intense fracturing, almost longitudinal to 75 ^{0} dipping. Fracture surfaces are smooth and chloritized. ne bandings are observed. The rock is moderately to feebly magnetic. Lower 1.8 m of the core is more enriched in felsic components.

21.09.2012	1913.4	1916.4	3.00	2.92	97.33	DR	Diorite	Grey	FN TO MD	81.67	Chloritization along fractures	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth and chloritized.	The rock is fine to medium grained, porphyritic, grey in colour with same mineralogical composition. Characterized by imultiple inclined fractures dipping at 35 - 50 ^{o}. Fracture surfaces are chloritized and smooth. Bandings are often obliterated due to alteration. The rock is feebly to moderately magnetic.
21.09.2012	1916.4	1919.4	3.00	2.99	99.67	DR	Diorite	Grey	FN TO MD	86.33	Chloritization along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	Fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Characterized by multiple inclined fractures dipping at 10 - 35 ^{o}. Fracture surfaces smooth and chloritized. Whos fine banding of mafic and felsic minerals which in some cases is obliterated by alteration. Generally feebly to moderately magnetic. Shows variation in magnetism due to variation in the concentration of magnetite. Few fine calcareous veins present.
21.09.2012	1919.4	1922.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	64.00	Chloritization along fractures. Extent of chloritization higher.	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	There is no change in lithology. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Characterized by multiple inclined fractures dipping at 10 - 35 ^{o}. Fracture surfaces smooth and chloritized. Shows fine banding of mafic and felsic minerals which in some cases is obliterated by alteration. Generally feebly to moderately magnetic. Shows variation in magnetism due to variation in the concentration of magnetite. Few fine calcareous veins present. From 1921.4 m the rock is extremely fractured with significant alteration. Bottom 6 cm is composed entirely of coarse grained quartz which may be a part of a quartz vein. Few coarse magnetite veins visible.
21.09.2012	1922.4	1925.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	40.67	Significant chloritic alteration	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	There is no change in lithology. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Top 56 cm of the core is entirely made up of coarse quartz grains which may be a part of a quartz vein. Another 16 cm thick quartz vein is present from 1924.43 m. Characterized by multiple inclined fractures dipping at 30 - 70 ^{o}. The rock is highly chloritized.
21.09.2012	1925.4	1928.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	65.67	Significant chloritic alteration	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth, Intensely broken in few parts.	There is no change in lithology. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. From 1927.71 m to 1928.06 m, the rock is intensely broken, altered and crushed. It is feebly magnetic. Multiple inclined (45 - 65 ^{o}) fractures present. Fracture surfaces are smooth and chloritized. Few fine calcareous veins present.
21.09.2012	1928.4	1931.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	89.33	Significant chloritic alteration	Hard,dense, compact, intact, few natural fractures, fracture surfaces smooth, Intensely broken in few parts.	There is no change in lithology. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Characterized by few inclined fractures dipping at 65 - 75 ^{o}. Fracture surfaces are smooth and chloritized. The rock is feebly magnetic.
21.09.2012	1931.4	1934.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	32.33	Significant chloritization	Hard, compact dense in upper 1.18m; lower portion totally crushed and broken	There is no change in lithology or properties in the upper portion of the rock. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition in the upper 1.18 m of the core. Characterized by few inclined fractures dipping at 30 - 70 ^{o}. Fracture surfaces are smooth and chloritized. The rock is feebly magnetic. Lower 1.72 m of the core is highly altered, crushed and broken intensely.
21.09.2012	1934.4	1937.4	3.00	2.84	94.67	DR	Diorite	Grey	FN TO MD	72.67	Chloritized	Hard, compact, dense, intact fractured	There is no change in lithology or properties in the upper portion of the rock. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Lower 10 cm of the core shows an enrichment of silica, may be a part of quartz vein.
21.09.2012	1937.4	1940.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	87.33	Chloritized	Hard, compact, dense, intact fractured	There is no change in lithology or properties in the upper portion of the rock. It is a fine to medium grained, grey, porphyritic igneous rock of Dioritic composition. Upper 4 cm of the core shows an enrichment of silica, may be a part of quartz vein.
24.09.2012	1940.4	1943.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	92.33	Chloritized	Hard, compact, dense, intact fractured	The rock is Dioritic with pyroxene, plagioclase feldspar, micas, quartz and disseminated magnetite. It has a porphyritic texture. Top 10 cm of the rock is more felsic rich along with 2 cm thick quartz vein. Few coarse grains of quartz visible. Characterized by few inclined fractures dipping at 60 - 70 ^{o}. The fracture surface is chloritized and smooth. The rock is feebly to moderately magnetic.
24.09.2012	1943.4	1946.4	3.00	2.96	98.67	DR	Diorite	Grey	FN TO MD	65.33	Significant chloritic alteration	Hard, compact, dense, fractured, significantly crushed and broken in few parts, fracture surface mooth with alteration	Grey coloured, fine to medium grained, porphyritic, feebly magnetic igneous rock consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Top 35 cm of the rock is rich in coarse quartz grains and about 4 cm thick quartz veins. Proportion of felsic components comparatively higher and the rock is characterized by several fractures inclined at 25 - 75 ^{o}. Fracture surfaces are smooth and significantly chloritized. Few portions of the rock are extremely altered , broken and crushed. Banding is observed in few places but mostly obliterated by alteration.

24.09.2012	1946.4	1949.4	3.00	2.98	99.33	DR	Diorite	Grey	FN TO MD	75.00	Significant chloritic alteration	Hard,dense, compact, intact,fractured, fracture surfaces smooth.	Grey coloured, fine to medium grained, porphyritic, feebly magnetic igneous rock consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Significantly altered throughout the rock. Characterized by several inclined fractures dipping at 45 - 75 ^{0}. Fracture surfaces altered and smooth. Bandings are mostly obliterated by alteration. The rock is feebly magnetic.
24.09.2012	1949.4	1952.4	3.00	2.93	97.67	DR/ QTZ	Diorite/Quartz	Grey to White	FN TO CS	68.67	Significant chloritic alteration in Diorite and along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth and altered	The lithounit consists of Diorite crosscut by a thick quartz vein. Top 10 cm is entirely Diorite, grey in colour and fine to medium grained. From 1949.5 to 1950.12 m, the rock indicates a contact zone of Diorite and Quartz vein in which high amount of coarse anhedral quartz grains are present along with Dioritic mass. The remaining rockunit is entirely made up of quartz vein consisting of coarse to very coarse anhedral grains of quartz. The rock is very feebly magnetic and characterized few inclined fractures.
24.09.2012	1952.4	1955.4	3.00	2.98	99.33	DR/ QTZ	Diorite/Quartz	Grey to White	FN TO CS	55.00	Significant chloritic alteration in Diorite and along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth and altered	An intercalated unit consisting of quartz vein and dioritic rock. The rock is feebly magnetic and characterized by inclined fractures dipping at 35 - 75 ^{0}. Fracture surfaces are smooth and chloritized.
24.09.2012	1955.4	1958.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN TO MD	74.33	Highly Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	Whitish grey coloured, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock of Dioritic composition. The rock is entirely altered/chloritized giving its whitish grey colour. Banding is present which in most cases is obliterated by alteration. The unit is crosscut by 6 cm thick quartz vein.
24.09.2012	1958.4	1961.4	3.00	3.00	100.00	DR	Diorite	Whitish Grey	FN TO MD	56.67	Highly Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	Whitish grey coloured, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock of Dioritic composition. The rock is entirely altered/chloritized giving its whitish grey colour. Banding is present which in most cases is obliterated by alteration. Few very fine to fine calcareous veins present.
24.09.2012	1961.4	1964.4	3.00	2.96	98.67	DR	Diorite	Whitish Grey	FN TO MD	62.67	Highly Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized.	Whitish grey coloured, fine to medium grained, porphyritic, feebly magnetic, mafic igneous rock of Dioritic composition. The rock is entirely altered/chloritized giving its whitish grey colour. Banding is present which in most cases is obliterated by alteration. Few very fine to fine calcareous veins present. Extremely altered in few places. 8 to 10 cm thick quartz vein noted cutting across the Dolerite unit. Few zones show significantly higher magnetism due to greater concentration of magnetite.
24.09.2012	1964.4	1967.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	70.67	Significantly altered mostly along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized. Some parts broken.	Grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is characterized by multiple fractures inclined at 45 - 65 ^{o}, chloritized and having smooth surfaces. Some portions of the rock are extremely broken due to multiple sets of crosscutting fractures. The rock is more altered along the broken portions. Characterized by banding which in few places is obliterated by alteration. The rock is moderately magnetic.
24.09.2012	1967.4	1970.4	3.00	2.87	95.67	DR	Diorite	Grey	FN TO MD	58.00	Significantly altered mostly along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth and chloritized. Some parts broken.	The lithology is same as the previous run. It is a grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is characterized by multiple fractures inclined at 45 - 65 ^{0}, chloritized and having smooth surfaces. The entire rock is extremely altered and the lower/bottom 1.05 m is broken into fragments. Characterized by banding which in few places is obliterated by alteration. The rock is moderately magnetic.
24.09.2012	1970.4	1973.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	45.33	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth, in few places the core is broken.	The lithology is unchanged. It is grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is extremely chloritized, chloritization being more intense along fractures. The rock is characterized by significant fracturing, most fractures are inclined and dipping at 20 - 65 ^{0}. Fracture surfaces smooth. Distinct mafic rich and felsic rich banding observed. In the highly altered portions the bandings are obliterated. The rock is feebly to moderately magnetic.
24.09.2012	1973.4	1976.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	83.00	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth, in few places the core is broken.	The lithology is unchanged. It is grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is extremely chloritized, chloritization being more intense along fractures. The rock is characterized by significant fracturing, most fractures are inclined and dipping at 20 - 65 ^{0}. Fracture surfaces smooth. Distinct mafic rich and felsic rich banding observed. In the highly altered portions the bandings are obliterated. The rock is feebly to moderately magnetic.
24.09.2012	1976.4	1979.4	3.00	3.00	100.00	DR	Diorite	Grey	FN TO MD	89.67	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth, in few places the core is broken.	The lithology is unchanged. It is grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is extremely chloritized, chloritization being more intense along fractures. The rock is characterized by significant fracturing, most fractures are inclined and dipping at 20 - 65 ^{0}. Fracture surfaces smooth. Distinct mafic rich and felsic rich banding observed. In the highly altered portions the bandings are obliterated. The rock is feebly to moderately magnetic.

24.09.2012	1979.4	1982.4	3.00	3.00	100.00	DR	Diorite	Dark grey	FN TO MD	50.33	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth, in few places the core is broken.	The lithology is unchanged. It is grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is extremely chloritized, chloritization being more intense along fractures. Proportion of mafic minerals is higher. Characterized by multiple subhorizontal fractures.
24.09.2012	1982.4	1985.4	3.00	2.99	99.67	DR	Diorite	Dark grey	FN TO MD	37.33	Significant chloritic alteration along fractures	Hard,dense, compact, intact, fractured, fracture surfaces smooth, in few places the core is broken.	The lithology is unchanged. It is grey coloured, fine to medium grained, porphyritic, mafic igneous rock consisting of pyroxene, plagioclase feldspar, quartz, mica and disseminated magnetite. The rock is extremely chloritized, chloritization being more intense along fractures. Proportion of mafic minerals is higher. Characterized by multiple inclined fractures dipping at 45 - 70 ^{0}. Few silica as well as calcareous veins noted.
26.09.2012	1985.4	1988.4	3.00	3.00	100.00	DR	Diorite	Dark grey	FN TO MD	72.33	Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	The rock is a dark grey coloured, fine to medium grained, feebly to moderately magnetic igneous rock having a porphyritic texture and consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Characterized by multiple inclined fractures dipping at 25 - 65 ^{0}. Fracture surfaces are smooth and chloritized. Few portions of the rock are broken and extremely chloritized. Shows fine mafic rich and felsic rich bandings which are obliterated in most places by chloritization. Pockets showing higher magnetism is observed.Few fine calcareous as well as silica veins present.
26.09.2012	1988.4	1991.4	3.00	2.99	99.67	DR	Diorite	Dark grey	FN TO MD	51.67	Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth.	The rock is a dark grey coloured, fine to medium grained, feebly to moderately magnetic igneous rock having a porphyritic texture and consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Characterized by multiple inclined fractures dipping at 25 - 65 ^{0}. Proportion of fractures higher. Fracture surfaces are smooth and chloritized. Few portions of the rock are broken and extremely chloritized. Shows fine mafic rich and felsic rich bandings which are obliterated in most places by chloritization. Pockets showing higher magnetism is observed.Few fine calcareous as well as silica veins present.
26.09.2012	1991.4	1994.4	3.00	2.93	97.67	DR	Diorite	Dark grey	FN TO MD	41.00	Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth; few portion of the rock is extremely broken.	The rock is a dark grey coloured, fine to medium grained, feebly to moderately magnetic igneous rock having a porphyritic texture and consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Proportion of felsic minerals much higher.Characterized by multiple inclined fractures dipping at 25 - 65 ^{0}. Proportion of fractures much higher than previous run. Fracture surfaces are smooth and chloritized. Few portions of the rock are broken and extremely chloritized. Shows fine mafic rich and felsic rich bandings which are obliterated in most places by chloritization. Bandings are more distinct. Pockets showing higher magnetism is observed.Few fine calcareous as well as silica veins present.
26.09.2012	1994.4	1997.4	3.00	3.00	100.00	DR	Diorite	Dark grey	FN TO MD	53.00	Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth; few portion of the rock is extremely broken.	The rock is a dark grey coloured, fine to medium grained, feebly to moderately magnetic igneous rock having a porphyritic texture and consisting of pyroxene, plagioclase feldspar, muscovite, quartz and disseminated magnetite. Proportion of felsic minerals and chloritization higher. Shows few mm scale thick calcareous veins. Calcareous material is also present along fractures. Lower 30 cm shows significant occurrance of coarse, anhedral quartz grains. The banding in most cases is obliterated.
26.09.2012	1997.4	2000.4	3.00	2.72	90.67	DR	Diorite	Dark grey	FN TO CS	51.33	Chloritized	Hard,dense, compact, intact, fractured, fracture surfaces smooth; few portion of the rock is extremely broken.	The rock is fine to coarse grained, porphyritic, dark grey coloured, feebly to moderately magnetic with Dioritic composition. Most of the rock is characterized by coarse quartz grains embedded in a finer mafic rich groundmass. The rock is extremely chloritized. Few portions of the rock shows banding which in most places is obliterated by alteration. Few portions of the rock is broken and significant amount of mm scale to finer calcareous veins noted.

Appendix 2

Geology and location, Bh2

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
13.09.2011	0.00	48.00	NO CORE-HW Casing-Lithic fills and loose sediments									
13.09.2011	48.00	49.70	1.70	0.17	10	GR	Greyish yellow	Rubbles and pebbles of Granite and quartz				
13.09.2011	49.70	51.60	1.90	1.90	100	SS	Greyish yellow	M to F	96	No	Soft,intact,compact,well sorted	Well sorted fine to medium grained sandstone,in the starting 0.7 cm coarse grained Granite
13.09.2011	51.60	54.60	3.00	3.00	100	SS	Greyish yellow	M to F	100	No	Soft,intact,compact,well sorted	Well sorted fine to medium grained sandstone
13.09.2011	54.60	57.60	3.00	3.00	100	SS	Greyish yellow	M to F	96	No	Soft,intact,compact,well sorted	Well sorted fine to medium grained sandstone,presence of cross bedding
13.09.2011	57.60	60.60	3.00	3.00	100	SS	Greyish yellow	M to F	93	No	Soft,intact,compact,well sorted	Well sorted fine to medium grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	60.60	63.60	3.00	3.00	100	SS	Greyish yellow	M to F	97	No	Soft,intact,compact,well sorted	Well sorted fine to medium grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	63.60	66.60	3.00	3.00	100	SS	Greyish yellow	C to M	88	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	66.60	69.60	3.00	3.00	100	SS	Greyish yellow	C to M	97	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	69.60	72.60	3.00	3.00	100	SS	Greyish yellow	C to M	93	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding
13.09.2011	72.60	75.60	3.00	3.00	100	SS	Reddish grey	C to M	95	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	75.60	78.60	3.00	3.00	100	SS	Reddish grey	C to M	97	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,bands of feldspar present,% of feldspar rises in some places
13.09.2011	78.60	81.60	3.00	3.00	100	SS	Reddish grey	C to M	95	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,% of feldspar riched
13.09.2011	81.60	84.60	3.00	3.00	100	SS	Reddish grey	C to M	97	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding,feldspar riched
13.09.2011	84.60	87.60	3.00	3.00	100	SS	Reddish grey	C	92	No	Soft,intact,compact,well sorted	Well sorted medium to coarse grained sandstone,presence of cross bedding
13.09.2011	87.60	90.60	3.00	2.97	99	SS	Reddish grey	C	97	No	Soft,intact,compact,well sorted	Moderately sorted,coarse grained sandstone

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
13.09.2011	90.60	93.60	3.00	3.00	100	SS	Reddish grey	C	97	No	Soft,intact,compact,well sorted	Moderately sorted,coarse grained sandstone,presence of cross bedding,feldspar riched
13.09.2011	93.60	96.60	3.00	3.00	100	SS	Reddish grey	VC	100	No	Soft,intact,compact,well sorted	poorly sorted,very coarse grained sandstone,presence of cross bedding,feldspar riched
13.09.2011	96.60	99.60	3.00	2.98	99.33	SS	Reddish grey	VC	96	No	Soft,intact,compact,well sorted	poorly sorted,very coarse grained sandstone,coarse garins of quartz,feldspar riched
13.09.2011	99.60	102.60	3.00	2.98	99.33	SS	Reddish grey	VC	94	No	Soft,intact,compact,well sorted	Well sorted,coarse to medium grained sanadstone,presence of cross bedding,feldspar riched
13.09.2011	102.60	105.60	3.00	3.00	100	SS/GR	Reddish grey	C to M	80	No	Soft,broken,fractured,crushed in some places	Gradational contact with weathered granite at 103.72m,soft,coarse grained
13.09.2011	105.60	108.60	3.00	3.00	100	Weathered Granite	Pinkish grey	C	92	Weathered	Soft,intact,dense,fractured	Weatherd granite,phenocryst of quartz and feldspar in some places,presence of biotite,hornblende and chlorite in mafics
13.09.2011	108.60	111.60	3.00	3.00	100	GR	Pinkish grey	C	81	Weathered/altered to clay in some places	Soft,intact,dense,fractured	Weathered granite,sheared in some places,phenocrysts of quartz and feldspar, percentage of mafics high,presence of biotite,hornblende and chlorite in mafics
13.09.2011	111.60	114.60	3.00	3.00	100	GR	Grey	C	78	Weathered/altered to clay in some places	Soft,intact,dense,fractured	Weathered granite,sheared in some places,phenocrysts of quartz and feldspar, presence of biotite,hornblende and chlorite in mafics,presence of gneissice texture,veins of calcite
13.09.2011	114.60	117.60	3.00	3.00	100	GR	Grey	C	96	Weathered/altered to clay in some places	Soft,intact,dense,fractured	sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high,preence of bitote,hornblende and chlorite in mafics,presence of quartz veins in some places,gneissice texture
13.09.2011	117.60	120.60	3.00	3.00	100	GR	Grey	C	92	Weathered/altered to clay in some places	Soft,intact,dense,fractured	sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high,presence of bitote,hornblende and chlorite in mafics,presence of quartz veins in some places,gneissice texture
13.09.2011	120.60	123.60	3.00	2.98	99.33	GR	Grey	C	81	Weathered/altered to clay in some places	Soft,intact,dense,fractured	sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high,presence of bitote,hornblende and chlorite in mafics
13.09.2011	123.60	126.60	3.00	3.00	100	GR	Grey	C	94	Weathered/altered to clay in some places	Soft,intact,dense,fractured	sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high,presence of bitote,hornblende and chlorite in mafics
13.09.2011	126.60	129.60	3.00	3.00	100	GDR/VC	Grey	F	88	No	Hard,compact,dense,fractured	Gradational contact of granite and fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present
13.09.2011	129.60	132.60	3.00	3.00	100	GDR/VC	Grey	F	91	Weathered/altered to clay in some places	Hard,compact,dense,fractured	Fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present
13.09.2011	132.60	135.60	3.00	3.00	100	GDR/VC	Grey	F	98	Moderately altered to chlorite	Hard,compact,dense,fractured	Fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present
13.09.2011	135.60	138.60	3.00	3.00	100	GDR/VC	Grey	F	83	Moderately altered to chlorite	Hard,compact,dense,fractured	Fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
13.09.2011	138.60	141.60	3.00	2.94	98	GDR/VC	Grey	F	79	Moderately altered to chlorite	Hard,dense,fractured,broken pieces	Fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present
13.09.2011	141.60	144.60	3.00	3.00	100	GDR/VC	Grey	F	71	Moderately altered to chlorite	Hard,dense,fractured,broken pieces	Fine grained granodiorite/volcanic chert,feebly magnetic,percentage of mafics high,presence of biotite,hornblende and chlorite,veins of calcite present
13.09.2011	144.60	147.60	3.00	3.00	100	GR	Pinkish grey	C	91	No	Hard,intact,dense,fractured	Gradational contact with Granite at 145.85 m,sheared granite,phenocrysts of quratz and feldspar,presence of bitite,hornblende and chlorite in mafics,gneissic texture present
13.09.2011	147.60	150.60	3.00	3.00	100	GR	Pinkish grey	C	90	No	Hard,intact,dense,fractured	sheared granite,phenocrysts of quratz and feldspar,presence of bitite,hornblende and chlorite in mafics,gneissic texture present
13.09.2011	150.60	151.60	1.00	1.00	100	GR	Pinkish grey	C	100	No	Hard,intact,dense,fractured	sheared granite,phenocrysts of quratz and feldspar,presence of bitite,hornblende and chlorite in mafics,gneissic texture present.HQ drilling finished at this point
14.09.2011	151.60	153.40	1.80	1.80	100	GR	Pinkish grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	153.40	156.40	3.00	3.00	100	GR	Pinkish grey	C	86	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	156.40	159.40	3.00	3.00	100	GR	Pinkish grey	C	99	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	159.40	162.40	3.00	3.00	100	GR	Pinkish grey	C	94	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,traces of shearing in some places,presence of gneissic texture
14.09.2011	162.40	165.40	3.00	2.94	98	GR	Pinkish grey	C	89	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,veins of quartz present
14.09.2011	165.40	168.40	3.00	3.00	100	GR	Pinkish grey	C	97	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,presence of shearing in some places
14.09.2011	168.40	171.40	3.00	3.00	100	GR	Pinkish grey	C	95	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	171.40	174.40	3.00	3.00	100	GR	Pinkish grey	C	92	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	174.40	177.40	3.00	3.00	100	GR	Pinkish grey	C	86	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,veins of quartz present
14.09.2011	177.40	180.40	3.00	3.00	100	GR	Grey	C	98	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	180.40	183.40	3.00	3.00	100	GR	Grey	C	93	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
14.09.2011	183.40	186.40	3.00	3.00	100	GR	Grey	C	93	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,presenceof shearing in some places,gneissic texture
14.09.2011	186.40	189.40	3.00	2.96	98.67	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	189.40	192.40	3.00	2.96	98.67	GR	Grey	C	95	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	192.40	195.40	3.00	3.00	100	GR	Grey	C	95	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	195.40	198.40	3.00	3.00	100	GR	Grey	C	99	No	Hard,intact,dense,fractured	Coarse grained granite,few phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,presence of quartz veins
14.09.2011	198.40	201.40	3.00	3.00	100	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,presenceof shearing in some places
14.09.2011	201.40	204.40	3.00	2.97	99	GR	Grey	C	97	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,presenceof shearing in some places,gneissic texture,presence of quartz veins
14.09.2011	204.40	207.40	3.00	3.00	100	GR	Grey	C	81	No	Hard,intact,dense,fractured	Coarse grained sheared granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics,gneissic texture,presence of quartz veins
14.09.2011	207.40	210.40	3.00	3.00	100	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	210.40	213.40	3.00	3.00	100	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
14.09.2011	213.40	216.40	3.00	3.00	100	GR	Grey	C	98	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
15.09.2011	216.40	219.40	3.00	3.00	100	GR	Grey	C	93	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
15.09.2011	219.40	222.40	3.00	3.00	100	GR	Grey	C	96	No	Hard,intact,dense,fractured	Coarse grained granite,presence of shearing in some places,phenocrysts of quartz and feldspar,percentage of mafics less,gneissice texture present in place of shearing
15.09.2011	222.40	225.40	3.00	3.00	100	GR	Grey	C	91	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of feldspar and quartz,percentage of mafics less,presence of biotite,hornblende and chlorite in mafics
15.09.2011	225.40	228.40	3.00	3.00	100	GR	Grey	C	85	No	Hard,fractured,dense,broken pieces	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins,rich in quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
15.09.2011	228.40	231.40	3.00	3.00	100	GR	Grey	C	96	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins,rich in quartz
15.09.2011	231.40	234.40	3.00	3.00	100	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,quartz rich(veining) at the begining of the run,shearing in some places
15.09.2011	234.40	237.40	3.00	3.00	100	GR	Grey	C	84	No	Hard,intact,dense,fractured,broken pieces at the end of the run	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,quartz rich at the end of the run
15.09.2011	237.40	240.40	3.00	3.00	100	GR	Grey	C	88	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafics less,,presence of quartz veins,quartz rich at the beginning of the run,then sheraed granite and at the last normal granite
15.09.2011	240.40	243.40	3.00	3.00	100	GR	Grey	C	94	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite
15.09.2011	243.40	246.40	3.00	3.00	100	GR	Grey	C	98	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite
15.09.2011	246.40	249.40	3.00	3.00	100	GR	Grey	C	97	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins
15.09.2011	249.40	252.40	3.00	3.00	100	GR	Grey	C	100	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins
16.09.2011	252.40	255.40	3.00	3.00	100	GR	Grey	C	93.5	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins
16.09.2011	255.40	258.40	3.00	2.91	97	GR	Grey	C	91	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins,presence of shearing in some places
16.09.2011	258.40	261.40	3.00	3.00	100	GR	Grey	C	89.5	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins
16.09.2011	261.40	264.40	3.00	3.00	100	GR	Grey	C	89	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,presence of quartz veins
16.09.2011	264.40	267.40	3.00	3.00	100	GR	Grey	C	90	No	Hard,intact,dense,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafic less,presence of biotite,hornblende and chlorite,crescent shaped vein of quartz present;highly sheared in some places(at the end of the run),rich in quartz at the end of the run
16.09.2011	267.40	270.40	3.00	3.00	100	GR	Grey	C	87	No	Hard,dense,fractured,broken pieces	Coarse grained sheared granite,highly sheared in some places,presence of augen gneisses,phenocrysts of quartz and feldspar,percentage of mafics high(mafics sheared),quatrz rich at the end of the run
16.09.2011	270.40	273.40	3.00	3.00	100	GR	Grey	C	85	No	Hard,dense,fractured,broken pieces	Coarse grained sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high(mafics sheared),quatrz rich at the end of the run,quartz rich at the beginning of the run

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
16.09.2011	273.40	276.40	3.00	3.00	100	GR	Grey	C	81	No	Hard,dense,intact,fractured	Coarse grained sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high and mafics got sheared where intensive sheraing observed, quartz rich portions in some places
16.09.2011	276.40	279.40	3.00	3.00	100	GR	Grey	C	94	No	Hard,dense,intact,fractured	Coarse grained sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high and mafics got sheared where intensive sheraing observed, quartz rich portions in some places
16.09.2011	279.40	282.40	3.00	3.00	100	GR	Grey	C	90	No	Hard,dense,intact,fractured	Coarse grained sheared granite,phenocrysts of quartz and feldspar,percentage of mafics high and mafics got sheared where intensive sheraing observed, quartz rich portions in some places
16.09.2011	282.40	285.40	3.00	3.00	100	GR	Grey	C	95	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafics less,presence of biotite,hornblende and chlorite
16.09.2011	285.40	288.40	3.00	3.00	100	GR	Grey	C	87	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,percentage of mafics less,presence of biotite,hornblende and chlorite,shearing at some places
16.09.2011	288.40	291.40	3.00	3.00	100	GR	Grey	C	82	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,shearing at some places,percentage of mafics rise in place of shearing
16.09.2011	291.40	294.40	3.00	2.97	99	GR	Grey	C	94	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,shearing at some places,percentage of mafics rise in place of shearing,presence of quartz veins in some places
16.09.2011	294.40	297.40	3.00	3.00	100	GR	Grey	C	81.5	No	Hard,dense,fractured,broken pieces	Coarse grained sheared granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins in some places,presence of augen structure
16.09.2011	297.40	300.40	3.00	3.00	100	GR	Grey	C	57	Altered to clay in some places	Hard,dense,extremely fractured,broken pieces	Coarse grained sheared granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,altered to clay in some places,presence of quartz veins.
16.09.2011	300.40	303.40	3.00	2.96	98.67	GR	Grey	C	87	No	Hard,dense,intact,fractured	Coarse grained sheared granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure
16.09.2011	303.40	306.40	3.00	3.00	100	GR	Grey	C	95	No	Hard,dense,intact,fractured	Coarse grained sheared granite,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure
16.09.2011	306.40	309.40	3.00	3.00	100	GR	Grey	C	97	No	Hard,dense,intact,fractured	Coarse grained sheared granite,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure
16.09.2011	309.40	312.40	3.00	3.00	100	GR	Grey	C	85	No	Hard,dense,intact,fractured	Coarse grained sheared granite,phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,
19.09.2011	312.40	315.40	3.00	3.00	100	GR	Grey	C	97.5	No	Hard,dense,intact,fractured	Coarse grained sheared granite,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure
19.09.2011	315.40	318.40	3.00	3.00	100	GR	Grey	C/M to F	100	No	Hard,dense,intact,fractured	Coarse grained sheared granite,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure,xenoliths of mafics present

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	**Drilling starting date:**	**Completed on :**	**Northing**	**RL**	**Core Size**	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
19.09.2011	318.40	321.40	3.00	3.00	100	GR	Grey	C	95	No	Hard,dense,intact,fractured	Coarse grained sheared granite,highly sheared,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure
19.09.2011	321.40	324.40	3.00	2.98	99.33	GR	Grey	C	95.5	No	Hard,dense,intact,fractured	Coarse grained sheared granite,few phenocrysts of quartz and feldspar,presence of biotite,hornblende and chlorite,rich in mafics,presence of quartz veins,present of augen structure,xenoliths of mafics present
19.09.2011	324.40	327.40	3.00	3.00	100	GR	Grey/Greenish grey	C/M to F	98	No	Hard,dense,intact,fractured	sheared granite,few phenocrysts of quartz and feldspar,sharp contact with Granodiorite at 327.07m depth,fine grained mafics,rich in biotite,hornblende and chlorite.
19.09.2011	327.40	330.40	3.00	3.00	100	GR/GDR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	sheared Granodiorite,fine grained mafics,rich in biotite,hornblende and chlorite, veins of quartz present,xenolith of granite
19.09.2011	330.40	333.40	3.00	3.00	100	GR/GDR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	sheared Granodiorite,fine grained mafics,rich in biotite,hornblende and chlorite, veins of granite,sharp contact with Granite at 331.90m depth;sheared Granite,phenocrysts of quartz and feldspar,% of mafics rises in shear planes,xenolith of mafic in sheared granite
19.09.2011	333.40	336.40	3.00	3.00	100	GR	Grey/Greenish grey	C/M to F	89	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldpar,quartz veins present,Xenolith of fine grained mafics
19.09.2011	336.40	339.40	3.00	3.00	100	GR/GDR	Grey/Greenish grey	C/M to F	82	No	Hard,dense,intact,fractured	sheared Granodiorite,rich in biotite,hornblende and chlorite, veins of quartz present,intrusion of Granite
19.09.2011	339.40	342.40	3.00	3.00	100	GR/GDR	Grey/Greenish grey	C/M to F	96	No	Hard,dense,intact,fractured	sheared Granodiorite,rich in biotite,hornblende and chlorite, quartz rich portions,intrusion of Granite,contact with granite at the end of the run
20.09.2011	342.40	345.40	3.00	3.00	100	GR	Grey	C	88	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,xenolith of fine grained mafics,rich in biotite,hornblende and chlorite
20.09.2011	345.40	348.40	3.00	3.00	100	GR	Grey	C	88	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,xenolith of fine grained mafics,rich in biotite,hornblende and chlorite,augen gneiss,gneissic texture
20.09.2011	348.40	351.40	3.00	3.00	100	GR	Grey	C	96.5	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,xenolith of fine grained mafics,rich in biotite,hornblende and chlorite,augen gneiss,gneissic texture
20.09.2011	351.40	354.40	3.00	3.00	100	GR	Grey	C	97	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,rich in biotite,hornblende and chlorite,veins of quartz present
20.09.2011	354.40	357.40	3.00	2.96	98.67	GR	Grey	C	100	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,rich in biotite,hornblende and chlorite
20.09.2011	357.40	360.40	3.00	3.00	100	GR	Grey	C	92	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,rich in biotite,hornblende and chlorite,augen gneiss
20.09.2011	360.40	363.40	3.00	3.00	100	GR	Grey	C	95	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,% mafic rises in shear planes,rich in biotite,hornblende and chlorite,augen gneiss,veins of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
20.09.2011	363.40	366.40	3.00	3.00	100	GR	Grey	C	54	Altered to clay in some places	Soft,dense,fractured,broken pieces	sheared Granite,biotite,hornblende and chlorite present,mafics altered to clay rich soft portion,enrichment of calcite and amphibole,augen gneiss,highly fractured zone
20.09.2011	366.40	369.40	3.00	3.00	100	GR	Grey	C	78	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of quartz and feldspar,rich in biotite,hornblende and chlorite;% of mafic rises in some places,veins of quartz present and rich in quartz near the end of the run
20.09.2011	369.40	372.40	3.00	3.00	100	GR	Grey	C	82	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,veins of quartz
20.09.2011	372.40	375.40	3.00	3.00	100	GR	Grey	C	86	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,veins of quartz
20.09.2011	375.40	378.40	3.00	3.00	100	GR	Grey	C	85	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,veins of quartz,xenolith of mafics
20.09.2011	378.40	381.40	3.00	3.00	100	GR	Grey	C	82	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,veins of quartz,xenolith of mafics
20.09.2011	381.40	384.40	3.00	3.00	100	GR	Grey	C	96	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,veins of quartz,xenolith of mafics
20.09.2011	384.40	387.40	3.00	2.95	98.33	GR	Grey	C	93.5	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,intrusuon of mafics,xenolith of mafics
20.09.2011	387.40	390.40	3.00	3.00	100	GR	Grey	C	94.5	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,% of mafic increases along shear planes,veins of quartz.
20.09.2011	390.40	393.40	3.00	3.00	100	GR	Grey	C	65	No	Hard,intact,dense,fractured	sheared Granite,phenocrysts of plagioclase and quartz,presence of biotite,hornblende and chlorite,intrusion of mafics,quartz rich portions,fine grained mafics
10.10.2011	393.40	396.40	3.00	3.00	100	GDR	Greenish grey	F	68	No	Hard,intact,dense,moderately fractured	Sheraed Granodiorite,rich in chlorite,hornblende and biotite,intrusion of granite and quartz veins
10.10.2011	396.40	399.40	3.00	3.00	100	GDR	Greenish grey	F	89	No	Hard,dense,intact,fractured	Sheraed Granodiorite,rich in chlorite,hornblende and biotite,intrusion of granite(xenolith)
10.10.2011	399.40	401.10	1.70	1.70	100	GR	Grey	C	85	No	Hard,dense,intact,fractured	Sheraed Granodiorite,rich in chlorite,hornblende and biotite,contact with granite at 399.52m,coarse grained granite,phenocrysts of quartz and feldspar,presence of mica,biotite and hornblende
10.10.2011	401.10	404.10	3.00	2.90	96.67	GR	Grey	C	84	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,biotite,hornblende and mica present
10.10.2011	404.10	407.10	3.00	3.00	100	GR	Grey	C	94	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,biotite,hornblende and mica present
10.10.2011	407.10	410.10	3.00	3.00	100	GR	Grey	C	91	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,biotite,hornblende and mica present,intrusion of fine grained mafics in some places

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
10.10.2011	410.10	413.10	3.00	3.00	100	GR	Grey	C	88	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of quartz and feldspar,biotite,hornblende and mica present
10.10.2011	413.10	416.10	3.00	3.00	100	GR	Grey	C	73	No	Hard,dense,intact,fractured;intensely fractured at the end of the run	Coarse grained granite,phenocrysts of feldspar and granite,xenolioth of mafics,sheraed granite at the end of the run,presence of gneissic texture
10.10.2011	416.10	419.10	3.00	3.00	100	GR	Grey	C	82	No	Hard,dense,intact,fractured	Coarse grained granite,phenocrysts of feldspar and granite,intrusion of mafics in some places
10.10.2011	419.10	422.10	3.00	3.00	100	GR	Grey	C	81	No	Hard,dense,intact,fractured	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places
10.10.2011	422.10	425.10	3.00	3.00	100	GR	Grey	C	75	No	Hard,intact,dense,moderately fractured	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places,veins of quartz,presence of gneissic texture
10.10.2011	425.10	428.10	3.00	3.00	100	GR	Grey	C	93.5	No	Hard,dense,intact,fractured	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places,veins of quartz,presence of gneissic texture,phenocrysts become elongated due to shearing
10.10.2011	428.10	431.10	3.00	3.00	100	GR	Grey	C	72	No	Hard,intact,dense,moderately fractured	sheared granite,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica,presence of gneissic texture
10.10.2011	431.10	434.10	3.00	3.00	100	GR	Grey	C	90	No	Hard,dense,intact,fractured	sheared granite,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica,presence of gneissic texture,veins of quartz and calcite
10.10.2011	434.10	437.10	3.00	3.00	100	GR/GDR	Greenish grey	C/F	27	Altered to clay in some places	Soft,intensely fractured,broken pieces	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places,veins of quartz,phenocrysts become elongated due to shearing,altered to clay in some places,grades to Granodiorite
10.10.2011	437.10	440.10	3.00	2.82	94	GR/GDR	Greenish grey	F	33	Altered to clay in some places	Hard,intensely fractured,broken pieces	sheared Granodiorite,% mafic high,veins of quartz and calcite,quartz rich portion in last 1 m,foliation planes prominent
10.10.2011	440.10	443.10	3.00	3.00	100	GR	Grey	C	54	No	Hard,intensely fractured,broken pieces	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places,phenocrysts become elongated due to shearing
10.10.2011	443.10	446.10	3.00	2.91	97	GR	Grey	C	55	No	Hard,intensely fractured,broken pieces	sheared granite,phenocrysts of feldspar and granite,intrusion of mafics in some places,phenocrysts become elongated due to shearing,veins of quartz
10.10.2011	446.10	449.10	3.00	2.91	97	GR	Grey	C	50	No	Hard,intensely fractured,broken pieces	Coarse grained granite,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica
10.10.2011	449.10	452.10	3.00	3.00	100	GR	Grey	C	84	No	Hard,intensely fractured,broken pieces	Coarse grained granite,sheared in some places,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica,xenoliths of mafics
10.10.2011	452.10	453.40	1.30	1.30	100	GR	Grey	C	90	No	Hard,intensely fractured,broken pieces	Coarse grained granite,sheared in some places,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica
10.10.2011	453.40	456.40	3.00	3.00	100	GR	Grey	C	68	No	Hard,intensely fractured,broken pieces	Coarse grained granite,sheared in some places,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica,veins of quartz present

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
10.10.2011	456.40	459.40	3.00	3.00	100	GR	Grey	C	94	No	Hard,intensely fractured,broken pieces	Coarse grained granite,sheared in some places,phenocrysts of feldspar and granite,presence of biotite,hornblende and mica,veins of quartz present,gneissice in some places
10.10.2011	459.40	462.40	3.00	3.00	100	GR	Grey	C	83	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,mafics present,quartz rich portions at the end of the run,gneissic texture present in some places
10.10.2011	462.40	465.40	3.00	3.00	100	GR	Grey	C	88	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,mafics present,quartz rich portions at the end of the run,gneissic texture present in some places,elongated phenocrysts
10.10.2011	465.40	468.40	3.00	3.00	100	GR	Grey	C	73	No	Hard,dense,intact,moderately fractured	sheared Granite,phenocrysts of quartz and feldspar,mafics present,gneissic texture present ,veins of quartz,elongated phenocrysts
10.10.2011	468.40	471.40	3.00	2.97	99	GR	Grey	C	83	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,mafics present,gneissic texture present ,veins of quartz,elongated phenocrysts
10.10.2011	471.40	474.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	70	Altered to clay in some places	Hard,dense,intact,moderately fractured	Sheraed Granite,few phenocrysts of quartz and feldspar,% of mafic increases in some places,grading to Granodiorite,veins of calcite,altered to clay in some places;chlorite rich
10.10.2011	474.40	477.40	3.00	3.00	100	GDR	Greenish grey	F	43	Altered to clay in some places	Intensely fractured	sheared Granodiorite,chlorite rich mafics present,prominent foliation planes present
10.10.2011	477.40	480.40	3.00	3.00	100	GDR	Greenish grey	F	77	Altered to clay in some places	Hard,dense,intact,moderately fractured	sheared Granodiorite,chlorite rich mafics present,prominent foliation planes present,veins of quartz and feldspar
10.10.2011	480.40	483.40	3.00	2.90	96.67	GDR	Greenish grey	F	98	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics present,prominent foliation planes present,veins of quartz and feldspar
10.10.2011	483.40	486.40	3.00	2.96	98.67	GDR	Greenish grey	F	100	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics present,prominent foliation planes present,veins of quartz,feldspar and calcite
10.10.2011	486.40	489.40	3.00	3.00	100	GDR	Greenish grey	F	100	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics present,prominent foliation planes present,veins of quartz
11.10.2011	489.40	492.40	3.00	3.00	100	GR/GDR	Greenish grey/Grey	C to M/F	95	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics;contact with granite at 491m,few phenocrysts of quartz and feldspar
11.10.2011	492.40	495.40	3.00	3.00	100	GR/GDR	Grey	C to M/F	61	No	Soft,intensely fractured in Gdr part;Hard and intact Granite	sheared granodiorite contact with granite at 493.80m depth,fine grained,rich in mafics,chlorite rich mafics,intensely fractured garnodiorite
11.10.2011	495.40	498.40	3.00	3.00	100	GR	Grey	C to M	83	No	Hard,dense,intact,moderately fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,veins of quartz,elongated phenocrysts
11.10.2011	498.40	501.40	3.00	3.00	100	GR	Grey	C to M	97	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,veins of quartz,elongated phenocrysts
11.10.2011	501.40	504.40	3.00	3.00	100	GR	Grey	C to M	92	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,elongated phenocrysts

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
11.10.2011	504.40	507.40	3.00	3.00	100	GR	Grey	C to M	97	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,elongated phenocrysts
11.10.2011	507.40	510.40	3.00	3.00	100	GR	Grey	C to M	93	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,elongated phenocrysts,present of calcite
11.10.2011	510.40	513.40	3.00	3.00	100	GR	Grey	C to M	93	No	Hard,dense,intact,fractured	sheared Granite,phenocrysts of quartz and feldspar,chlorite rich mafics present,elongated phenocrysts,veins of quartz
11.10.2011	513.40	516.40	3.00	3.00	100	GR/GDR	Grey	C to M	75	No	Soft in GDR part,moderately fractured	sheared granite,gradational contact with granodiorite at 515.25m,chlorite rich mafics present,contact with granite again at 526.15m
11.10.2011	516.40	519.40	3.00	3.00	100	GR	Grey	C to M	97	No	Hard,dense,intact,fractured	Coarse grained,contact with sheared granite,elongated phenocrysts of quartz and feldspar,rich in mafics,quartz rich granite
11.10.2011	519.40	522.40	3.00	3.00	100	GR	Grey	C to M	87	No	Hard,dense,intact,fractured	Quartz rich granite at the starting,grades into sheraed granite,few elongated phenocrysts of quartz nad feldspar,chlorite rich mafics,veins of quartz
11.10.2011	522.40	525.40	3.00	3.00	100	GR/GDR	Greenish grey	M to F	90.5	No	Hard,dense,intact,fractured	sheared granite,grades into granodiorite,chlorite rich mafics,veins of quartz present
11.10.2011	525.40	528.40	3.00	3.00	100	GDR	Greenish grey	M to F	70	No	Hard,dense,intact,moderately fractured	sheared granodiorite,grades into granodiorite,chlorite rich mafics,veins of quartz present
11.10.2011	528.40	531.40	3.00	2.97	99	GR/GDR	Greenish grey	C to M	99	No	Hard,dense,intact,fractured	sheared granodiorite,rich in mafics,gradational contact to sheare granite,few elongated phenocrysts of quartz and feldapar,veins of quartz
11.10.2011	531.40	534.40	3.00	3.00	100	GR	Greenish grey	C to M	97	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz,gneissic texture in some places
11.10.2011	534.40	537.40	3.00	3.00	100	GR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz,gneissic texture in some places
11.10.2011	537.40	540.40	3.00	3.00	100	GR	Greenish grey	C to M	98	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz,gneissic texture in some places
11.10.2011	540.40	543.40	3.00	3.00	100	GR	Greenish grey	C to M	97.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of calcite along fractures,gneissic texture in some places
11.10.2011	543.40	546.40	3.00	3.00	100	GR	Greenish grey	C to M	90	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,gneissic texture in some places
11.10.2011	546.40	549.40	3.00	2.98	99.33	GR	Greenish grey	C to M	92	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz and calcite,gneissic texture in some places
11.10.2011	549.40	552.40	3.00	3.00	100	GR/GDR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,gneissic texture in some places

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
11.10.2011	552.40	555.40	3.00	3.00	100	GR/GDR	Greenish grey/Grey	M to F	93	No	Hard,dense,intact,fractured	sheared granite grades into granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar,veins of quartz
11.10.2011	555.40	558.40	3.00	3.00	100	GR	Greenish grey	C to M	94.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz
11.10.2011	558.40	561.40	3.00	3.00	100	GR	Grey	C to M	96	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,gneissic texture in some places
11.10.2011	561.40	564.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	96	No	Hard,dense,intact,fractured	sheared granite grades into granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar,veins of quartz
11.10.2011	564.40	567.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	92	No	Hard,dense,intact,fractured	sheared granodiorite grades into granite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar,veins of quartz
12.10.2011	567.40	570.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	95.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz and calcite
12.10.2011	570.40	573.40	3.00	3.00	100	GR	Greenish grey	C to M	98.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,gneissic texture in some places
12.10.2011	573.40	576.40	3.00	3.00	100	GR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,gneissic texture in some places
12.10.2011	576.40	579.40	3.00	2.96	98.67	GR	Greenish grey	C to M	97	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz
12.10.2011	579.40	582.40	3.00	3.00	100	GR	Grey	C to M	83.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	582.40	585.40	3.00	2.95	98.33	GR	Grey	C to M	93	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	585.40	588.40	3.00	3.00	100	GR	Grey	C to M	100	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	588.40	591.40	3.00	3.00	100	GR	Grey	C to M	95	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	591.40	594.40	3.00	3.00	100	GR	Grey	C to M	93	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	594.40	597.40	3.00	3.00	100	GR	Grey	C to M	100	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	597.40	600.40	3.00	2.97	99	GR	Grey	C to M	97	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
12.10.2011	600.40	603.40	3.00	2.94	98	GR	Grey	C to M	89.5	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	603.40	606.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	92.5	No	Hard,dense,intact,fractured	sheared granite grades into sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	606.40	609.40	3.00	3.00	100	GDR	Greenish grey	C to M	89	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places,foliation plane prominent
12.10.2011	609.40	612.40	3.00	3.00	100	GDR	Greenish grey	C to M	77	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz and calcite,gneissic texture in some places,foliation plane prominent
12.10.2011	612.40	615.40	3.00	3.00	100	GDR	Greenish grey	C to M	97.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts
12.10.2011	615.40	618.40	3.00	3.00	100	GDR	Greenish grey	C to M	85	No	Hard,dense,intact,fractured	sheared granite gardes into sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz
12.10.2011	618.40	621.40	3.00	3.00	100	GR	Greenish grey	C to M	91.5	No	Hard,dense,intact,fractured	sheared granodiorite grades into sheared granite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,gneissic texture in some places
12.10.2011	621.40	624.40	3.00	3.00	100	GR/GDR	Greenish grey	C to M	82	No	Hard,dense,intact,fractured	sheared granite grades into sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts
12.10.2011	624.40	627.40	3.00	3.00	100	GDR	Greenish grey	C to M	74	Altered to clay in some places	Soft,moderately fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz
12.10.2011	627.40	630.40	3.00	3.00	100	GDR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz
12.10.2011	630.40	633.40	3.00	2.96	98.67	GDR	Greenish grey	C to M	82.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,veins of calcite
12.10.2011	633.40	636.40	3.00	3.00	100	GDR	Greenish grey	C to M	87	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,veins of calcite
12.10.2011	636.40	639.40	3.00	2.94	98	GDR	Greenish grey	C to M	84	No	Soft,brittle,moderately fractured	sheared Granodiorite,chlorite rich mafics,veons of ca;cite along fracture planes,soft,brittle
12.10.2011	639.40	642.40	3.00	3.00	100	GDR	Greenish grey	C to M	98	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz
12.10.2011	642.40	645.40	3.00	2.94	98	GDR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz,veins of calcite
12.10.2011	645.40	648.40	3.00	3.00	100	GDR	Greenish grey	C to M	84	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins and clustering of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
13.10.2011	648.40	651.40	3.00	2.93	97.67	GDR	Greenish grey	C to M	97	No	Brittle,dense,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz and calcite,foliation plane prominent,brittle
13.10.2011	651.40	654.40	3.00	3.00	100	GDR	Greenish grey	C to M	92	No	Brittle,dense,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,foliation plane prominent
13.10.2011	654.40	657.40	3.00	3.00	100	GDR	Greenish grey	C to M	80.5	No	Brittle,moderately fractured,broken pieces	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,foliation plane prominent
13.10.2011	657.40	660.40	3.00	3.00	100	GDR	Greenish grey	C to M	83	No	Brittle,moderately fractured,broken pieces	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,foliation plane prominent
13.10.2011	660.40	661.00	0.60	0.60	100	GDR	Greenish grey	C to M	80	No	Brittle,moderately fractured,broken pieces	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,foliation plane prominent
13.10.2011	661.00	664.00	3.00	3.00	100	GDR	Greenish grey	C to M	71	No	Brittle,moderately fractured,broken pieces	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,foliation plane prominent
13.10.2011	664.00	667.00	3.00	2.95	98.33	GDR	Greenish grey	C to M	94.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,foliation plane prominent
13.10.2011	667.00	670.00	3.00	3.00	100	GDR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,foliation plane prominent
13.10.2011	670.00	673.00	3.00	3.00	100	GDR	Greenish grey	M to F	90.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of quartz ,foliation plane prominent
13.10.2011	673.00	676.00	3.00	2.97	99	GDR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of calcite ,foliation plane prominent
13.10.2011	676.00	679.00	3.00	3.00	100	GDR	Greenish grey	M to F	83	Altered to clay in some places	Soft,brittle,moderately fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of calcite ,foliation plane prominent
13.10.2011	679.00	682.00	3.00	3.00	100	GDR	Greenish grey	M to F	77	No	Soft,brittle,moderately fractured	sheared granodiorite,chlorite rich mafic present,few elongated phenocrysts,veins of calcite ,foliation plane prominent
13.10.2011	682.00	685.00	3.00	2.94	98	GDR	Greenish grey	M to F	25	Altered to clay in some places	Soft,brittle,intensely fractured,broken pieces	sheared granodiorite,soft,intensely fractured,chlorite rich mafics,veins of quartz and calcite
13.10.2011	685.00	688.00	3.00	2.90	96.67	GDR	Greenish grey	M to F	84	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,veins of quartz and calcite
13.10.2011	688.00	691.00	3.00	3.00	100	GDR	Greenish grey	M to F	88	No	Broken pieces,modeately fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	691.00	694.00	3.00	3.00	100	GDR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
13.10.2011	694.00	697.00	3.00	3.00	100	GDR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	697.00	700.00	3.00	3.00	100	GDR	Greenish grey	M to F	62	No	Hard,intact,intensely fractured,broken pieces	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	700.00	703.00	3.00	3.00	100	GDR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	703.00	706.00	3.00	3.00	100	GDR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	706.00	709.00	3.00	3.00	100	GDR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	709.00	712.00	3.00	3.00	100	GDR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
13.10.2011	712.00	715.00	3.00	3.00	100	GDR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,veins of quartz
14.10.2011	715.00	718.00	3.00	3.00	100	GDR	Greenish grey	M to F	81	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,veins of quartz grades into ferruginous quartzite
14.10.2011	718.00	721.00	3.00	3.00	100	QZT	Pinkish grey	F	75	No	Hard,dense,intact,moderately fractured	Ferruginous Quartzite,intrusion of granodiorite,rich mafics(chlorite rich)
14.10.2011	721.00	724.00	3.00	3.00	100	GDR	Pinkish grey	M to F	82	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	724.00	727.00	3.00	3.00	100	GDR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	727.00	730.00	3.00	3.00	100	GDR	Pinkish grey	M to F	94	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	730.00	733.00	3.00	3.00	100	GDR	Pinkish grey	M to F	90.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	733.00	736.00	3.00	3.00	100	GDR	Pinkish grey	M to F	89	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	736.00	739.00	3.00	3.00	100	GDR	Pinkish grey	M to F	83	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	739.00	742.00	3.00	3.00	100	QZT	Pinkish grey	F	36	No	Broken pieces,intensely fractured	Ferruginous Quartzite,feebly magnetic

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
14.10.2011	742.00	745.00	3.00	3.00	100	GDR/QZT	Greenish grey	M to F	55	No	Broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	745.00	748.00	3.00	3.00	100	GDR/QZT	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	748.00	751.00	3.00	3.00	100	GDR/QZT	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Ferruginous Quartzite,intrusion of granodiorite,rich mafics(chlorite rich)
14.10.2011	751.00	754.00	3.00	3.00	100	GDR/QZT	Greenish grey	M to F	76	No	Broken pieces,modeately fractured	Ferruginous Quartzite,intrusion of granodiorite,rich mafics(chlorite rich)
14.10.2011	754.00	757.00	3.00	3.00	100	GDR	Greenish grey	M to F	69	No	Broken pieces,modeately fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	757.00	760.00	3.00	2.97	99	GDR	Greenish grey	M to F	49	No	Broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,rich in quartz grades into ferruginous quartzite
14.10.2011	760.00	763.00	3.00	3.00	100	GDR	Greenish grey	M to F	53	No	Broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,intrusion of granite,quartz rich in some places
14.10.2011	763.00	766.00	3.00	2.97	99	GR	Greenish grey	C to M	81	No	Hard,dense,intact,moderately fractured	sheared granite altered with sheared granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar
14.10.2011	766.00	769.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	80	No	Hard,dense,broken pieces,moderately fractured	sheared granite altered with sheared granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar
15.10.2011	769.00	772.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	84	No	Hard,intact,dense,moderately fractured	sheared granite altered with sheared granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar
15.10.2011	772.00	775.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	88	No	Hard,dense,intact,fractured	sheared granite altered with sheared granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar
15.10.2011	775.00	778.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	89	No	Hard,dense,intact,fractured	sheared granite altered with sheared granodiorite,chlorite rich mafics,few elongated phenocrysts of quartz and feldspar,veins of quartz
15.10.2011	778.00	781.00	3.00	3.00	100	GR	Grey	C	88	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics
15.10.2011	781.00	784.00	3.00	3.00	100	GR	Grey	C	99	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics
15.10.2011	784.00	787.00	3.00	3.00	100	GR	Grey	C	94	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics
15.10.2011	787.00	790.00	3.00	3.00	100	GR	Grey	C	100	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics,veins of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
15.10.2011	790.00	793.00	3.00	3.00	100	GR	Grey	C	94	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics,veins of quartz
15.10.2011	793.00	796.00	3.00	2.85	95	GR	Grey	C	96.5	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics,veins of quartz
15.10.2011	796.00	799.00	3.00	3.00	100	GR	Grey	C	90	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics,veins of quartz
15.10.2011	799.00	802.00	3.00	3.00	100	GR	Grey	C	94	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics
15.10.2011	802.00	805.00	3.00	3.00	100	GR	Grey	C	93	No	Hard,dense,intact,fractured	sheared granite,inclusion of chlorite rich mafics
15.10.2011	805.00	808.00	3.00	3.00	100	GR	Grey	C	98	No	Hard,dense,intact,fractured	sheared granite,chlorite rich mafics present,contains few grains of magnetite,showing low susceptibility
15.10.2011	808.00	811.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	65	No	Hard,dense,broken pieces,moderately fractured	sheared garnite altered with sheared granodiorite,chlorite rich mafics,veins of quartz
15.10.2011	811.00	814.00	3.00	3.00	100	GDR	Greenish grey	C to M	72	No	Hard,dense,broken pieces,moderately fractured	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility
15.10.2011	814.00	817.00	3.00	3.00	100	GDR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility
16.10.2011	817.00	820.00	3.00	2.97	99	GDR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured,broken pieces in some places	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility,veins of quartz
16.10.2011	820.00	823.00	3.00	3.00	100	GDR	Greenish grey	M to F	73	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility,veins of quartz
16.10.2011	823.00	826.00	3.00	3.00	100	GDR	Greenish grey	M to F	78	No	Hard,dense,intact,moderately fractured	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility,veins of quartz
16.10.2011	826.00	829.00	3.00	3.00	100	GDR/FR.QZT	Greenish Grey	M to F	94	No	Hard,dense,intact,fractured	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite
16.10.2011	829.00	832.00	3.00	3.00	100	GDR	Greenish Grey	M to F	60	No	Hard,intensely fractured,broken pieces	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility
16.10.2011	832.00	835.00	3.00	3.00	100	GDR	Greenish Grey	M to F	94	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,fe rich mafics,showing very low susceptibility,veins of calcite
16.10.2011	835.00	838.00	3.00	3.00	100	GDR/QZT	Greenish Grey	M to F	60	No	Hard,intensely fractured,broken pieces	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
16.10.2011	838.00	841.00	3.00	3.00	100	GDR/FR.QZT	Greenish Grey	M to F	74	No	Hard,moderately fractured,broken pieces	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite
16.10.2011	841.00	844.00	3.00	2.95	98.33	FR.QZT	Greenish Grey	M to F	74	No	Hard,moderately fractured,broken pieces	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite,veins of calcite
16.10.2011	844.00	847.00	3.00	3.00	100	GDR/FR.QZT	Greenish Grey	M to F	78	Altered to clay in some places	Hard,moderately fractured,broken pieces	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite,veins of calcite
16.10.2011	847.00	850.00	3.00	3.00	100	GDR	Greenish Grey	M to F	76	No	Hard,moderately fractured,broken pieces	sheared garnodiorite ,showing very low susceptibility,chlorite rich mafics ,veins of calcite
16.10.2011	850.00	853.00	3.00	2.96	98.67	GDR	Greenish Grey	M to F	81	No	Hard,moderately fractured,broken pieces	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite,veins of calcite
16.10.2011	853.00	856.00	3.00	3.00	100	GDR	Greenish Grey	M to F	83	No	Hard,dense,intact,moderately fractured	sheared garnodiorite altered with ferruginous quartzite,showing very low susceptibility,chlorite rich mafics in granodiorite
16.10.2011	856.00	859.00	3.00	3.00	100	GDR	Greenish Grey	M to F	92.5	No	Hard,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,few phenocrysts of quartz and feldspar,showing very low susceptibility
16.10.2011	859.00	862.00	3.00	3.00	100	GDR/FR.QZT	Grey	M to F	89	No	Hard,dense,intact,fractured	sheared garnodiorite altered with ferruginous quartzite,containing very low % of Fe,showing very low susceptibility,chlorite rich mafics in granodiorite,veins of quartz
16.10.2011	862.00	865.00	3.00	2.94	98	FR.QZT	Pinkish grey	M to F	96	No	Hard,dense,intact,fractured	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,intrusion of granodiorite,chlorite rich mafics in granodiorite,veins of quartz
16.10.2011	865.00	868.00	3.00	3.00	100	FR.QZT	Pinkish grey	M to F	100	No	Hard,dense,intact,fractured	Ferruginous Quartzite,showing very low susceptibility,veins of quartz
16.10.2011	868.00	871.00	3.00	3.00	100	GDR/FR.QZT	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,intrusion of granodiorite,chlorite rich mafics in granodiorite,veins of quartz
16.10.2011	871.00	874.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	87	No	Hard,dense,intact,fractured	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,intrusion of granodiorite,chlorite rich mafics in granodiorite,veins of quartz
17.10.2011	874.00	877.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	88	No	Hard,dense,moderately fractured,broken pieces	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,veins of quartz and calcite
17.10.2011	877.00	880.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	91	No	Hard,dense,intact,fractured	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,veins of quartz
17.10.2011	880.00	883.00	3.00	3.00	100	GDR/FR.QZT	Reddish grey/Greenish grey	M to F	87	No	Hard,dense,moderately fractured,broken pieces	Ferruginous Quartzite,containing very low % of Fe,showing very low susceptibility,intrusion of granodiorite,chlorite rich mafics in granodiorite,veins of quartz
17.10.2011	883.00	886.00	3.00	3.00	100	GDR	Greenish grey	M to F	68	No	Hard,dense,moderately fractured,broken pieces	sheared granodiorite,showing very low susceptibility,chlorite rich mafics,intrusion of granite,veins of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
17.10.2011	886.00	889.00	3.00	3.00	100	GDR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	sheared granodiorite,showing very low susceptibility,altered with granitic/quartzitic intrusion,chlorite rich mafics
17.10.2011	889.00	892.00	3.00	3.00	100	GDR/FR.QZT	Reddish grey/Greenish grey	M to F	94.5	No	Hard,dense,intact,fractured	sheared granodiorite,showing very low susceptibility,chlorite rich mafics,gradational contact with ferruginous quartzite,presence of pyrite,veins of quartz
17.10.2011	892.00	895.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	84	No	Hard,dense,moderately fractured,broken pieces	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz,presence of pyrite
17.10.2011	895.00	898.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	60	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	898.00	901.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	84	No	Hard,dense,moderately fractured,broken pieces	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,altered with chlorite rich granodiorite,veins of quartz
17.10.2011	901.00	904.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	92	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	904.00	907.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	96	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	907.00	910.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	78	No	Hard,dense,intact,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
17.10.2011	910.00	913.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	83	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	913.00	916.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	57	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	916.00	919.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	71	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
17.10.2011	919.00	922.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	89	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,altered with chlorite rich granodiorite
17.10.2011	922.00	925.00	3.00	3.00	100	GDR/FR.QZT	Reddish grey	M to F	85	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,altered with chlorite rich granodiorite
18.10.2011	925.00	928.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	74	No	Hard,dense,intact,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
18.10.2011	928.00	931.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	88	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
18.10.2011	931.00	934.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	82	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
18.10.2011	934.00	937.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	94	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	937.00	940.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	96	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
18.10.2011	940.00	943.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	80	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	943.00	946.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	76	No	Broken pieces,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
18.10.2011	946.00	949.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	86	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
18.10.2011	949.00	952.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	68	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	952.00	955.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	69	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	955.00	958.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	86	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	958.00	961.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	70	No	Hard,Broken pieces,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	961.00	964.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	43	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
18.10.2011	964.00	967.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	84	No	Hard,dense,intact,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
19.10.2011	967.00	970.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	78	No	Hard,Broken pieces,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
19.10.2011	970.00	973.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	63	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	973.00	976.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	55	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	976.00	979.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	50	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	979.00	982.00	3.00	3.00	100	GDR/FR.QZT	Reddish grey/Greenish grey	M to F	53	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,altered with chlorite rich granodiorite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
19.10.2011	982.00	985.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	50	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
19.10.2011	985.00	988.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	32	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	988.00	991.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	66	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	991.00	994.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	88	No	Hard,dense,intact,fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	994.00	997.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	78	No	Hard,dense,intact,moderately fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	997.00	1000.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	60	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	1000.00	1003.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	37	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility,veins of quartz
19.10.2011	1003.00	1006.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	36	No	Broken pieces,intensely fractured	Ferruginous Quartzite,conataining very low % of Fe,showing very low susceptibility
19.10.2011	1006.00	1009.00	3.00	3.00	100	GDR	Greenish grey	M to F	56	No	Hard,broken pieces,intensely fractured	sheared Granodiorite,chlorite rich mafics,very low susceptibility
20.10.2011	1009.00	1012.00	3.00	3.00	100	GDR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics,very low susceptibility,veins of quartz
20.10.2011	1012.00	1015.00	3.00	3.00	100	GDR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics,contains grains of magnetite,low to medium susceptibility
20.10.2011	1015.00	1018.00	3.00	3.00	100	GDR	Greenish grey	M to F	60	No	Broken pieces,intensely fractured	sheared Granodiorite,chlorite rich mafics,contains grains of magnetite,low to medium susceptibility,but gradually the percentage of magnetite decreases towrds the end of the run,veins of quarz present
20.10.2011	1018.00	1021.00	3.00	3.00	100	GDR/FR.QZT	Reddish grey	M to F	50	No	Broken pieces,intensely fractured	Sheraed granodiorite altered with ferruginous quartzite,contains very low % of Fe,very low susceptibility,veins of quartz and calcite
20.10.2011	1021.00	1024.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	60	No	Broken pieces,intensely fractured	Sheraed granodiorite altered with ferruginous quartzite,contains very low % of Fe,very low susceptibility,veins of quartz
20.10.2011	1024.00	1027.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	57	No	Broken pieces,intensely fractured	Sheraed granodiorite altered with ferruginous quartzite,contains very low % of Fe,very low susceptibility,veins of quartz
21.10.2011	1027.00	1030.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	85	No	Hard,dense,intact,fractured	Sheraed granodiorite altered with ferruginous quartzite,contains very low % of Fe,very low susceptibility,veins of quartz

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
21.10.2011	1030.00	1033.00	3.00	3.00	100	FR.QZT	Reddish grey	M to F	95	No	Hard,dense,intact,fractured	Sheraed granodiorite altered with ferruginous quartzite,contains very low % of Fe,very low susceptibility,veins of quartz
21.10.2011	1033.00	1036.00	3.00	3.00	100	GDR	Greenish grey	M to F	45	Altered to clay in some places	Soft,brittle,broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility
21.10.2011	1036.00	1039.00	3.00	3.00	100	GDR	Greenish grey	M to F	71	No	Hard,broken pieces,moderately fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,veins of calcite
21.10.2011	1039.00	1042.00	3.00	3.00	100	GDR	Greenish grey	M to F	83	No	Hard,broken pieces,moderately fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,intrusion of granite,veins of quartz
21.10.2011	1042.00	1045.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Gabbro/Diorite,intrusion of sheared granite,contains few magnetite grains,showing medium to high susceptibility
21.10.2011	1045.00	1048.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	84	No	Hard,dense,intact,fractured	Gabbro/Diorite,intrusion of sheared granite,contains few magnetite grains,showing medium to high susceptibility
21.10.2011	1048.00	1051.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Gabbro/Diorite,intrusion of sheared granite,contains few magnetite grains,showing medium to high susceptibility
25.10.2011	1051.00	1054.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	sheared Granodiorite,chlorite rich mafics,very low susceptibility,veins of quartz
25.10.2011	1054.00	1057.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	84	Altered to clay in some places	Hard,dense,intact,fractured	Gabbro/Diorite,contains few magnetite grains,showing medium to high susceptibility,veins and stringers of quartz
25.10.2011	1057.00	1060.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	84	Altered to clay in some places	Hard,dense,intact,fractured	Gabbro/Diorite,contains few magnetite grains,showing medium to high susceptibility
25.10.2011	1060.00	1063.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	70	Altered to clay in some places	Hard,dense,intact,moderately fractured	Gabbro/Diorite,contains few magnetite grains,showing medium to high susceptibility
25.10.2011	1063.00	1066.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	75	Altered to clay in some places	Hard,dense,intact,moderately fractured	Gabbro/Diorite,contains few magnetite grains,showing medium to high susceptibility
25.10.2011	1066.00	1069.00	3.00	3.00	100	GG	Greenish grey	M to F	69	Altered to clay in some places	Hard,dense,intact,moderately fractured	Granite gneiss,contains phenocrysts of feldspar and quartz,presence of biotite,hornblende and chlorite,low susceptibility,presence of augen gneiss
25.10.2011	1069.00	1072.00	3.00	3.00	100	GG	Greenish grey	M to F	95	Altered to clay in some places	Hard,dense,intact,fractured	Granite gneiss,contains phenocrysts of feldspar and quartz,presence of biotite,hornblende and chlorite,low susceptibility,presence of augen gneiss
25.10.2011	1072.00	1075.00	3.00	3.00	100	GDR	Greenish grey	M to F	80	Altered to clay in some places	Hard,dense,intact,moderately fractured	sheared granodiorite,intrusion of granite gneiss,low susceptibility,presence of augen gneiss
25.10.2011	1075.00	1078.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	76	Altered to clay in some places	Hard,dense,intact,moderately fractured	sheared granodiorite/Diorite,intrusion of granite gneiss,contains few grains of magnetite,medium to high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
25.10.2011	1078.00	1081.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	82	Altered to clay in some places	Hard,dense,intact,moderately fractured	sheared granodiorite/Diorite,intrusion of granite gneiss,low susceptibility,altered with of highly deformed,sheared k-feldspar rich granite
25.10.2011	1081.00	1084.00	3.00	3.00	100	GDR/DR	Greenish grey/Pinkish grey	M to F	64	No	Hard,dense,intact,moderately fractured	sheared granodiorite in a contact with highly sheared,foliated feldspar rich granite,veins of quartz,low susceptibility
25.10.2011	1084.00	1087.00	3.00	3.00	100	GR	Pinkish grey	M to F	91.5	No	Hard,dense,intact,fractured	Silicified highly deformed k-feldpar rich granite,very low susceptibility
25.10.2011	1087.00	1090.00	3.00	3.00	100	GR	Pinkish grey	M to F	100	No	Hard,dense,intact,fractured	Silicified highly deformed k-feldpar rich granite,very low susceptibility
25.10.2011	1090.00	1093.00	3.00	3.00	100	GR/GDR	Greenish grey/Pinkish grey	M to F	85	No	Hard,dense,intact,fractured	Silicified highly deformed k-feldpar rich granite gradually grades into sheared granodiorite,,very low susceptibility,veins of calcite
25.10.2011	1093.00	1096.00	3.00	3.00	100	GDR	Greenish grey	M to F	92	Altered to clay in some places	Soft,dense,intact,fractured	sheared granodiorite altered with sheared silicified granite,low susceptibility,veins of calcite
25.10.2011	1096.00	1099.00	3.00	3.00	100	GDR	Greenish grey	M to F	84	No	Soft,dense,intact,fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,veins of calcite
25.10.2011	1099.00	1102.00	3.00	3.00	100	GDR	Greenish grey	M to F	58	No	Soft,dense,intact,ibroken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,veins of calcite
26.10.2011	1102.00	1105.00	3.00	3.00	100	GDR	Greenish grey	M to F	89	Altered to clay in some places	Soft,brittle,dense,fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,veins of calcite
26.10.2011	1105.00	1108.00	3.00	3.00	100	GDR	Greenish grey	M to F	71	Altered to clay in some places	Soft,brittle,dense,moderately fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,veins of calcite
26.10.2011	1108.00	1111.00	3.00	3.00	100	GDR	Greenish grey	M to F	69	Altered to clay in some places	Broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,altered to clay in some places,veins of calcite
26.10.2011	1111.00	1114.00	3.00	3.00	100	GDR	Greenish grey	M to F	89	Altered to clay in some places	Soft,brittle,dense,fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,veins of calcite
26.10.2011	1114.00	1117.00	3.00	3.00	100	GDR	Greenish grey	M to F	63	Altered to clay in some places	Broken pieces,intensely fractured	sheared granodiorite,chlorite rich mafics,very low susceptibility,stringers of feldspar and quartz,altered to clay in some places,veins of calcite
26.10.2011	1117.00	1120.00	3.00	3.00	100	GR/GDR	Greenish grey	C to M	65	No	Broken pieces,intensely fractured	Highly deformed sheared silicified granite,rich in k-feldspar,phenocrysts of feldspar in some places,gradational contact with sheared granodiorite,low susceptibility,stringers of quartz and feldspar,veins of calcite
26.10.2011	1120.00	1123.00	3.00	3.00	100	GR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Highly deformed sheared silicified granite,rich in k-feldspar,phenocrysts of feldspar in some places,gradational contact with sheared granodiorite,low susceptibility,stringers of quartz and feldspar,low susceptibility,veins of calcite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
26.10.2011	1123.00	1126.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	sheared granodiorite in contact with strongly magnetic Gabbro/Diorite at 1121.50m,contains grains of magnetite, very high susceptibility
26.10.2011	1126.00	1129.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	73	No	Hard,dense,intact,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1129.00	1132.00	3.00	2.94	98	GB/DR	Greenish grey	M to F	80	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1132.00	1135.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1135.00	1138.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1138.00	1141.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1141.00	1144.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1144.00	1147.00	3.00	2.95	98.33	GB/DR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility,veins of calcic plagioclase
26.10.2011	1147.00	1150.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility
26.10.2011	1150.00	1153.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	82	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility,veins and stringers of quartz
27.10.2011	1153.00	1156.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	77	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
27.10.2011	1156.00	1159.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	76	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite risesapparently),very high susceptibility
27.10.2011	1159.00	1162.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently,),very high susceptibility,veins of quartz
27.10.2011	1162.00	1165.00	3.00	3.00	100	GB/DR	Greenish grey	C/M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,% of calcic plagioclase increases in some places(coarse grained),very high susceptibility
27.10.2011	1165.00	1168.00	3.00	3.00	100	GB/DR	Greenish grey	C/M to F	92	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,% of calcic plagioclase increases in some places(coarse grained),very high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
27.10.2011	1168.00	1171.00	3.00	2.94	98	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
27.10.2011	1171.00	1174.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
27.10.2011	1174.00	1177.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
27.10.2011	1177.00	1180.00	3.00	2.91	97	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
27.10.2011	1180.00	1183.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
27.10.2011	1183.00	1186.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
27.10.2011	1186.00	1189.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
27.10.2011	1189.00	1192.00	3.00	2.97	99	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;contact with highly deformed silicified ,k-feldpar rich granite(very low susceptibility,veins and stringers of quartz at 1190.10m;at 1190.35 the strongly magnetic part came again but at 1191.50m the deformed granite starts again;then finally the strongly magnetic Gabbro/Diorite comes again at 1191.70m
27.10.2011	1192.00	1195.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	80	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
28.10.2011	1195.00	1198.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
28.10.2011	1198.00	1201.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	82	No	Hard,intact,dense,broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
28.10.2011	1201.00	1204.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
28.10.2011	1204.00	1207.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
28.10.2011	1207.00	1210.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
28.10.2011	1210.00	1213.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	54	No	Broken pieces,intensely fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
28.10.2011	1213.00	1216.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
28.10.2011	1216.00	1219.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
28.10.2011	1219.00	1222.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1222.00	1225.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
29.10.2011	1225.00	1228.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
29.10.2011	1228.00	1231.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
29.10.2011	1231.00	1234.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
29.10.2011	1234.00	1237.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1237.00	1240.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1240.00	1243.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
29.10.2011	1243.00	1246.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1246.00	1249.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1249.00	1252.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
29.10.2011	1252.00	1255.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
30.10.2011	1255.00	1258.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
30.10.2011	1258.00	1261.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
30.10.2011	1261.00	1264.00	3.00	3.00	100	GB/DR/GDR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1263.20m gradational contact with plagioclase and calcite rich granodiorite/Diorite,low susceptibility
30.10.2011	1264.00	1267.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	85	No	Hard,dense,intact,fractured	Plagioclase and calcite rich granodiorite/Diorite,contains very low % of magnetite,low susceptibility
30.10.2011	1267.00	1270.00	3.00	3.00	100	GDR/DR	Greenish grey	M to F	85	No	Hard,dense,intact,fractured	Plagioclase and calcite rich granodiorite/Diorite,contains very low % of magnetite,low susceptibility
30.10.2011	1270.00	1273.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
30.10.2011	1273.00	1276.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
30.10.2011	1276.00	1279.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1279.00	1282.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1282.00	1285.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1285.00	1288.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
30.10.2011	1288.00	1291.00	3.00	2.91	97	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1291.00	1294.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1294.00	1297.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1297.00	1300.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1300.00	1303.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
30.10.2011	1303.00	1306.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	77	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1306.00	1309.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1309.00	1312.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1312.00	1315.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	74	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
31.10.2011	1315.00	1318.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1318.00	1321.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1321.00	1324.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1324.00	1327.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1327.00	1330.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	82	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1330.00	1333.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1333.00	1336.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1336.00	1339.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
31.10.2011	1339.00	1342.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
01.11.2011	1342.00	1345.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
01.11.2011	1345.00	1348.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	84	No	Hard,dense,broken pieces,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
01.11.2011	1348.00	1351.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
01.11.2011	1351.00	1354.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	86	No	Hard,dense,broken pieces,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite,veins of calcite
01.11.2011	1354.00	1357.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
01.11.2011	1357.00	1360.00	3.00	2.95	98.33	GB/DR	Greenish grey	M to F	95.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,% of plagioclase increases and concentration of magnetite decreases,high susceptibility,presence of pyrite
01.11.2011	1360.00	1363.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,% of plagioclase increases and concentration of magnetite decreases,high susceptibility,presence of pyrite
01.11.2011	1363.00	1366.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,% of plagioclase increases and concentration of magnetite decreases,high susceptibility,presence of pyrite
01.11.2011	1366.00	1369.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite
01.11.2011	1369.00	1372.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
02.11.2011	1372.00	1375.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite
02.11.2011	1375.00	1378.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite
02.11.2011	1378.00	1381.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	71	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains garins of magnetite,very high susceptibility;gradually % of magnetite decreases as % of plagioclase;gradational contact with non magnetic calcite and plagioclase rich granodiorite,very low susceptibility;at 1381.50 strongly magnetic Gabbro/Dirite starts again,presence of pyrite
02.11.2011	1381.00	1384.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite
02.11.2011	1384.00	1387.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	80	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
02.11.2011	1387.00	1390.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	76	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
02.11.2011	1390.00	1393.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
02.11.2011	1393.00	1396.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	61	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
02.11.2011	1396.00	1399.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
02.11.2011	1399.00	1402.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
02.11.2011	1402.00	1405.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	84	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
02.11.2011	1405.00	1408.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
02.11.2011	1408.00	1411.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
02.11.2011	1411.00	1414.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	86	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
07.11.2011	1414.00	1417.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	78	No	Hard,intact,dense,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility
07.11.2011	1417.00	1420.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
07.11.2011	1420.00	1423.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
07.11.2011	1423.00	1426.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
07.11.2011	1426.00	1429.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
07.11.2011	1429.00	1432.00	3.00	2.88	96	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1432.00	1435.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	78	No	Hard,intact,dense,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1435.00	1438.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1438.00	1441.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1441.00	1444.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite
07.11.2011	1444.00	1447.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1447.00	1450.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1450.00	1453.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
07.11.2011	1453.00	1456.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1456.00	1459.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	81	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1459.00	1462.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1462.00	1465.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1465.00	1468.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1468.00	1471.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1471.00	1474.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
07.11.2011	1474.00	1477.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
08.11.2011	1477.00	1480.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
08.11.2011	1480.00	1483.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
08.11.2011	1483.00	1486.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite
08.11.2011	1486.00	1489.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite
08.11.2011	1489.00	1492.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	82	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite
08.11.2011	1492.00	1495.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	72	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility
08.11.2011	1495.00	1498.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Plagiocalse and calcite rich Gabbro/Diorite,contains low content of magnetite,medium susceptibility
08.11.2011	1498.00	1501.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	74	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
08.11.2011	1501.00	1504.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	86	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
08.11.2011	1504.00	1507.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
08.11.2011	1507.00	1510.00	3.00	2.88	96	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
08.11.2011	1510.00	1513.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
08.11.2011	1513.00	1516.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite
09.11.2011	1516.00	1519.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	70	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite and quartz
09.11.2011	1519.00	1522.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	76	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
09.11.2011	1522.00	1525.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
09.11.2011	1525.00	1528.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite
10.11.2011	1528.00	1531.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	87.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite,oriented core
10.11.2011	1531.00	1534.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
10.11.2011	1534.00	1537.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
10.11.2011	1537.00	1540.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
10.11.2011	1540.00	1543.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
10.11.2011	1543.00	1546.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1546.00	1549.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1549.00	1552.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1552.00	1555.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1555.00	1558.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1558.00	1561.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	**Drilling starting date:**	**Completed on :**	**Northing**	**RL**	**Core Size**	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
11.11.2011	1561.00	1564.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
11.11.2011	1564.00	1567.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
11.11.2011	1567.00	1570.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
11.11.2011	1570.00	1573.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
11.11.2011	1573.00	1576.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
12.11.2011	1576.00	1579.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
12.11.2011	1579.00	1582.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
14.11.2011	1582.00	1585.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
14.11.2011	1585.00	1588.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
14.11.2011	1588.00	1591.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
14.11.2011	1591.00	1594.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	77	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
15.11.2011	1594.00	1597.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
15.11.2011	1597.00	1600.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
15.11.2011	1600.00	1603.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
15.11.2011	1603.00	1606.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite,oriented core
15.11.2011	1606.00	1609.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1606.40 contact with quartz and calcite rich part,but at 1606.95 the strongly magnetic part starts again,oriented core
15.11.2011	1609.00	1612.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
15.11.2011	1612.00	1615.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	**Drilling starting date:**	**Completed on :**	**Northing**	**RL**	**Core Size**	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
15.11.2011	1615.00	1618.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
15.11.2011	1618.00	1621.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
15.11.2011	1621.00	1624.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite,oriented core
15.11.2011	1624.00	1627.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
15.11.2011	1627.00	1630.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
15.11.2011	1630.00	1633.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1633.00	1636.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
16.11.2011	1636.00	1639.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
16.11.2011	1639.00	1642.00	3.00	2.91	97	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1642.00	1645.00	3.00	2.94	98	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1645.00	1648.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1648.00	1651.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1651.00	1654.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1654.00	1657.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
16.11.2011	1657.00	1660.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
17.11.2011	1660.00	1663.00	3.00	2.94	98	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of pyrite,oriented core
17.11.2011	1663.00	1666.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	**Drilling starting date:**	**Completed on :**	**Northing**	**RL**	**Core Size**	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
17.11.2011	1666.00	1669.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite,oriented core
17.11.2011	1669.00	1672.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,presence of pyrite,oriented core
17.11.2011	1672.00	1675.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93.5	No	Hard,dense,intact,fractured	Gabbro/Diorite,contains grains of magnetite,rich in calcite,high susceptibility,oriented core
17.11.2011	1675.00	1678.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
18.11.2011	1678.00	1681.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1678.43 contact with plagioclase and calcite rich part that continues till 1680.15 and then the strongly magnetic part starts again,oriented core
18.11.2011	1681.00	1684.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
18.11.2011	1684.00	1687.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
18.11.2011	1687.00	1690.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1687.00 contact with plagioclase and calcite rich part that continues till 1687.20 and from 1687.67 to 1688.14m, then the strongly magnetic part starts again,oriented core
18.11.2011	1690.00	1693.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
18.11.2011	1693.00	1696.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
18.11.2011	1696.00	1699.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
18.11.2011	1699.00	1702.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1703.00m contact with plagioclase and calcite rich part that continues till 1704.00m and then the strongly magnetic part starts again,oriented core
18.11.2011	1702.00	1705.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
19.11.2011	1705.00	1708.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
19.11.2011	1708.00	1711.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
19.11.2011	1711.00	1714.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	86	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
19.11.2011	1714.00	1717.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
19.11.2011	1717.00	1720.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	97.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
19.11.2011	1720.00	1723.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
19.11.2011	1723.00	1726.00	3.00	2.94	98	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
19.11.2011	1726.00	1729.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
20.11.2011	1729.00	1732.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
20.11.2011	1732.00	1735.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
20.11.2011	1735.00	1738.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	86.5	No	Broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility;at 1734.98m contact with plagioclase and calcite rich part that continues till 1735.60.00m and then the strongly magnetic part starts again,oriented core
20.11.2011	1738.00	1741.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,very high susceptibility,at 1738.20m contact with plagioclase and calcite rich portion till 1439.35m;then the strongly magnetic rock starts again,oriented core
20.11.2011	1741.00	1744.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
20.11.2011	1744.00	1747.00	3.00	2.82	94	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
20.11.2011	1747.00	1750.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	80	No	Broken pieces,moderately fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
20.11.2011	1750.00	1753.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	78	No	Broken pieces,moderately fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
21.11.2011	1753.00	1756.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	71	No	Broken pieces,moderately fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
21.11.2011	1756.00	1759.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
21.11.2011	1759.00	1762.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	98.5	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1762.00	1765.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	96	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1765.00	1768.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1768.00	1771.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	82	No	Broken pieces,moderately fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1771.00	1774.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	63	No	Broken pieces,intensely fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
22.11.2011	1774.00	1777.00	3.00	3.00	100	GB/DR	Greenish/pinkish grey	C to M	94	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1777.00	1780.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1780.00	1783.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1783.00	1786.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1786.00	1789.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
22.11.2011	1789.00	1792.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	97.5	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
23.11.2011	1792.00	1795.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
23.11.2011	1795.00	1798.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	94	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
23.11.2011	1798.00	1801.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
23.11.2011	1801.00	1804.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
23.11.2011	1804.00	1807.00	3.00	3.00	100	GB/DR	Greenish grey	C to M/M to F	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility,oriented core
23.11.2011	1807.00	1810.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Gabbro/Diorite,rich in plagioclase,contains low percentage of magnetite,medium susceptibility;gradational contact with strongly magnetic Gabbro/Diorite,contains high percentage of magnetite than before,high susceptibility,veins of calcite,oriented core
23.11.2011	1810.00	1813.00	3.00	3.00	100	GB/DR	Greenish grey	C to M/M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite ,contains magnetite,very high susceptibility;gradational contact with plagioclase rich portion at 1810.12m and continues till 1811.30m,after then the strongly magnetic Gabbro/Diorite starts again,oriented core
23.11.2011	1813.00	1816.00	3.00	3.00	100	GB/DR	Greenish grey	C to M/M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite ,contains magnetite,very high susceptibility;gradational contact with plagioclase rich portion at 1815.70m and continues till 1817.00m,after then the strongly magnetic Gabbro/Diorite starts again,oriented core
23.11.2011	1816.00	1819.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
23.11.2011	1819.00	1822.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
24.11.2011	1822.00	1825.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
24.11.2011	1825.00	1828.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
24.11.2011	1828.00	1831.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
24.11.2011	1831.00	1834.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,veins of calcite,oriented core
24.11.2011	1834.00	1837.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
24.11.2011	1837.00	1840.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
24.11.2011	1840.00	1843.00	3.00	3.00	100	GB/DR	Greenish grey	C to M	77	No	Hard,dense,intact,moderately fractured	Strongly magnetic Gabbro/Diorite ,contains magnetite,very high susceptibility;gradational contact with plagioclase rich portion at 1841.30m and continues till 1842.05m,after then the strongly magnetic Gabbro/Diorite starts again,oriented core
25.11.2011	1843.00	1846.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
25.11.2011	1846.00	1849.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
25.11.2011	1849.00	1852.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
28.11.2011	1852.00	1855.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
28.11.2011	1855.00	1858.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
28.11.2011	1858.00	1861.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
28.11.2011	1861.00	1864.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
28.11.2011	1864.00	1867.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
28.11.2011	1867.00	1870.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,veins of calcite,oriented core
28.11.2011	1870.00	1873.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
28.11.2011	1873.00	1876.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently),very high susceptibility,oriented core
28.11.2011	1876.00	1879.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
28.11.2011	1879.00	1882.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	99	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
28.11.2011	1882.00	1885.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1885.00	1888.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1888.00	1891.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1891.00	1894.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1894.00	1897.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	78	No	Hard,dense,intact,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
29.11.2011	1897.00	1900.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	94	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1900.00	1903.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1903.00	1906.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
29.11.2011	1906.00	1909.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1909.00	1912.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1912.00	1915.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
29.11.2011	1915.00	1918.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1918.00	1921.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	89	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1921.00	1924.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	92	No	Hard,dense,broken pieces,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1924.00	1927.00	3.00	2.97	99	GB/DR	Greenish grey	M to F	79	No	Hard,dense,broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1927.00	1930.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1930.00	1933.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	98.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
30.11.2011	1933.00	1936.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1936.00	1939.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	74	No	Hard,dense,broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
30.11.2011	1939.00	1942.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	70	No	Hard,dense,broken pieces,moderately fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
30.11.2011	1942.00	1945.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	93	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
01.12.2011	1945.00	1948.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
01.12.2011	1948.00	1951.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
01.12.2011	1951.00	1954.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
01.12.2011	1954.00	1957.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	**Drilling starting date:**	**Completed on :**	**Northing**	**RL**	**Core Size**	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
01.12.2011	1957.00	1960.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96	No	Hard,dense,broken pieces,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
01.12.2011	1960.00	1963.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	97	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
01.12.2011	1963.00	1966.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	85	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
01.12.2011	1966.00	1969.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	83	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
01.12.2011	1969.00	1972.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
01.12.2011	1972.00	1975.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	1975.00	1978.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
05.12.2011	1978.00	1981.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	96.5	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
05.12.2011	1981.00	1984.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	91	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
05.12.2011	1984.00	1987.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	78	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,oriented core
05.12.2011	1987.00	1990.00	3.00	2.85	95	GB/DR	Greenish grey	M to F	90	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	1990.00	1993.00	3.00	2.85	95	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	1993.00	1996.00	3.00	2.96	98.67	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	1996.00	1999.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	95	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	1999.00	2002.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	88	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core

SALVA RESOURCES

ASERA IRON ORE EXPLORATION PROJECT, SWEDEN - Geological Logging Sheet

Drill Make	Drill Type	B.H. No	Easting	Location	Drill collar length	Total depth
Discovery EF-75	Wireline core	2.00	449670	Granback		
Driller	Drilling starting date:	Completed on :	Northing	RL	Core Size	
Paul/Emile/Raymond	10.09.2011	01.12.2011	6410448	107.00	HQ/NQ	2008

Date	Drilling Run		Drilling Meterage	Core Length	Core Recovery	Lithocode	Lithology Description					
	From	To					Colour	Grain size	RQD	Weathering/Alteration	GT Description	Geological Description
05.12.2011	2002.00	2005.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core
05.12.2011	2005.00	2008.00	3.00	3.00	100	GB/DR	Greenish grey	M to F	100	No	Hard,dense,intact,fractured	Strongly magnetic Gabbro/Diorite,contains grains of magnetite,concentration of magnetite increases in some places(cm scale bands;where the concentration magnetite rises apparently) and alternatively % of calcic plagioclase increases in some places ,where the % of magnetite decreases,very high susceptibility,presence of calcite,oriented core

Survey of dip and azimuth, Bh3

DOWNHOLE SURVEY RESULTS FOR: bh32012

Survey type:	Reflex Maxibor II
Location:	vattern
Country:	

Client name:	
Client reference:	
Surveyed by:	ud
Survey date:	20120928
Drill diameter:	nq
Survey run on:	Rods
Probe length:	6.0 Metres
Station interval:	3.0 Metres

Angular units:	Degrees	Survey tool:	Reflex Maxibor II
Linear units:	Metres	Tool owner:	DDMC BorrmÂ„tning AB
Elev. convention:	Positive Downwards	Serial number:	020-017
Dip convention:	0 horiz. +ve down	Software version:	v1.00

Position at start of survey (0,0 metres)

East	North	Elevation	Dip	Azimuth
451541,00	6410460,00	0,00	88,2	334,0

Position at end of survey (1881,0 metres)

East	North	Elevation	Dip	Azimuth
451333,08	6410560,61	1851,77	77,2	349,7

Local co-ordinates at end of survey (offsets):

142,77 metres LEFT. **123,15 metres UP.**

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
0,0	OK	451541,00	6410460,00	0,00	88,2	334,0
3,0	OK	451540,96	6410460,08	3,00	88,1	334,2
6,0	OK	451540,92	6410460,17	6,00	88,0	332,3
9,0	OK	451540,87	6410460,27	9,00	87,9	329,9
12,0	OK	451540,81	6410460,36	11,99	87,9	326,2
15,0	OK	451540,75	6410460,45	14,99	88,1	322,8
18,0	OK	451540,69	6410460,53	17,99	88,4	316,4
21,0	OK	451540,63	6410460,59	20,99	88,5	312,2
24,0	OK	451540,57	6410460,64	23,99	88,6	309,6
27,0	OK	451540,52	6410460,69	26,99	88,7	303,9
30,0	OK	451540,46	6410460,73	29,99	88,7	297,4
33,0	OK	451540,40	6410460,76	32,98	88,6	291,6
36,0	OK	451540,33	6410460,79	35,98	88,5	289,6
39,0	OK	451540,26	6410460,81	38,98	88,3	287,8
42,0	OK	451540,17	6410460,84	41,98	88,0	287,9
45,0	OK	451540,08	6410460,87	44,98	88,1	288,8
48,0	OK	451539,98	6410460,90	47,98	87,8	287,7
51,0	OK	451539,87	6410460,94	50,98	87,7	291,1
54,0	OK	451539,76	6410460,98	53,97	87,8	294,1
57,0	OK	451539,65	6410461,03	56,97	87,8	297,8
60,0	OK	451539,55	6410461,08	59,97	87,8	301,9
63,0	OK	451539,45	6410461,15	62,97	87,8	305,4
66,0	OK	451539,36	6410461,21	65,96	87,8	308,7
69,0	OK	451539,27	6410461,28	68,96	88,0	309,4
72,0	OK	451539,19	6410461,35	71,96	87,8	308,0
75,0	OK	451539,10	6410461,42	74,96	88,0	309,8
78,0	OK	451539,02	6410461,49	77,96	87,9	307,0
81,0	OK	451538,93	6410461,56	80,95	88,0	306,7
84,0	OK	451538,84	6410461,62	83,95	87,8	304,7
87,0	OK	451538,75	6410461,68	86,95	87,8	307,6
90,0	OK	451538,66	6410461,75	89,95	87,9	307,9
93,0	OK	451538,57	6410461,82	92,95	87,8	307,2
96,0	OK	451538,48	6410461,89	95,94	87,7	309,7
99,0	OK	451538,39	6410461,97	98,94	87,9	311,0
102,0	OK	451538,30	6410462,04	101,94	87,9	308,3
105,0	OK	451538,22	6410462,11	104,94	87,9	306,9
108,0	OK	451538,13	6410462,17	107,94	87,9	304,2
111,0	OK	451538,04	6410462,24	110,93	87,9	300,3
114,0	OK	451537,94	6410462,29	113,93	88,0	296,2
117,0	OK	451537,85	6410462,34	116,93	87,7	294,0
120,0	OK	451537,74	6410462,39	119,93	87,8	296,4
123,0	OK	451537,64	6410462,44	122,92	87,9	296,6
126,0	OK	451537,54	6410462,49	125,92	87,9	296,3
129,0	OK	451537,44	6410462,54	128,92	88,2	295,1
132,0	OK	451537,36	6410462,57	131,92	88,2	290,9
135,0	OK	451537,27	6410462,61	134,92	88,3	289,3
138,0	OK	451537,19	6410462,64	137,92	88,3	283,0
141,0	OK	451537,10	6410462,66	140,92	88,2	277,0
144,0	OK	451537,01	6410462,67	143,91	88,2	271,9
147,0	OK	451536,92	6410462,67	146,91	88,1	266,8
150,0	OK	451536,82	6410462,67	149,91	88,0	263,1
153,0	OK	451536,71	6410462,65	152,91	87,9	263,1

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
156,0	OK	451536,61	6410462,64	155,91	87,8	264,1
159,0	OK	451536,49	6410462,63	158,91	87,9	264,6
162,0	OK	451536,38	6410462,62	161,90	87,9	266,3
165,0	OK	451536,27	6410462,61	164,90	87,8	266,7
168,0	OK	451536,16	6410462,60	167,90	88,0	269,0
171,0	OK	451536,05	6410462,60	170,90	87,9	267,4
174,0	OK	451535,94	6410462,60	173,89	88,0	266,2
177,0	OK	451535,83	6410462,59	176,89	87,8	265,0
180,0	OK	451535,72	6410462,58	179,89	87,8	267,6
183,0	OK	451535,60	6410462,57	182,89	87,8	268,7
186,0	OK	451535,49	6410462,57	185,89	87,8	270,5
189,0	OK	451535,37	6410462,57	188,88	87,7	272,1
192,0	OK	451535,26	6410462,58	191,88	87,8	274,5
195,0	OK	451535,14	6410462,59	194,88	87,7	277,1
198,0	OK	451535,02	6410462,60	197,88	87,8	277,9
201,0	OK	451534,91	6410462,62	200,87	87,8	279,9
204,0	OK	451534,79	6410462,64	203,87	87,7	281,1
207,0	OK	451534,67	6410462,66	206,87	87,8	283,4
210,0	OK	451534,56	6410462,69	209,87	87,7	284,4
213,0	OK	451534,45	6410462,72	212,87	87,8	286,8
216,0	OK	451534,34	6410462,75	215,86	87,7	288,9
219,0	OK	451534,22	6410462,79	218,86	87,8	291,8
222,0	OK	451534,11	6410462,83	221,86	88,0	292,7
225,0	OK	451534,02	6410462,87	224,86	87,7	290,9
228,0	OK	451533,91	6410462,92	227,85	87,8	293,6
231,0	OK	451533,80	6410462,96	230,85	87,7	295,8
234,0	OK	451533,69	6410463,01	233,85	87,8	298,6
237,0	OK	451533,59	6410463,07	236,85	87,9	299,1
240,0	OK	451533,49	6410463,12	239,85	87,7	298,1
243,0	OK	451533,38	6410463,18	242,84	87,8	299,8
246,0	OK	451533,29	6410463,24	245,84	87,7	299,6
249,0	OK	451533,18	6410463,30	248,84	87,7	302,3
252,0	OK	451533,08	6410463,36	251,84	87,9	301,8
255,0	OK	451532,99	6410463,42	254,83	87,9	298,6
258,0	OK	451532,89	6410463,47	257,83	87,9	297,0
261,0	OK	451532,79	6410463,52	260,83	87,9	295,1
264,0	OK	451532,69	6410463,57	263,83	87,8	295,2
267,0	OK	451532,59	6410463,62	266,83	87,9	293,7
270,0	OK	451532,49	6410463,66	269,82	87,8	291,6
273,0	OK	451532,38	6410463,71	272,82	87,9	291,3
276,0	OK	451532,27	6410463,75	275,82	87,7	289,8
279,0	OK	451532,16	6410463,79	278,82	87,9	291,1
282,0	OK	451532,06	6410463,83	281,82	87,8	288,9
285,0	OK	451531,95	6410463,86	284,81	87,8	289,4
288,0	OK	451531,84	6410463,90	287,81	87,8	286,6
291,0	OK	451531,73	6410463,93	290,81	87,7	285,9
294,0	OK	451531,61	6410463,97	293,81	87,8	286,2
297,0	OK	451531,50	6410464,00	296,80	87,7	284,1
300,0	OK	451531,39	6410464,03	299,80	87,8	282,6
303,0	OK	451531,28	6410464,05	302,80	87,7	280,0
306,0	OK	451531,16	6410464,07	305,80	87,8	278,6
309,0	OK	451531,04	6410464,09	308,79	87,8	276,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
312,0	OK	451530,93	6410464,10	311,79	87,8	274,1
315,0	OK	451530,81	6410464,11	314,79	87,8	270,7
318,0	OK	451530,70	6410464,11	317,79	87,8	268,7
321,0	OK	451530,58	6410464,11	320,79	87,8	266,6
324,0	OK	451530,46	6410464,10	323,78	87,7	264,5
327,0	OK	451530,34	6410464,09	326,78	87,7	263,8
330,0	OK	451530,22	6410464,08	329,78	87,6	264,2
333,0	OK	451530,10	6410464,07	332,78	87,6	267,2
336,0	OK	451529,97	6410464,06	335,77	87,7	268,7
339,0	OK	451529,85	6410464,06	338,77	87,7	268,1
342,0	OK	451529,73	6410464,05	341,77	87,7	267,5
345,0	OK	451529,61	6410464,05	344,77	87,7	266,8
348,0	OK	451529,49	6410464,04	347,76	87,8	265,0
351,0	OK	451529,38	6410464,03	350,76	87,8	262,4
354,0	OK	451529,26	6410464,02	353,76	87,6	262,1
357,0	OK	451529,14	6410464,00	356,76	87,6	264,0
360,0	OK	451529,01	6410463,99	359,75	87,8	264,8
363,0	OK	451528,90	6410463,98	362,75	87,6	263,0
366,0	OK	451528,77	6410463,96	365,75	87,7	264,5
369,0	OK	451528,65	6410463,95	368,75	87,8	262,9
372,0	OK	451528,53	6410463,93	371,74	87,7	260,1
375,0	OK	451528,42	6410463,91	374,74	87,7	257,3
378,0	OK	451528,30	6410463,89	377,74	87,7	254,4
381,0	OK	451528,18	6410463,86	380,74	87,6	252,4
384,0	OK	451528,06	6410463,82	383,73	87,6	250,0
387,0	OK	451527,94	6410463,77	386,73	87,5	247,4
390,0	OK	451527,82	6410463,72	389,73	87,5	244,9
393,0	OK	451527,70	6410463,67	392,73	87,4	242,4
396,0	OK	451527,58	6410463,61	395,72	87,3	239,8
399,0	OK	451527,46	6410463,54	398,72	87,3	237,1
402,0	OK	451527,34	6410463,46	401,72	87,2	234,7
405,0	OK	451527,23	6410463,37	404,71	87,1	231,6
408,0	OK	451527,11	6410463,28	407,71	87,1	229,4
411,0	OK	451526,99	6410463,18	410,71	86,9	227,0
414,0	OK	451526,87	6410463,07	413,70	86,8	225,1
417,0	OK	451526,76	6410462,95	416,70	86,7	222,9
420,0	OK	451526,64	6410462,83	419,69	86,6	220,6
423,0	OK	451526,52	6410462,69	422,69	86,5	218,1
426,0	OK	451526,41	6410462,55	425,68	86,4	216,0
429,0	OK	451526,30	6410462,39	428,67	86,3	213,7
432,0	OK	451526,19	6410462,23	431,67	86,3	211,5
435,0	OK	451526,09	6410462,07	434,66	86,1	209,3
438,0	OK	451525,99	6410461,89	437,65	86,1	207,7
441,0	OK	451525,89	6410461,71	440,65	86,0	205,6
444,0	OK	451525,80	6410461,52	443,64	86,0	203,6
447,0	OK	451525,72	6410461,33	446,63	85,9	201,9
450,0	OK	451525,64	6410461,13	449,63	85,8	199,6
453,0	OK	451525,57	6410460,93	452,62	85,8	197,7
456,0	OK	451525,50	6410460,72	455,61	85,7	195,9
459,0	OK	451525,44	6410460,50	458,60	85,6	194,2
462,0	OK	451525,38	6410460,27	461,59	85,6	192,5
465,0	OK	451525,33	6410460,05	464,58	85,4	191,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
468,0	OK	451525,28	6410459,81	467,57	85,5	190,3
471,0	OK	451525,24	6410459,58	470,56	85,4	189,0
474,0	OK	451525,20	6410459,35	473,55	85,4	187,7
477,0	OK	451525,17	6410459,11	476,55	85,3	186,1
480,0	OK	451525,15	6410458,86	479,54	85,3	185,0
483,0	OK	451525,12	6410458,62	482,52	85,2	183,7
486,0	OK	451525,11	6410458,37	485,51	85,0	183,5
489,0	OK	451525,09	6410458,11	488,50	85,1	183,9
492,0	OK	451525,08	6410457,85	491,49	85,0	184,0
495,0	OK	451525,06	6410457,59	494,48	85,0	185,4
498,0	OK	451525,03	6410457,33	497,47	85,1	186,7
501,0	OK	451525,00	6410457,07	500,46	85,0	187,0
504,0	OK	451524,97	6410456,81	503,45	84,9	187,5
507,0	OK	451524,94	6410456,55	506,43	85,0	188,1
510,0	OK	451524,90	6410456,29	509,42	84,9	188,0
513,0	OK	451524,86	6410456,02	512,41	84,8	188,8
516,0	OK	451524,82	6410455,76	515,40	84,7	189,2
519,0	OK	451524,78	6410455,49	518,39	84,7	190,1
522,0	OK	451524,73	6410455,22	521,37	84,7	190,6
525,0	OK	451524,68	6410454,94	524,36	84,7	191,3
528,0	OK	451524,62	6410454,67	527,35	84,6	191,9
531,0	OK	451524,56	6410454,39	530,33	84,6	192,4
534,0	OK	451524,50	6410454,11	533,32	84,5	192,7
537,0	OK	451524,44	6410453,84	536,31	84,5	192,7
540,0	OK	451524,38	6410453,56	539,29	84,4	193,6
543,0	OK	451524,31	6410453,27	542,28	84,4	194,3
546,0	OK	451524,23	6410452,99	545,27	84,4	194,9
549,0	OK	451524,16	6410452,70	548,25	84,3	195,6
552,0	OK	451524,08	6410452,41	551,24	84,2	196,2
555,0	OK	451523,99	6410452,12	554,22	84,2	196,6
558,0	OK	451523,91	6410451,83	557,20	84,1	197,5
561,0	OK	451523,81	6410451,54	560,19	84,1	197,8
564,0	OK	451523,72	6410451,25	563,17	84,0	198,7
567,0	OK	451523,62	6410450,95	566,16	84,0	199,1
570,0	OK	451523,52	6410450,65	569,14	83,9	199,9
573,0	OK	451523,41	6410450,35	572,12	83,9	200,6
576,0	OK	451523,30	6410450,06	575,11	83,9	201,3
579,0	OK	451523,18	6410449,76	578,09	83,8	201,8
582,0	OK	451523,06	6410449,46	581,07	83,8	202,5
585,0	OK	451522,94	6410449,16	584,05	83,7	203,1
588,0	OK	451522,81	6410448,86	587,04	83,7	203,5
591,0	OK	451522,68	6410448,56	590,02	83,6	204,5
594,0	OK	451522,54	6410448,25	593,00	83,7	205,1
597,0	OK	451522,40	6410447,95	595,98	83,6	205,8
600,0	OK	451522,25	6410447,65	598,96	83,6	206,5
603,0	OK	451522,10	6410447,36	601,94	83,7	207,2
606,0	OK	451521,95	6410447,06	604,93	83,6	208,2
609,0	OK	451521,79	6410446,77	607,91	83,6	208,7
612,0	OK	451521,63	6410446,47	610,89	83,6	209,6
615,0	OK	451521,47	6410446,18	613,87	83,6	210,1
618,0	OK	451521,30	6410445,89	616,85	83,5	211,0
621,0	OK	451521,12	6410445,60	619,83	83,5	211,7

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
624,0	OK	451520,95	6410445,31	622,81	83,5	212,6
627,0	OK	451520,76	6410445,02	625,79	83,5	213,4
630,0	OK	451520,58	6410444,74	628,77	83,4	214,0
633,0	OK	451520,38	6410444,46	631,75	83,5	214,9
636,0	OK	451520,19	6410444,17	634,73	83,4	215,6
639,0	OK	451519,99	6410443,89	637,71	83,4	216,6
642,0	OK	451519,78	6410443,61	640,69	83,4	217,3
645,0	OK	451519,57	6410443,34	643,67	83,3	218,0
648,0	OK	451519,36	6410443,07	646,65	83,3	218,9
651,0	OK	451519,14	6410442,80	649,63	83,3	219,7
654,0	OK	451518,91	6410442,53	652,61	83,3	220,3
657,0	OK	451518,69	6410442,26	655,59	83,2	221,3
660,0	OK	451518,46	6410441,99	658,57	83,2	222,0
663,0	OK	451518,22	6410441,73	661,55	83,2	222,8
666,0	OK	451517,98	6410441,47	664,53	83,2	223,6
669,0	OK	451517,73	6410441,21	667,51	83,1	224,3
672,0	OK	451517,48	6410440,96	670,49	83,1	224,6
675,0	OK	451517,23	6410440,70	673,47	83,1	225,6
678,0	OK	451516,97	6410440,45	676,44	83,1	225,9
681,0	OK	451516,71	6410440,20	679,42	83,0	226,8
684,0	OK	451516,45	6410439,95	682,40	83,1	227,5
687,0	OK	451516,18	6410439,70	685,38	83,0	228,3
690,0	OK	451515,91	6410439,46	688,36	83,0	229,1
693,0	OK	451515,63	6410439,22	691,33	83,0	229,5
696,0	OK	451515,35	6410438,98	694,31	82,9	230,5
699,0	OK	451515,06	6410438,75	697,29	82,9	231,0
702,0	OK	451514,78	6410438,51	700,26	82,8	232,2
705,0	OK	451514,48	6410438,28	703,24	82,9	232,9
708,0	OK	451514,18	6410438,06	706,22	82,8	233,9
711,0	OK	451513,88	6410437,84	709,19	82,8	234,9
714,0	OK	451513,57	6410437,62	712,17	82,8	235,4
717,0	OK	451513,26	6410437,40	715,15	82,7	236,2
720,0	OK	451512,94	6410437,19	718,12	82,6	236,9
723,0	OK	451512,62	6410436,98	721,10	82,6	237,5
726,0	OK	451512,29	6410436,77	724,07	82,5	238,3
729,0	OK	451511,96	6410436,57	727,05	82,5	239,3
732,0	OK	451511,62	6410436,37	730,02	82,4	239,8
735,0	OK	451511,28	6410436,17	732,99	82,4	240,6
738,0	OK	451510,94	6410435,98	735,97	82,3	241,7
741,0	OK	451510,58	6410435,79	738,94	82,3	242,6
744,0	OK	451510,23	6410435,60	741,91	82,3	243,2
747,0	OK	451509,87	6410435,42	744,89	82,3	243,9
750,0	OK	451509,51	6410435,24	747,86	82,2	244,6
753,0	OK	451509,14	6410435,07	750,83	82,1	245,3
756,0	OK	451508,77	6410434,90	753,80	82,1	246,1
759,0	OK	451508,39	6410434,73	756,78	82,0	246,5
762,0	OK	451508,01	6410434,56	759,75	82,0	247,1
765,0	OK	451507,62	6410434,40	762,72	81,9	247,6
768,0	OK	451507,23	6410434,24	765,69	81,9	248,4
771,0	OK	451506,83	6410434,08	768,66	81,8	248,8
774,0	OK	451506,43	6410433,93	771,63	81,8	249,5
777,0	OK	451506,03	6410433,78	774,60	81,6	249,6

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
780,0	OK	451505,62	6410433,62	777,56	81,6	250,2
783,0	OK	451505,21	6410433,48	780,53	81,5	251,0
786,0	OK	451504,79	6410433,33	783,50	81,5	251,3
789,0	OK	451504,37	6410433,19	786,47	81,4	251,8
792,0	OK	451503,94	6410433,05	789,43	81,3	252,5
795,0	OK	451503,51	6410432,91	792,40	81,2	253,0
798,0	OK	451503,07	6410432,78	795,36	81,1	253,5
801,0	OK	451502,62	6410432,65	798,33	81,0	254,1
804,0	OK	451502,17	6410432,52	801,29	81,0	254,5
807,0	OK	451501,72	6410432,39	804,25	80,9	254,9
810,0	OK	451501,26	6410432,27	807,21	80,9	255,5
813,0	OK	451500,79	6410432,15	810,17	80,8	255,7
816,0	OK	451500,33	6410432,03	813,14	80,8	256,2
819,0	OK	451499,86	6410431,91	816,10	80,7	256,2
822,0	OK	451499,39	6410431,80	819,06	80,6	256,7
825,0	OK	451498,92	6410431,69	822,02	80,5	256,7
828,0	OK	451498,44	6410431,57	824,98	80,6	256,9
831,0	OK	451497,96	6410431,46	827,94	80,5	257,3
834,0	OK	451497,47	6410431,35	830,90	80,5	257,7
837,0	OK	451496,99	6410431,25	833,85	80,6	257,8
840,0	OK	451496,51	6410431,14	836,81	80,6	258,1
843,0	OK	451496,03	6410431,04	839,77	80,6	258,7
846,0	OK	451495,55	6410430,95	842,73	80,4	259,3
849,0	OK	451495,06	6410430,85	845,69	80,3	260,0
852,0	OK	451494,57	6410430,77	848,65	80,3	260,5
855,0	OK	451494,07	6410430,68	851,61	80,2	260,7
858,0	OK	451493,56	6410430,60	854,56	80,1	261,2
861,0	OK	451493,05	6410430,52	857,52	80,1	261,6
864,0	OK	451492,54	6410430,45	860,47	79,9	262,2
867,0	OK	451492,02	6410430,38	863,43	80,0	262,4
870,0	OK	451491,50	6410430,31	866,38	79,9	262,7
873,0	OK	451490,98	6410430,24	869,33	79,8	263,0
876,0	OK	451490,45	6410430,18	872,29	79,7	262,9
879,0	OK	451489,92	6410430,11	875,24	79,5	263,0
882,0	OK	451489,38	6410430,04	878,19	79,4	263,4
885,0	OK	451488,83	6410429,98	881,14	79,4	263,4
888,0	OK	451488,29	6410429,92	884,09	79,3	263,9
891,0	OK	451487,73	6410429,86	887,03	79,4	264,2
894,0	OK	451487,18	6410429,80	889,98	79,3	264,6
897,0	OK	451486,63	6410429,75	892,93	79,3	264,8
900,0	OK	451486,08	6410429,70	895,88	79,3	265,1
903,0	OK	451485,52	6410429,65	898,83	79,2	265,4
906,0	OK	451484,96	6410429,61	901,77	79,2	265,5
909,0	OK	451484,40	6410429,56	904,72	79,1	266,1
912,0	OK	451483,83	6410429,52	907,67	79,1	266,2
915,0	OK	451483,26	6410429,48	910,61	79,1	266,4
918,0	OK	451482,70	6410429,45	913,56	78,9	266,9
921,0	OK	451482,12	6410429,42	916,50	78,9	267,1
924,0	OK	451481,54	6410429,39	919,44	78,8	267,4
927,0	OK	451480,96	6410429,36	922,39	78,8	267,8
930,0	OK	451480,38	6410429,34	925,33	78,7	268,0
933,0	OK	451479,79	6410429,32	928,27	78,8	268,3

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
936,0	OK	451479,20	6410429,30	931,21	78,6	268,6
939,0	OK	451478,61	6410429,29	934,16	78,6	268,8
942,0	OK	451478,02	6410429,28	937,10	78,6	269,2
945,0	OK	451477,43	6410429,27	940,04	78,6	269,5
948,0	OK	451476,83	6410429,26	942,98	78,5	269,8
951,0	OK	451476,23	6410429,26	945,92	78,5	270,1
954,0	OK	451475,63	6410429,26	948,86	78,4	270,5
957,0	OK	451475,03	6410429,27	951,80	78,4	270,8
960,0	OK	451474,43	6410429,27	954,73	78,4	271,1
963,0	OK	451473,82	6410429,29	957,67	78,3	271,3
966,0	OK	451473,21	6410429,30	960,61	78,3	271,6
969,0	OK	451472,61	6410429,32	963,55	78,2	271,9
972,0	OK	451471,99	6410429,34	966,48	78,2	272,2
975,0	OK	451471,38	6410429,36	969,42	78,2	272,4
978,0	OK	451470,77	6410429,39	972,36	78,2	272,7
981,0	OK	451470,15	6410429,42	975,29	78,1	273,0
984,0	OK	451469,54	6410429,45	978,23	78,2	273,0
987,0	OK	451468,92	6410429,48	981,17	78,1	273,3
990,0	OK	451468,30	6410429,52	984,10	78,1	273,8
993,0	OK	451467,68	6410429,56	987,04	78,1	273,9
996,0	OK	451467,06	6410429,60	989,97	78,0	274,4
999,0	OK	451466,44	6410429,65	992,91	78,0	274,6
1002,0	OK	451465,82	6410429,70	995,84	78,0	275,1
1005,0	OK	451465,20	6410429,75	998,77	78,0	275,5
1008,0	OK	451464,58	6410429,81	1001,71	78,0	275,9
1011,0	OK	451463,96	6410429,88	1004,64	78,0	276,3
1014,0	OK	451463,34	6410429,95	1007,58	78,0	276,5
1017,0	OK	451462,72	6410430,02	1010,51	78,0	276,9
1020,0	OK	451462,10	6410430,09	1013,45	78,0	277,0
1023,0	OK	451461,48	6410430,17	1016,38	77,9	277,4
1026,0	OK	451460,85	6410430,25	1019,31	77,9	277,6
1029,0	OK	451460,23	6410430,33	1022,25	77,9	277,9
1032,0	OK	451459,61	6410430,42	1025,18	77,8	278,4
1035,0	OK	451458,98	6410430,51	1028,11	77,9	278,6
1038,0	OK	451458,36	6410430,60	1031,05	77,9	279,0
1041,0	OK	451457,74	6410430,70	1033,98	77,8	279,3
1044,0	OK	451457,11	6410430,80	1036,91	77,8	279,6
1047,0	OK	451456,49	6410430,91	1039,84	77,8	280,0
1050,0	OK	451455,87	6410431,02	1042,78	77,8	280,1
1053,0	OK	451455,24	6410431,13	1045,71	77,8	280,6
1056,0	OK	451454,62	6410431,25	1048,64	77,8	280,8
1059,0	OK	451454,00	6410431,36	1051,57	77,8	281,2
1062,0	OK	451453,37	6410431,49	1054,51	77,7	281,4
1065,0	OK	451452,74	6410431,61	1057,44	77,7	281,8
1068,0	OK	451452,12	6410431,74	1060,37	77,7	282,1
1071,0	OK	451451,49	6410431,88	1063,30	77,8	282,4
1074,0	OK	451450,87	6410432,02	1066,23	77,7	282,7
1077,0	OK	451450,25	6410432,16	1069,16	77,7	282,9
1080,0	OK	451449,62	6410432,30	1072,09	77,6	283,2
1083,0	OK	451449,00	6410432,45	1075,02	77,6	283,6
1086,0	OK	451448,37	6410432,60	1077,95	77,6	283,7
1089,0	OK	451447,75	6410432,75	1080,88	77,5	284,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1092,0	OK	451447,12	6410432,91	1083,81	77,5	284,4
1095,0	OK	451446,49	6410433,07	1086,74	77,5	284,4
1098,0	OK	451445,86	6410433,23	1089,67	77,4	284,9
1101,0	OK	451445,22	6410433,40	1092,60	77,4	285,0
1104,0	OK	451444,59	6410433,57	1095,52	77,3	285,2
1107,0	OK	451443,96	6410433,74	1098,45	77,3	285,6
1110,0	OK	451443,32	6410433,92	1101,38	77,3	285,8
1113,0	OK	451442,68	6410434,10	1104,30	77,2	286,0
1116,0	OK	451442,04	6410434,28	1107,23	77,2	286,3
1119,0	OK	451441,41	6410434,47	1110,15	77,1	286,4
1122,0	OK	451440,76	6410434,66	1113,08	77,0	286,8
1125,0	OK	451440,12	6410434,85	1116,00	77,0	286,8
1128,0	OK	451439,47	6410435,05	1118,93	77,0	287,1
1131,0	OK	451438,83	6410435,25	1121,85	76,9	287,6
1134,0	OK	451438,18	6410435,45	1124,77	76,9	287,7
1137,0	OK	451437,53	6410435,66	1127,69	76,8	288,1
1140,0	OK	451436,88	6410435,87	1130,61	76,8	288,2
1143,0	OK	451436,23	6410436,09	1133,53	76,9	288,5
1146,0	OK	451435,58	6410436,30	1136,46	76,8	288,9
1149,0	OK	451434,94	6410436,53	1139,38	76,7	289,3
1152,0	OK	451434,28	6410436,75	1142,30	76,7	289,6
1155,0	OK	451433,63	6410436,99	1145,22	76,7	289,9
1158,0	OK	451432,99	6410437,22	1148,13	76,7	290,3
1161,0	OK	451432,34	6410437,46	1151,05	76,7	290,7
1164,0	OK	451431,69	6410437,71	1153,97	76,6	291,0
1167,0	OK	451431,04	6410437,96	1156,89	76,7	291,1
1170,0	OK	451430,39	6410438,20	1159,81	76,6	291,3
1173,0	OK	451429,74	6410438,46	1162,73	76,5	291,3
1176,0	OK	451429,09	6410438,71	1165,65	76,4	291,6
1179,0	OK	451428,44	6410438,97	1168,56	76,4	291,9
1182,0	OK	451427,79	6410439,23	1171,48	76,4	292,4
1185,0	OK	451427,14	6410439,50	1174,39	76,4	292,8
1188,0	OK	451426,49	6410439,78	1177,31	76,4	293,1
1191,0	OK	451425,84	6410440,05	1180,23	76,4	293,5
1194,0	OK	451425,19	6410440,33	1183,14	76,4	293,9
1197,0	OK	451424,54	6410440,62	1186,06	76,3	294,2
1200,0	OK	451423,90	6410440,91	1188,97	76,2	294,5
1203,0	OK	451423,25	6410441,21	1191,89	76,2	294,8
1206,0	OK	451422,60	6410441,51	1194,80	76,1	294,9
1209,0	OK	451421,95	6410441,81	1197,71	76,2	295,2
1212,0	OK	451421,30	6410442,12	1200,63	76,2	295,3
1215,0	OK	451420,65	6410442,42	1203,54	76,1	295,6
1218,0	OK	451420,00	6410442,73	1206,45	76,1	295,8
1221,0	OK	451419,35	6410443,05	1209,36	76,0	296,1
1224,0	OK	451418,70	6410443,37	1212,27	76,0	296,3
1227,0	OK	451418,05	6410443,69	1215,19	76,0	296,6
1230,0	OK	451417,40	6410444,01	1218,10	75,9	296,8
1233,0	OK	451416,75	6410444,34	1221,01	76,0	297,2
1236,0	OK	451416,10	6410444,67	1223,92	76,0	297,5
1239,0	OK	451415,46	6410445,01	1226,83	76,0	297,6
1242,0	OK	451414,82	6410445,35	1229,74	75,9	297,8
1245,0	OK	451414,17	6410445,69	1232,65	75,9	298,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1248,0	OK	451413,52	6410446,03	1235,56	75,9	298,5
1251,0	OK	451412,88	6410446,38	1238,47	75,9	298,7
1254,0	OK	451412,24	6410446,73	1241,38	75,9	299,0
1257,0	OK	451411,60	6410447,09	1244,29	75,9	299,3
1260,0	OK	451410,96	6410447,45	1247,19	75,8	299,6
1263,0	OK	451410,32	6410447,81	1250,10	75,9	299,9
1266,0	OK	451409,69	6410448,17	1253,01	75,8	300,2
1269,0	OK	451409,05	6410448,54	1255,92	75,9	300,4
1272,0	OK	451408,42	6410448,91	1258,83	75,8	300,7
1275,0	OK	451407,79	6410449,29	1261,74	75,8	301,1
1278,0	OK	451407,16	6410449,67	1264,65	75,8	301,3
1281,0	OK	451406,53	6410450,05	1267,55	75,8	301,7
1284,0	OK	451405,90	6410450,44	1270,46	75,9	302,0
1287,0	OK	451405,28	6410450,83	1273,37	76,0	302,2
1290,0	OK	451404,67	6410451,22	1276,28	76,0	302,5
1293,0	OK	451404,06	6410451,60	1279,19	76,1	302,7
1296,0	OK	451403,45	6410452,00	1282,11	76,2	303,1
1299,0	OK	451402,85	6410452,39	1285,02	76,1	303,3
1302,0	OK	451402,25	6410452,78	1287,93	76,2	303,6
1305,0	OK	451401,65	6410453,18	1290,84	76,1	304,0
1308,0	OK	451401,05	6410453,58	1293,76	76,2	304,2
1311,0	OK	451400,46	6410453,98	1296,67	76,2	304,7
1314,0	OK	451399,87	6410454,39	1299,58	76,2	305,0
1317,0	OK	451399,29	6410454,80	1302,50	76,3	305,4
1320,0	OK	451398,71	6410455,21	1305,41	76,3	305,6
1323,0	OK	451398,13	6410455,63	1308,33	76,3	305,9
1326,0	OK	451397,55	6410456,05	1311,24	76,3	306,2
1329,0	OK	451396,98	6410456,47	1314,16	76,4	306,5
1332,0	OK	451396,41	6410456,89	1317,07	76,3	306,6
1335,0	OK	451395,84	6410457,31	1319,99	76,4	306,9
1338,0	OK	451395,28	6410457,73	1322,90	76,3	307,1
1341,0	OK	451394,71	6410458,16	1325,82	76,4	307,3
1344,0	OK	451394,15	6410458,59	1328,73	76,4	307,5
1347,0	OK	451393,59	6410459,02	1331,65	76,5	307,7
1350,0	OK	451393,03	6410459,45	1334,56	76,5	307,9
1353,0	OK	451392,48	6410459,88	1337,48	76,4	308,0
1356,0	OK	451391,92	6410460,31	1340,40	76,3	308,3
1359,0	OK	451391,37	6410460,75	1343,31	76,3	308,5
1362,0	OK	451390,81	6410461,19	1346,23	76,2	308,8
1365,0	OK	451390,25	6410461,64	1349,14	76,3	308,9
1368,0	OK	451389,70	6410462,09	1352,06	76,3	309,2
1371,0	OK	451389,15	6410462,54	1354,97	76,3	309,4
1374,0	OK	451388,60	6410462,99	1357,89	76,3	309,7
1377,0	OK	451388,05	6410463,44	1360,80	76,2	309,8
1380,0	OK	451387,51	6410463,90	1363,71	76,3	310,4
1383,0	OK	451386,96	6410464,36	1366,63	76,3	310,9
1386,0	OK	451386,43	6410464,82	1369,54	76,5	311,4
1389,0	OK	451385,90	6410465,28	1372,46	76,7	311,6
1392,0	OK	451385,39	6410465,74	1375,38	76,9	311,8
1395,0	OK	451384,88	6410466,20	1378,30	77,0	311,8
1398,0	OK	451384,38	6410466,65	1381,22	77,1	312,0
1401,0	OK	451383,88	6410467,09	1384,15	77,1	312,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1404,0	OK	451383,38	6410467,54	1387,07	77,3	312,3
1407,0	OK	451382,90	6410467,99	1390,00	77,4	312,4
1410,0	OK	451382,41	6410468,43	1392,93	77,5	312,7
1413,0	OK	451381,94	6410468,87	1395,86	77,5	312,9
1416,0	OK	451381,46	6410469,31	1398,79	77,5	313,4
1419,0	OK	451380,99	6410469,76	1401,71	77,5	313,6
1422,0	OK	451380,52	6410470,20	1404,64	77,5	313,8
1425,0	OK	451380,05	6410470,65	1407,57	77,5	314,2
1428,0	OK	451379,59	6410471,10	1410,50	77,6	314,4
1431,0	OK	451379,13	6410471,56	1413,43	77,5	314,5
1434,0	OK	451378,67	6410472,01	1416,36	77,6	315,0
1437,0	OK	451378,21	6410472,46	1419,29	77,6	315,2
1440,0	OK	451377,75	6410472,92	1422,22	77,6	315,5
1443,0	OK	451377,30	6410473,38	1425,15	77,5	315,9
1446,0	OK	451376,85	6410473,85	1428,08	77,6	316,2
1449,0	OK	451376,40	6410474,31	1431,01	77,6	316,6
1452,0	OK	451375,96	6410474,78	1433,94	77,6	316,9
1455,0	OK	451375,52	6410475,25	1436,87	77,5	317,2
1458,0	OK	451375,08	6410475,73	1439,80	77,4	317,6
1461,0	OK	451374,64	6410476,21	1442,73	77,6	317,6
1464,0	OK	451374,20	6410476,69	1445,66	77,5	318,1
1467,0	OK	451373,77	6410477,17	1448,58	77,5	318,2
1470,0	OK	451373,33	6410477,66	1451,51	77,5	318,5
1473,0	OK	451372,90	6410478,14	1454,44	77,5	319,0
1476,0	OK	451372,48	6410478,63	1457,37	77,4	319,3
1479,0	OK	451372,05	6410479,13	1460,30	77,5	319,3
1482,0	OK	451371,63	6410479,62	1463,23	77,5	319,7
1485,0	OK	451371,21	6410480,12	1466,16	77,5	320,0
1488,0	OK	451370,79	6410480,61	1469,09	77,5	320,3
1491,0	OK	451370,38	6410481,11	1472,01	77,4	320,6
1494,0	OK	451369,96	6410481,62	1474,94	77,4	320,7
1497,0	OK	451369,55	6410482,12	1477,87	77,4	321,0
1500,0	OK	451369,14	6410482,63	1480,80	77,6	321,3
1503,0	OK	451368,74	6410483,13	1483,73	77,4	321,6
1506,0	OK	451368,33	6410483,64	1486,66	77,4	321,9
1509,0	OK	451367,93	6410484,16	1489,59	77,5	322,2
1512,0	OK	451367,53	6410484,67	1492,51	77,4	322,5
1515,0	OK	451367,13	6410485,19	1495,44	77,4	322,7
1518,0	OK	451366,73	6410485,71	1498,37	77,3	322,9
1521,0	OK	451366,34	6410486,23	1501,30	77,2	323,0
1524,0	OK	451365,94	6410486,77	1504,22	77,1	323,0
1527,0	OK	451365,53	6410487,30	1507,15	77,1	323,2
1530,0	OK	451365,13	6410487,84	1510,07	77,0	323,2
1533,0	OK	451364,73	6410488,38	1512,99	77,0	323,3
1536,0	OK	451364,32	6410488,92	1515,92	77,0	323,7
1539,0	OK	451363,92	6410489,47	1518,84	77,0	323,6
1542,0	OK	451363,52	6410490,01	1521,76	76,9	324,0
1545,0	OK	451363,12	6410490,56	1524,68	77,0	324,4
1548,0	OK	451362,73	6410491,11	1527,61	77,0	324,5
1551,0	OK	451362,34	6410491,66	1530,53	76,9	324,7
1554,0	OK	451361,95	6410492,21	1533,45	76,8	325,1
1557,0	OK	451361,55	6410492,77	1536,37	76,8	325,2

Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1560,0	OK	451361,16	6410493,34	1539,29	76,7	325,6
1563,0	OK	451360,77	6410493,91	1542,21	76,8	325,9
1566,0	OK	451360,39	6410494,47	1545,13	76,7	326,2
1569,0	OK	451360,00	6410495,05	1548,05	76,7	326,3
1572,0	OK	451359,62	6410495,62	1550,97	76,6	326,5
1575,0	OK	451359,24	6410496,20	1553,89	76,6	326,6
1578,0	OK	451358,85	6410496,78	1556,81	76,6	326,7
1581,0	OK	451358,47	6410497,36	1559,73	76,5	327,0
1584,0	OK	451358,09	6410497,95	1562,64	76,5	327,2
1587,0	OK	451357,71	6410498,54	1565,56	76,4	327,4
1590,0	OK	451357,33	6410499,14	1568,48	76,5	327,6
1593,0	OK	451356,96	6410499,73	1571,39	76,4	327,8
1596,0	OK	451356,58	6410500,33	1574,31	76,4	327,9
1599,0	OK	451356,20	6410500,92	1577,23	76,3	328,1
1602,0	OK	451355,83	6410501,53	1580,14	76,3	328,2
1605,0	OK	451355,46	6410502,13	1583,06	76,3	328,4
1608,0	OK	451355,08	6410502,73	1585,97	76,4	328,6
1611,0	OK	451354,71	6410503,34	1588,89	76,3	328,8
1614,0	OK	451354,35	6410503,95	1591,80	76,3	329,0
1617,0	OK	451353,98	6410504,55	1594,72	76,3	329,3
1620,0	OK	451353,62	6410505,16	1597,63	76,3	329,3
1623,0	OK	451353,26	6410505,77	1600,55	76,3	329,8
1626,0	OK	451352,90	6410506,39	1603,46	76,3	330,0
1629,0	OK	451352,55	6410507,00	1606,37	76,3	330,3
1632,0	OK	451352,19	6410507,62	1609,29	76,3	330,5
1635,0	OK	451351,85	6410508,24	1612,20	76,3	330,8
1638,0	OK	451351,50	6410508,85	1615,12	76,4	330,9
1641,0	OK	451351,16	6410509,47	1618,04	76,4	331,2
1644,0	OK	451350,82	6410510,09	1620,95	76,5	331,5
1647,0	OK	451350,48	6410510,70	1623,87	76,5	331,7
1650,0	OK	451350,15	6410511,32	1626,79	76,5	331,8
1653,0	OK	451349,82	6410511,94	1629,70	76,5	332,0
1656,0	OK	451349,49	6410512,55	1632,62	76,5	332,3
1659,0	OK	451349,17	6410513,18	1635,54	76,5	332,5
1662,0	OK	451348,84	6410513,79	1638,45	76,6	332,9
1665,0	OK	451348,53	6410514,42	1641,37	76,6	333,1
1668,0	OK	451348,21	6410515,04	1644,29	76,5	333,3
1671,0	OK	451347,90	6410515,66	1647,21	76,6	333,7
1674,0	OK	451347,59	6410516,28	1650,13	76,6	334,0
1677,0	OK	451347,29	6410516,91	1653,05	76,6	334,4
1680,0	OK	451346,98	6410517,53	1655,96	76,6	334,7
1683,0	OK	451346,69	6410518,16	1658,88	76,6	335,1
1686,0	OK	451346,39	6410518,79	1661,80	76,7	335,5
1689,0	OK	451346,11	6410519,42	1664,72	76,7	335,8
1692,0	OK	451345,83	6410520,05	1667,64	76,7	336,1
1695,0	OK	451345,54	6410520,68	1670,56	76,7	336,3
1698,0	OK	451345,27	6410521,32	1673,48	76,7	336,7
1701,0	OK	451344,99	6410521,95	1676,40	76,7	336,8
1704,0	OK	451344,72	6410522,59	1679,32	76,7	337,3
1707,0	OK	451344,45	6410523,23	1682,24	76,7	337,5
1710,0	OK	451344,19	6410523,86	1685,15	76,6	337,8
1713,0	OK	451343,93	6410524,51	1688,07	76,6	338,1

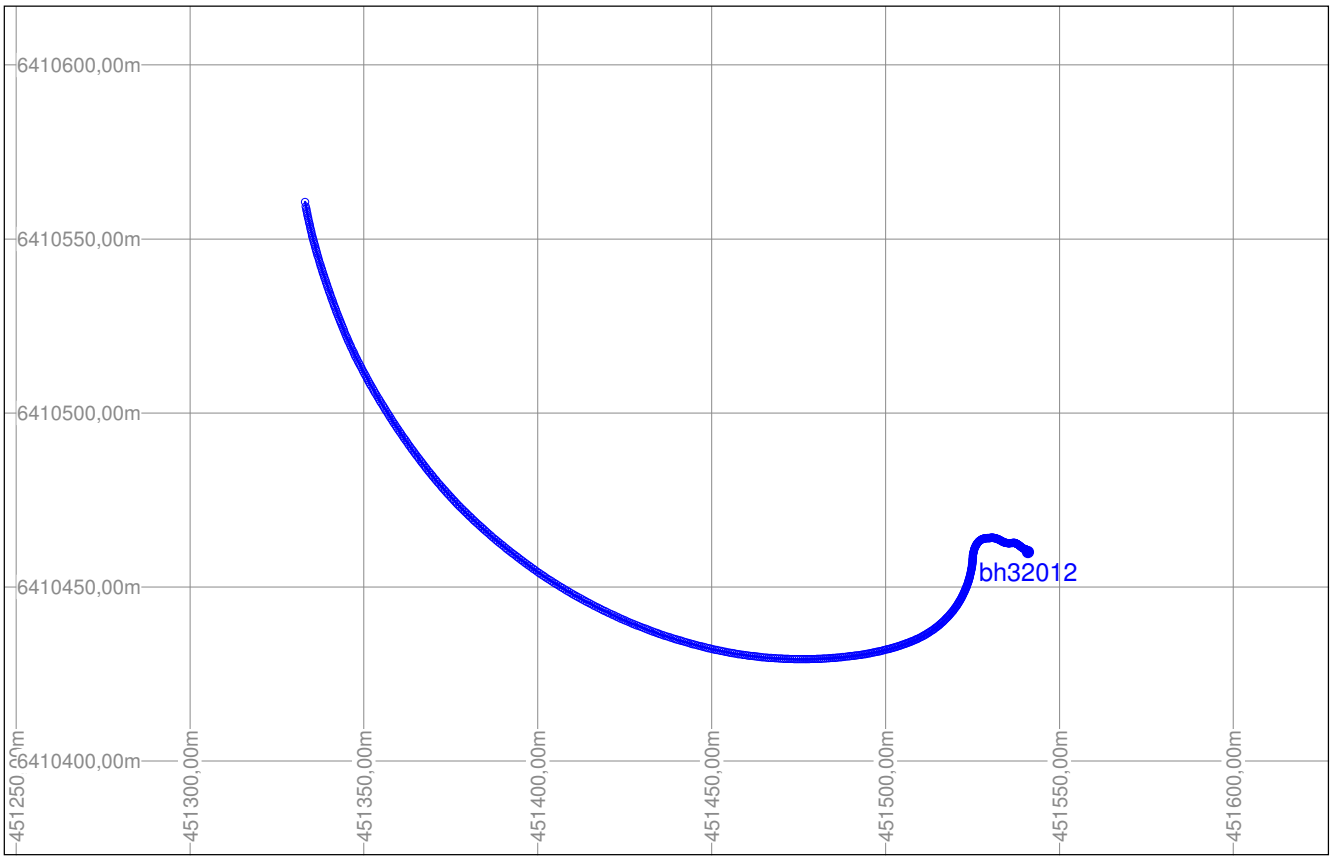
Survey name: bh32012
Survey date: 20120928

Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1716,0	OK	451343,67	6410525,15	1690,99	76,6	338,4
1719,0	OK	451343,41	6410525,80	1693,91	76,6	338,6
1722,0	OK	451343,16	6410526,44	1696,83	76,6	338,7
1725,0	OK	451342,91	6410527,09	1699,75	76,7	339,0
1728,0	OK	451342,66	6410527,74	1702,67	76,6	339,0
1731,0	OK	451342,41	6410528,38	1705,59	76,7	339,3
1734,0	OK	451342,17	6410529,03	1708,50	76,7	339,5
1737,0	OK	451341,92	6410529,68	1711,42	76,7	339,5
1740,0	OK	451341,68	6410530,33	1714,34	76,7	339,9
1743,0	OK	451341,44	6410530,97	1717,26	76,8	340,0
1746,0	OK	451341,21	6410531,62	1720,18	76,7	340,1
1749,0	OK	451340,98	6410532,27	1723,10	76,7	340,3
1752,0	OK	451340,74	6410532,91	1726,02	76,8	340,4
1755,0	OK	451340,51	6410533,56	1728,94	76,8	340,6
1758,0	OK	451340,28	6410534,21	1731,86	76,8	340,6
1761,0	OK	451340,06	6410534,86	1734,78	76,8	340,8
1764,0	OK	451339,83	6410535,51	1737,70	76,8	340,8
1767,0	OK	451339,60	6410536,16	1740,62	76,7	341,1
1770,0	OK	451339,38	6410536,81	1743,54	76,8	341,2
1773,0	OK	451339,16	6410537,46	1746,46	76,8	341,4
1776,0	OK	451338,94	6410538,11	1749,38	76,8	341,5
1779,0	OK	451338,72	6410538,76	1752,30	76,8	341,8
1782,0	OK	451338,51	6410539,41	1755,23	76,8	342,0
1785,0	OK	451338,30	6410540,06	1758,15	76,9	342,2
1788,0	OK	451338,09	6410540,71	1761,07	76,9	342,3
1791,0	OK	451337,88	6410541,35	1763,99	77,0	342,6
1794,0	OK	451337,68	6410542,00	1766,91	77,0	342,8
1797,0	OK	451337,48	6410542,64	1769,84	77,0	343,0
1800,0	OK	451337,28	6410543,29	1772,76	77,1	343,2
1803,0	OK	451337,09	6410543,93	1775,68	77,0	343,5
1806,0	OK	451336,90	6410544,57	1778,61	77,1	343,7
1809,0	OK	451336,71	6410545,22	1781,53	77,1	344,0
1812,0	OK	451336,53	6410545,86	1784,46	77,1	344,3
1815,0	OK	451336,35	6410546,50	1787,38	77,1	344,5
1818,0	OK	451336,17	6410547,15	1790,31	77,2	344,5
1821,0	OK	451335,99	6410547,79	1793,23	77,2	344,8
1824,0	OK	451335,82	6410548,43	1796,16	77,3	344,9
1827,0	OK	451335,64	6410549,06	1799,08	77,3	345,2
1830,0	OK	451335,48	6410549,70	1802,01	77,4	345,4
1833,0	OK	451335,31	6410550,33	1804,94	77,4	345,7
1836,0	OK	451335,15	6410550,97	1807,87	77,5	345,9
1839,0	OK	451334,99	6410551,60	1810,79	77,4	346,2
1842,0	OK	451334,83	6410552,24	1813,72	77,4	346,6
1845,0	OK	451334,68	6410552,87	1816,65	77,4	347,0
1848,0	OK	451334,53	6410553,51	1819,58	77,4	347,2
1851,0	OK	451334,39	6410554,15	1822,51	77,4	347,4
1854,0	OK	451334,25	6410554,78	1825,43	77,4	347,7
1857,0	OK	451334,11	6410555,42	1828,36	77,4	347,9
1860,0	OK	451333,97	6410556,06	1831,29	77,4	348,2
1863,0	OK	451333,84	6410556,70	1834,22	77,3	348,4
1866,0	OK	451333,70	6410557,35	1837,14	77,3	348,6
1869,0	OK	451333,57	6410558,00	1840,07	77,2	348,9

Survey name: bh32012
Survey date: 20120928

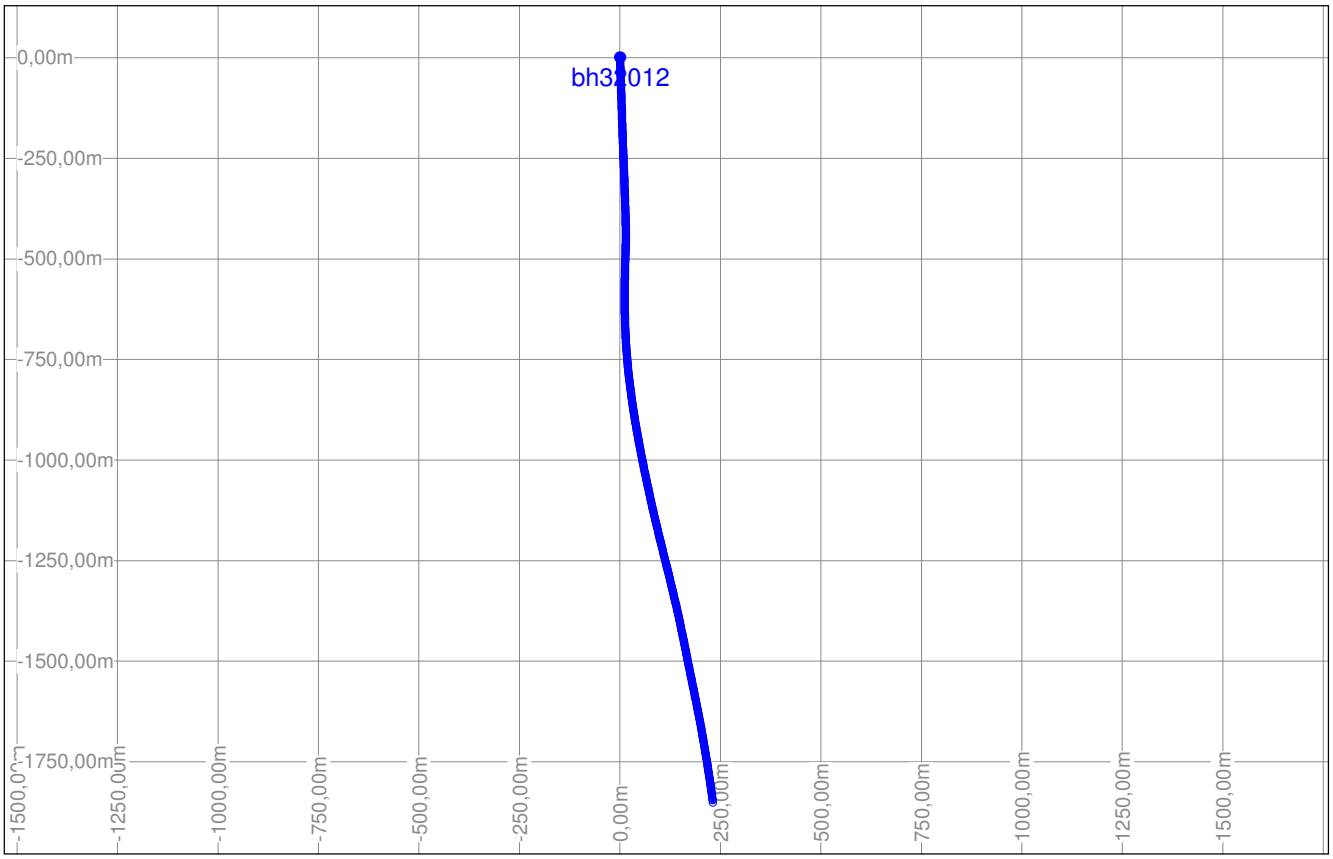
Station Metres	Quality *	East Metres	North Metres	Elevation Metres	Dip Degrees	Azimuth Degrees
1872,0	OK	451333,45	6410558,65	1843,00	77,2	349,2
1875,0	OK	451333,32	6410559,30	1845,92	77,2	349,4
1881,0	OK	451333,08	6410560,61	1851,77	77,2	349,7

Plan view of survey "bh32012"



Scale 1:2063

"Line of Hole" section of survey "bh32012"



Scale 1:17842

Printed on 2012-10-17 19:33:26

Appendix 4

Thermal properties of rock samples

Determination of thermal properties of rock material

- Using TPS method

Thermal properties on eighteen samples were measured at ambient temperature (21°C). The determination of the thermal properties is based on a direct measurement method, the so called "Transient Plane Source Method" (TPS), ISO22007.

The specimens to be tested were cut from the rock samples in the shape of circular discs. The rock samples arrived at Chalmers July 2013. The thermal properties were determined on water-saturated specimens.

Sample preparation and test procedure

The following logistic sequence was applied for the activities:

1. Two specimens were cut and polished for each rock sample. The thickness of the specimens was about 25 mm. Diameter of the fourteen specimens were 50 mm and the diameter of four specimens was 63 mm.

2. Specimens were water saturated. The specimens were in vacuum chamber (50 mbar) for 24 hours. The specimens (in the chamber) were immersed in distillated water for seven days.

3. The surface of the specimens was dried before performing the TPS measurements. The specimens and the TPS sensor were enclosed in moisture tight container.

4. Thermal properties were determined. The sensor type was '5501' with a radius of 6.4 mm. Measuring time was 20 seconds and the applied power was 0.7 W. Three repeated measurement were performed for each sample.

Figure 1 - 3 shows different stage of measuring procedure.

Figure 1 Delivered samples (left) and specimens (right)

Figure 2 Grinding (left) and vacuum chamber (right).

Figure 3 Specimens and TPS sensor (left) and moisture tight container (right).

Results

Thermal properties, thermal conductivity, thermal diffusivity and specific heat capacity, of the samples were determined by three repeated measurements. The results were presented in Table 1-Table 18.

Table 1 Thermal properties of sample 503,5

Sample 503,05 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	56-152	1.952	0.930	2.098
2	77-189	1.963	0.924	2.125
3	77-189	1.967	0.941	2.089
Mean	-	1.960	0.932	2.104

Table 2 Thermal properties of sample 540,0

Sample 540,0 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	40-148	2.164	1.007	2.149
2	40-148	2.178	1.022	2.131
3	78-190	2.395	1.067	2.246
Mean	-	2.247	1.032	2.175

Table 3 Thermal properties of sample 613,6

Sample 613,6 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	27-166	2.386	1.000	2.386
2	32-167	2.373	0.984	2.413
3	31-163	2.373	0.990	2.398
Mean	-	2.377	0.991	2.399

Table 4 Thermal properties of sample 642,4

Sample 642,4 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	42-172	2.202	0.987	2.230
2	40-181	2.201	0.996	2.232
3	40-181	2.199	0.990	2.223
Mean	-	2.201	0.991	2.228

Table 5 Thermal properties of sample 742,55

Sample 742,55 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	37-181	2.273	1.021	2.226
2	36-167	2.270	1.022	2.220
3	39-162	2.272	1.024	2.219
Mean	-	2.272	1.022	2.222

Table 6 Thermal properties of sample 842,0

Sample 842,0 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	42-143	1.912	1.042	1.834
2	42-143	1.913	1.055	1.814
3	52-181	1.905	1.000	1.904
Mean	-	1.910	1.032	1.851

Table 7 Thermal properties of sample 972,0

Sample 972,0 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	45-179	2.026	0.911	2.224
2	55-166	2.032	0.910	2.233
3	60-165	2.034	0.909	2.238
Mean	-	2.031	0.910	2.232

Table 8 Thermal properties of sample 1001,58

Sample 1001,58 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	47-145	2.302	1.087	2.117
2	47-145	2.354	1.084	2.171
3	16-165	2.357	1.104	2.136
Mean	-	2.338	1.092	2.141

Table 9 Thermal properties of sample 1337,48

Sample 1337,48 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	42-176	2.185	1.014	2.154
2	39-185	2.196	1.028	2.135
3	45-179	2.198	1.031	2.131
Mean	-	2.193	1.024	2.140

Table 10 Thermal properties of sample 1395,08

Sample 1395,08 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	52-183	1.711	0.855	2.002
2	37-179	1.722	0.869	1.981
3	34-174	1.722	0.872	1.976
Mean	-	1.718	0.865	1.986

Table 11 Thermal properties of sample 1565,52

Sample 1565,52 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	47-145	2.355	1.043	2.258
2	47-145	2.397	1.090	2.199
3	55-140	2.406	1.091	2.206
Mean	-	2.386	1.074	2.221

Table 12 Thermal properties of sample 1701,43

Sample 1701,43 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	48-178	2.426	1.054	2.301
2	56-189	2.443	1.063	2.297
3	41-177	2.446	1.079	2.267
Mean	-	2.438	1.065	2.288

Table 13 Thermal properties of sample 1790,4

Sample 1790,4 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	46-167	2.884	1.229	2.346
2	47-163	2.897	1.246	2.326
3	52-178	2.902	1.242	2.336
Mean	-	2.894	1.239	2.336

Table 14 Thermal properties of sample 1932,0

Sample 1932,0 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	53-167	2.369	1.037	2.284
2	59-167	2.404	1.045	2.301
3	42-166	2.415	1.066	2.265
Mean	-	2.396	1.049	2.283

Table 15 Thermal properties of sample 1988,58

Sample 1988,58 -diameter 50 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	55-168	2.460	1.118	2.202
2	64-185	2.461	1.113	2.212
3	54-182	2.449	1.107	2.212
Mean	-	2.457	1.113	2.209

Table 16 Thermal properties of sample 322,3

Sample 322,3 -diameter 63 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	76-148	3.379	1.379	2.415
2	73-148	3.291	1.654	1.990
3	86-179	3.418	1.351	2.529
Mean	-	3.363	1.461	2.311

Table 17 Thermal properties of sample 440,4

Sample 440,4 –diameter 63 mm - Gick sönder				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	30-90	2.381	1.016	2.343
2	30-90	2.387	1.010	2.362
3	30-90	2.389	1.010	2.366
4	30-90	2.390	1.012	2.360
5	30-90	2.389	1.021	2.340
6	30-90	2.390	1.025	2.332
7	30-90	2.394	1.021	2.345
8	30-90	2.395	1.026	2.334
9	30-90	2.397	1.026	2.336
Mean	-	2.390	1.019	2.347

- **The specimen fractured after demounting which can explain the large deviation in the results related to the initial measurements.**
- **New measurement were performed on the fractured part by a smaller sensor (sensor 5456) with a radius of 3,2 mm.**

Table 18 Thermal properties of sample 444,44

Sample 444,44 –diameter 63 mm				
Test No.	Points	Thermal conductivity W/mK	Thermal diffusivity mm^2/s	Specific heat MJ/m^3K
1	66-164	1.802	0.916	1.986
2	59-155	1.818	0.893	2.035
3	74-162	1.825	0.897	2.035
Mean	-	1.815	0.902	2.019

Appendix 5

Thermal properties of sediment samples

The density is calculated as 3 point moving average from the density core log

Sample	Depth (cmblf)	Thermal conductivity (W/(m·K)	Thermal Diffusivity (mm^2/s)	Specific Heat Capacity ($MJ/(m^3·K)$)	Bulk Density (g/cm^3)
E-3-1	0.75	0.9158	0.275	3.331	1.23
E-4-1	3.9	0.9284	0.2793	3.324	1.27
E-4-1	3.9	0.9424	0.2947	3.198	1.27
E-5-1	6.8	0.9485	0.3203	2.962	1.25
E-5-1	7.2	0.9368	0.2797	3.349	1.29
E-6-1	9.65	0.9404	0.2972	3.164	1.24
E-6-1	10.4	0.9681	0.2979	3.249	1.33
E-7-1	12.65	1.131	0.3384	3.342	1.36
E-7-2	14.3	1.094	0.3356	3.259	1.41
E-7-2	14.89	1.096	0.3451	3.176	1.33
E-8-1	15.65	1.136	0.3811	2.98	1.53
E-8-1	16.15	1.176	0.3728	3.155	1.48
E-9-1	18.75	1.048	0.3821	2.742	1.54
E-9-1	19.33	1.188	0.3762	3.157	1.57
E-10-1	21.71	1.048	0.3343	3.153	1.54
E-10-1	22.43	1.076	0.3331	3.229	1.57
E-10-2	23.26	1.101	0.3279	3.357	1.61
E-10-2	23.66	1.028	0.297	3.462	1.60
E-10-2	24.26	1.154	0.3567	3.235	1.63
D-4-1	27.8	1.694	0.6394	2.649	1.86
D-4-1	28.05	1.165	0.3188	3.654	1.71
D-5-1	30.95	1.253	0.415	3.019	1.74
D-5-1	31.45	1.2	0.3645	3.291	1.73
D-5-2	32.15	1.236	0.3866	3.18	1.74
D-5-2	32.9	1.215	0.3686	3.297	1.77
D-6-1	33.8	1.127	0.363	3.104	1.61
D-6-1	34.32	1.35	0.3695	3.653	1.69
D-6-2	35.1	1.233	0.3714	3.292	1.80
D-6-2	35.8	1.212	0.3725	3.255	1.76
D-7-1	36.65	1.335	0.4544	2.937	1.79
D-7-1	37.35	1.236	0.3787	3.265	1.75
D-7-2	38.15	1.298	0.435	2.985	1.74
D-7-2	38.85	1.253	0.3958	3.165	1.75
D-8-1	39.94	1.389	0.4344	3.189	1.79

D-8-2	41.28	1.129	0.3358	3.175	1.82
D-9-1	42.95	1.353	0.4313	3.138	1.83
D-9-1	43.4	1.259	0.3981	3.163	1.78
D-9-2	44.25	1.212	0.3907	3.103	1.77
D-9-2	44.85	1.356	0.4336	3.127	1.79
D-10-1	45.7	1.246	0.3749	3.317	1.70
D-10-1	46.45	1.199	0.3623	3.308	1.76
D-10-2	47.15	1.204	0.3524	3.416	1.73
D-10-2	48.05	1.378	0.4414	3.122	1.85
D-11-1	48.66	1.238	0.4062	3.047	1.87
D-11-1	49.36	1.271	0.3851	3.3	1.84
D-11-2	50.21	1.371	0.4615	2.97	1.91
D-11-2	50.81	1.347	0.4345	3.1	1.92
D-12-1	51.42	1.291	0.4574	2.852	1.75
D-12-1	51.97	1.172	0.3428	3.42	1.74
C-12-1	51.91	1.382	0.4529	3.052	1.82
C-12-1	52.61	1.281	0.407	3.148	1.82
C-12-2	53.21	1.278	0.4068	3.14	1.91
C-12-2	54.01	1.311	0.4186	3.131	1.79
D-13-1	54.75	1.432	0.5448	2.628	1.87
D-13-1	55.6	1.634	1.266	1.292	2.05
C-13-2	55.97	1.431	0.4902	2.918	1.83
C-13-2	56.42	1.299	0.4196	3.144	1.90
D-13-2	56.52	1.748	0.5649	3.095	1.90
C-14-1	57.38	1.25	0.3963	3.154	1.96
D-14-1	57.81	1.325	0.4968	2.667	2.02
C-14-1	57.77	1.357	0.4699	2.889	2.01
D-14-1	58.56	1.298	0.4574	2.838	1.93
D-14-2	59.81	1.356	0.4496	3.017	2.04
D-14-2	60.11	1.316	0.4074	3.23	2.07
C-15-1	61.37	1.392	0.4506	3.09	2.33
C-15-2	62.42	1.319	0.4283	3.08	1.90
C-16-1	63.8	1.224	0.4058	3.016	1.91
C-18-1	69.53	1.77	0.7226	2.449	2.07
C-18-1	69.7	1.84	0.6563	2.804	2.17
Mean		1.25	0.41	3.10	1.73
Std		0.19	0.13	0.31	0.24
N		69	69	69	69

Arkitektkopia AB, Bromma, 2017

SKB is responsible for managing spent nuclear fuel and radioactive waste produced by the Swedish nuclear power plants such that man and the environment are protected in the near and distant future.

skb.se